THE ROLE OF ACCRUALS AND CASH FLOWS IN EXPLAINING SECURITY RETURNS: EVIDENCE FROM PAKISTAN

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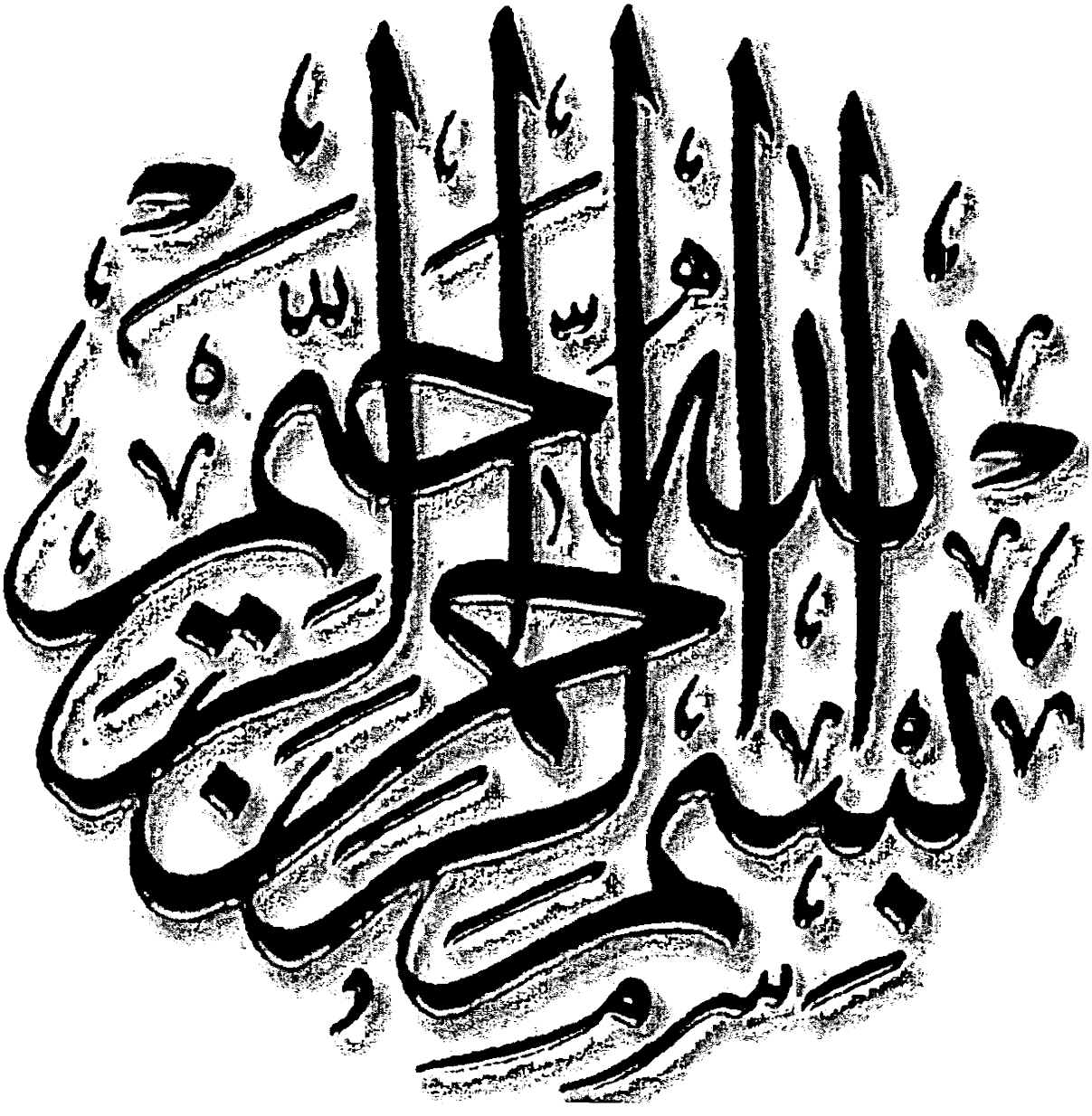
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FORWARDING SHEET

The thesis entitled "The role of accruals and cash flows in explaining security returns: evidence from Pakistan" submitted by Mr Irfan Ullah in partial fulfillment of MS degree in Management Sciences with specialization in Finance, has been completed under my guidance and supervision. I am satisfied with the quality of student's research work and allow him to submit this thesis for further process as per IIU rules & regulations.

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Dedication

"To my father, mother, brothers and sisters for their un-conditional love, prayers and support to make my dreams come true"

ABSTRACT

The purpose of this study is to examine the relative and incremental information content of earnings and cash flows in explaining security returns. Further, the effect of four firm specific factors on security returns was studied. These include transitory earnings, size, leverage and growth in Pakistan. 279 non financial firms those were listed on Karachi Stock Exchange were empirically analyzed for the period of nine years from 2002 to 2010. Results of the study show that earnings are relatively more explanatory than cash flows. Both earnings and cash flows have incremental information content for stock returns. Similarly the results show that i) transitory earnings have a negative impact on information content of earnings, however additional information content role of cash flow in the presence of transitory earnings is not identified, ii) information content role of earnings with respect to stock returns increases for large-sized firms and for cash flow no such differential valuation role for small versus large firms has been found, iii) information content role of earnings decreases for high leverage firms where as additional value relevant role of cash flow for high leverage firms is not found and iv) earnings have differential valuation implications with respect to stock returns for high versus low growth firms and on part of cash flows no significant impact of growth has been identified.

Keywords: Earnings, cash flows

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DECLARATION

I hereby declare that this thesis, neither as a whole nor as a part thereof, has been copied out from any source. It is further declared that I have prepared this thesis entirely on the basis of my personal effort made under the sincere guidance of my supervisor.

No portion of the work, presented in this thesis, has been submitted in support of any application for any degree or qualification of this or any other university or institute of learning.

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Irfan Ullah

TABLE OF CONTENTS

LIST OF TABLES

ABBREVIATIONS

EAR	Earnings
ΔEAR	Change in Earnings
CFO	Cash Flow from Operations
ΔCFO	Change in Cash Flow from Operations
GAAP	Generally Accepted Accounting Principles
FASB	Financial Accounting Standards Board
KSE	Karachi Stock Exchange
EPS	Earnings per share
ROI	Return on Investment
ROE	Return on Equity
EVA	Economic Value added
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
ICAP	Institute of Chartered Accountants of Pakistan
SECP	Security Exchange Commission of Pakistan
IAAB	International Auditing and Assurance Boards
MVE	Market Value of Equity
SBP	State Bank of Pakistan
HCCM	Heteroscedasticity Consistent Covariance Matrix
AIC	Akaike Information Criterion

Chapter No. 1

Introduction

1.1. Introduction

The purpose of conducting this study is to explore the relative power of earnings and cash flows to explain security returns. Further, this research provides the incremental information content of earnings and cash flows and valuation role of both measures under contextual firm specific factors. The factors to be studied include transitory earnings, firm size, firm leverage and firm growth. Ball and Brown's (1968) empirical study on the value relevant role of earnings is a milestone in accounting research. Since then accounting researchers have felt a great desire to examine the value relevance of earnings and cash flows. By the term value relevance of financial variables, we mean their ability to provide information to investors which is helpful in decision making. Firm's profit & loss statement, cash flow statement and statement of financial position are rich in value relevant information.

Earnings (accounting net income) representing the bottom-line figure of firm performance, is treated as most important variable having value relevant information. It is a measure of firm's profit or loss from business activities during a quarter or year. Both level and change in earnings have close relationship with return (Bernard and Thomas, 1989; Foster et al., 1984 and Latane and Jones, 1979). The relationship of earnings and return is affected by earning quality. Earning quality is important factor affecting return earning relationship (Siegel and Shim, 1981). Firms having higher earning quality perform better in the form of high stock returns than firms having low earning and the price-earnings ratio of firms can be

improved by increasing earning quality. The quality of earnings depends on management's decisions, when to disclose revenues and expenses and on the specific business conditions. If financial statements are based on true revenue and expense figures incurred during that period, earning quality can be improved. In order to improve earnings quality, majority of the countries of the world have adopted General Accepted Accounting Principles (GAAP). According to GAAP, information should be presented in an accurate way so that it gives a true picture of the financial position of an organization. Similarly, different techniques have been developed in order to find reliability of financial reports of firms such as, logit regression analysis and neural network fraud classification model.

Another variable having value relevant information is accrual component of earnings. Accruals are earnings and cash flows difference. When earnings figures are higher than cash flows numbers, it is a sign of positive accruals. Firm performance is linked with the level of accruals. Firms having earning figures more than the cash flow number perform worse than firms having earnings less than cash flows (Xie, 2001; Hribar, 2000; Houge and Loughran, 2000). It is argued that accrual anomaly is due to two reasons. First is the earning management activity performed by managers and second is the stock market slow reaction to value relevant events. Thomas and Zhang (2001) and Piotroski (2000) document that the stock market response is slow to value relevant information.

Accruals can be decomposed into discretionary and non-discretionary accruals. Non discretionary accruals are due to specific business conditions whereas the discretionary components of accruals depend on managerial choices. Jones (1991) divided accruals into discretionary components and non discretionary components. Non discretionary component of accruals is caused due to change in sales and the level of property, plant and equipment (DeFond and Jimbalvo, 1994). They further

documented that level of accruals affects earnings and return relationship and managers are involved in earnings manipulation to avoid debt covenant's violation. Subramanyam (1996) studied US stock market and found evidence that investors in USA give importance to discretionary accruals in stock valuation. He argued that discretionary accruals can predict dividend changes and future profitability and considered accruals to be an important variable in assessing return earning relationship. Vafeas et al. (1998) studying Cyprus stock market argues that cash flow and accruals have close relationship with stock returns. Bauwhede et al. (2003) studied Belgian stock market found evidence that managers engage in income smoothing for achieving benchmark targets and documented that discretionary components of accruals can be used to measure earning management. Chan et al, (2001) studied relationship of accruals and future stock returns using US dataset and found that accruals have negative relationship with stock returns. Shaw (2003) examined US stock market found evidence that managers in USA are involved in earning management activities. A recent study by Francis et al. (2005) found both discretionary and non discretionary accruals are important in explaining earnings changes.

In most countries, cash flow has been defined as one of the financial reporting goals. Users of financial statements pay close attention to cash flows data to know the amount and timing of cash generated or utilized through operating, financing and investing activities. Cash flow statement prepared monthly, quarterly or annually, is the representation of firm's cash receipts and payments. Cash flow from operating activities has been considered the most important type of cash flow and extensively studied financial variable. Financial Accounting Standard Board (FASB) asserts that firm should provide some information regarding cash inflow and outflow to investors, creditors and other users of financial statements, which

will be helpful to them in evaluation of firm performance and decision making. Rayburn (1986) studied relationship of accruals and operating cash flow with stock returns. Results of his study show that the both accruals and operating cash flow have close association with returns. Livnat and Zarowin (1990) investigated the relationship of cash flow components with security returns and found that the relationship can be significantly improved by disaggregation of cash flow into its components.

Andrew and Austin (1987), Lee (1982) and Largay and Stickney (1980) argue that examining cash flow data will give some clue in identifying reasons of corporate failure of failed firms. Investigating case studies of failed companies they show that difference between profit and cash flow from operating activities indicate solvency and liquidity problems, which could lead to corporate failure. Casey & Bartczak (1985) in their study showed that corporate failure is due to negative operating cash flow of failed companies prior to their failure.

For investigating incremental and relative information content of earnings and cash flows, researchers have used both measures simultaneously in their studies. Biddle et al.,'s (1995) definition of examining relative information content is "to select a choice between two or more accounting choices, which comparatively have more information content than the others, whereas the incremental information content points out whether the information content of two or more accounting measures together are larger than a single measure alone or not." Earnings have more information about financial performance of the firm than cash flows in short interval of time (Dechow, 1994). GAAP provides flexibility to managers regarding accounting rules. Therefore, earnings measure is subject to managerial discretion of managers. On the other hand, managerial discretion increases earnings'

informativeness by allowing communication of private information (Watts and Zimmerman, 1986).

According to the study of Lev (1989), earnings provided in income statements, is primary accounting variable having value relevant information. The Financial Accounting Standards Board (FASB) also treats earnings as a more important variable than cash flows. Further earnings indicate a firm's ability to generate cash flow rather than cash flows limited information of only cash receipts and payments. Some accountants have different views that cash flows are superior to earnings in predicting stock returns. Lee (1974) argues that cash flows are preferred as more information providing variable because cash flows facilitates investors and creditors in the prediction of future dividends and credit and loan payments.

Biddle et al. (1995) argue that incremental and relative information contents of cash flows from operations and net income vary across industries. Using Australian stock market, Watson and Wells (2005) studied the relationship of net income and cash flows from operations with security returns. They document that relative valuation role of net income and operating cash flows are different for both profit and loss reporting firms. For profit making firms, earnings are more closely related than cash flow with stock returns. However, for loss-making firms, none of the two measures capture firm performance well. Livnat and Santicchia (2006) examining US data found that current net operating cash flows are highly associated with future quarterly earnings than accruals due to transitory nature of accruals. They further added that accrual anomaly exists and high (low) current quarterly accruals have negative (positive) abnormal returns.

Previous research (Biddle, Seow, and Siegel, 1995; Bernard and Stobber, 1989; Wilson, 1987; Rayburn, 1986 and Bowen, Burgstahler, and Daley, 1987) on incremental and relative information content of cash flows and earnings support

that both cash flows and earnings have incremental information content for stock returns, however earnings have more explanatory power than cash flows. Prior studies conducted by researchers identified various firm specific factors affecting incremental information content of earnings and cash flows. These factors are transitory earnings, leverage, size, and growth.

It is evidenced from the previous accounting research that relative information content of cash flows and earnings is inconclusive. Similarly, inconclusive results have been provided by the studies on incremental information content of these two performance measures. Moreover, the increasing interest in cash flow reporting in recent years provides additional motivation for research in this area. This study examining the incremental and relative information content role of cash flows and earnings is the first one in Pakistan. Previous studies on this topic have been mostly conducted in the US and European countries. Further, firm specific factors affecting incremental information content of earnings and cash flows have also been examined in Pakistani stock market. Firms listed on Karachi stock exchange (KSE) have been used for conducting research.

1.2. Objectives of the study

Objectives of this study are

1. To examine which performance measure earnings or operating cash flows provide more explanation for stock returns.
2. To explain the effect of firm specific factors including transitory earnings, leverage, size and growth on incremental information content of earnings and cash flows.

1.3. Problem statement

Past studies of equity markets show evidence that both earnings and cash flows are associated with security returns. However studies on the performance of the above mentioned factors do not explain fully the stock market returns owing to mixed results. Therefore, relative role of earnings and cash flows in explaining stock returns needs to be studied in a particular stock market. This study also investigates whether earnings and cash flows collectively explain stock market return more than using both measures separately. Following prior research, this study also explores whether contextual firm-specific factors i.e transitory earnings, size, leverage and growth affect incremental information content of earnings and cash flows with respect to stock returns.

1.4 Significance of the Study

Return, earnings and cash flows relationship has been internationally studied during past three decades. Previous studies have been mostly conducted in developed countries such as USA and other European countries. Little empirical research has been done on this area in emerging markets of Asia. So this study will facilitate investors and analysts to forecast future movements of stocks in Pakistan and aid in decision making. Further this study will be useful addition in empirical research on the return, earnings and cash flows relationship. The impact of firm specific factors such as transitory earnings, size, leverage and growth on valuation role of earnings and cash flows with respect to stock returns will also be explored in this research.

1.5. Organization of the Study

Chapter 1 contains the introduction of the study. In chapter 2 we describe in detail the work already done by scholars and practitioners in the area in the past. Chapter 3 is regarding hypotheses of the study on the incremental information content of earnings and cash flows and the effect of four firm specific factors on incremental information content of earnings and cash flows. Chapter 4 contains the description of data used and methodology to test our hypotheses. In chapter 5, results and findings of the study are discussed. Chapter 6 contains conclusion and in the end references are presented.

Chapter No. 2

Literature Review

2.1. Literature Review

Accounting researchers have different preferences for using earnings versus cash flows as value relevant variables for stock returns. Earnings cannot be contaminated by timing and matching problems. One of the drawbacks of using earnings as value relevant variable is that earnings can be manipulated by managers and thus do not show real picture of financial position of an organization. This leads to earnings as less value relevant variable for stocks and other investment decisions. While cash flows, on the other hand cannot be manipulated by managers. Similarly it shows debt paying capability of a firm. However cash flows face timing and matching problems.

In large economies such as US, investors give preference to accruals than cash flows for valuing stocks (Bowen et al., 1987; Wilson, 1987). Superiority of earnings over cash flows depends upon reporting system and social, political and economic factors of a country (Bartov, Goldberg and Kim, 2001). They found that earnings have superior information role in US, UK, Canada and Japan. However no superior role of earnings over cash flows has been found in Germany. Earnings are relatively more explanatory than cash flows (Charitou, Clubb, and Andreou, 2000). Haw, Qi, and Wu (2001) studying China's capital market examined the incremental and relative information content of cash flows, accruals and earnings. Their findings suggest that in China, earnings information content is more than that of cash flows information content and incremental information content of non discretionary component of accruals is less than discretionary component of accruals. Ali (1994) studying the relationship of returns with three performance

measures such as earnings, cash flows and working capital from operation of American stock market suggested that earnings exhibit mean reversion tendency and large absolute earnings are less persistent. Both earnings measures and cash flows measures have incremental information content for security returns. However, earnings have stronger relationship with stock price than cash flow (Ali and Pope, 1995). Both earnings and cash flow variables have value relevant information for stock returns (Clubb, 1995). Florou and Chalevas (2010) examined accounting ratios and stock returns relationship of Athens Stock market. They found that earnings, operating performance and growth opportunities have value relevant information. Explanatory power of earnings for stock returns is greater than explanatory power of operating cash flow and both earnings measures and cash flow measures have incremental information content (Charitou, Clubb, and Andreou 2001). Plenborg (1998) compared information content of Danish and US earnings. He found that earnings in Denmark are more explanatory than in US. His findings are contrary to Alford et al. (1993), who found that explanatory power of earnings in US is greater than explanatory power of Danish earnings. El Shamy and Kayed (2005) studied Kuwait stock market found evidence that earnings and book values have positive and significant relationship with stock returns whether studied individually or jointly. Further they indicated that earnings have incremental information content beyond book values.

According to Hall, Hamao and Harris (1992), Japanese investors make little utilization of earning for pricing their securities than do American investors. Alford et al (1993) studied earning and stock returns relationship. Using US as benchmark, they studied various stock markets including Japanese stock market and found that earnings have low explanatory power for stock returns in Japan. Chan et al, (1991) empirically studied Tokyo stock market data. The findings suggest that stock return

has relationship with accounting variables such as cash flow yield, earnings yield, size and book to market ratio. However book to market ratio and cash flow yield are more strongly associated with returns. According to Casey and Bartczak (1984) stockholders give preference to cash flow information in valuing securities and making their investment decisions. They added that cash flow data show real picture of financial strength of a company. They added that cash flow indicates debt and dividend paying capability of firm and on the other hand accounting profits may be manipulated by managers and thus do not show actual financial position of an organization. Cheng, Liu& Schaefer (1997) studied the relationship of earnings and cash flows with security returns. Results show that explanatory power of cash flows from operations is greater than explanatory power of earnings.

Dechow (1994) investigated whether time interval affects value relevance of earnings, cash flows with respect to stock returns. Results of the study show that for short interval of time earnings give more explanation for stock returns than net cash receipts. Similarly relative explanatory power of realized cash flow increases as measurement interval lengthens. Charitou (1997) using UK data set studied the association of cash flows, earnings and stock return. The results indicate that in the case of short measurement interval, earnings are more closely associated with stock return than net cash receipts. Plenborg (1998) examined whether length of operating cycle affects information content of cash flows and earnings. Results of his study indicate that length of operating cycle does not affect return earnings relationship. However, cash flows explanatory power diminishes as the length of the operating cycle increases. Charitou and Clubb (1999) using UK dataset found that explanatory power of cash flows is more than explanatory power of earnings over long interval of time.

Liang and Yao (2005) studying information electronics industry in Taiwan found that value relevance of net income can be increased by dividing it into its components. Similarly EVA and RI have significant explanatory power regarding firm performance. Vishnani and Shah (2008) studying Indian stock market found evidence that financial statements of Indian companies have negligible value relevance with respect to stock returns. However, ratio form of financial statements have significant relationship with stock returns. Maditinos et al. (2009) using Athens stock market data compared EVA and shareholder value added (SVA) with EPS, ROI and ROE in explaining security returns. The findings suggest that the relationship of EPS with stock returns is greater than the other variables of the study and both EPS and EVA have incremental information content for returns.

Kyriazis and Anastassis (2007) analyzing Athens stock market data explored that accounting earnings and income from operations have more explanatory power than EVA for stock returns. Ismail (2006) found significant relationship between net income and stock returns by applying panel data regression on UK dataset. He added that accounting measures have superior role than economic variables for explaining stock returns. Biddle et al (1997) examined the relationship of earnings, operating cash flow, residual income and EVA with stock returns using 219 firms' data from 1983 to 1994 and found that association of earnings with stock returns is more than operating cash flow, residual income and EVA. Sunde and Sanderson (2009) studying Zimbabwe stock market found evidence that stock price is influenced by economic, political and social factors and impact of economic and political factors are relatively more.

Hayns (1995) found that firms reporting positive earnings have larger earning response coefficient than firms reporting negative earnings. Accordingly losses have lower persistence and thus less informative than profit of firm future

performance. Collins et al (1999) found negative relationship between stock prices and profit of loss reporting firms. Papadaki and Siougle (2007) studied earning and stock returns relationship in Athens stock market. They found that earning and stock price relationship is positive for profit reporting firms and negative for loss reporting firms.

Country's financial reporting regime is an important factor affecting valuation role of accounting variables. Graham and King (2000) studied value relevance of accounting variables for stock returns in six Asian countries i.e Indonesia, Malaysia, the Philippines, South Korea, Taiwan, and Thailand. They found that earnings and book values have different valuation role due to accounting practices followed in these countries. Leuz (2003) prefer International Accounting Principles to Generally Accepted Accounting Principles due to their high reliability.

Researchers have investigated the effect of various firm specific factors including transitory earnings of firm, leverage of firm, size of firm and growth of firm on the incremental information content of cash flows and earnings. For instance Collins & Kothari (1989) and Kormendi & Lipe (1987) argue that return-earnings relationship is different across transitory and permanent earnings. Transitory earnings have lower value relevance than permanent earnings. According to Freeman and Tse (1996) relationship between earnings and return is nonlinear and moderate earnings have higher persistence than extreme earnings.

Cash flow from operation plays an important role in the valuation of securities, when earnings are transitory. Cheng et al (1996) argued that cash flow from operations can be used as additional value relevant measure when earnings valuation role is diminished in the presence of transitory earning components. Cheng, Liu, and Schaffer (1996) studied the association of cash flows and earnings with stock returns. They found that earnings have diminished valuation role for

transitory earnings while explanatory power of cash flows increases in the presence of transitory components of earnings. Cash flow is the best suitable value relevant variable than earnings when earnings are transitory (Cheng and Yang, 2003). Charitou, Clubb, and Andreou (2000) studying Japanese dataset found that both cash flows and earnings have relationship with stock returns and earnings incremental information content decreases and cash flows incremental information content increases in the presence of transitory earninngs.

Size factor affecting incremental information content of earnings and cash flows has been thoroughly studied. Charitou et al. (2001) argue that ERC (earnings response coefficient) is higher for small sized-firms than large sized-firms if more information of earnings and cash flows is added for small versus large firms. Hodgson & Stevenson-Clarke (2000) suggest that large firms are engaged in income smoothing as these firms have large portfolio of accounting choices. Leuz, Nanda, & Wysocki (2003) argue that earning quality decreases by earning manipulation. As argued by Habib (2008), for large firms cash flows will be used as an alternate value relevant variable when the value relevant role of earnings is diminished for these firms.

Previous studies (Dichev & Skinner, 2002 and DeFond & Jiambalvo, 1994) show that managers in high leverage firms are involved in earning manipulation to avoid debt covenant violations. Martikainen (1997) suggest that due to high systematic risk, present value of future cash flow is low for high leverage firms. As a result earnings of high leveraged firms have lower association than low leveraged firms with stock returns and investors may switch from accounting earnings to cash flows. Cash flow is important as it show future debt paying capability of firms as well. Martinez (2003) analyzed French stock market argued that earnings value relevance is affected by size, leverage and life cycle of firm.

Growth stocks generally have high market to book ratio. It is expected that earnings of these stocks will continue to grow at an above average market rate. High growth (high market-to-book ratio) may be related with investment opportunities having positive NPV (net present value) and for such opportunities unexpected earnings may be used as a proxy to infer changes in market expectations. Cash flows also have greater valuation relevance with respect to stock returns of high growth firms due to the reason that unexpected cash flows have positive relationship with the perceptions of investors that future abnormal earning will persist (Charitou et al., 2001).

2.2. Pakistani Reporting Framework

Valuation role of two performance measures i.e earnings and cash flows has been studied from corporate governance perspective. Hope (2003) suggest that the quality of accounting standards and their enforcement positively affect accuracy of financial information. In order to achieve high quality financial information, standard accounting rules and procedures were introduced by International Accounting Standards Board (IASB). These standard accounting rules and procedures are called International Financial Reporting Standards (IFRS). The main purpose of IFRS is to enable users of financial statements to better compare their statements within industries and across countries (Nobes, 2008). Taking up international financial reporting standards as a part of the countries regulations is common nowadays. Many countries implemented IFRS and some are on the way to implement these standards (Sacho & Oberholster, 2008).

Pakistan has taken serious steps to accommodate IFRS. For this purpose in 1962, Institute of Chartered Accountants of Pakistan (ICAP) has been established.

Member companies of ICAP are required to obey standard rules and procedures of IFRS. ICAP works in coordination with SECP (Security Exchange Commission of Pakistan). ICAP committee after technical review and consultation with stakeholders recommends IFRS to the council of ICAP. After completion of necessary formalities, the council recommends standards to SECP for adoption. ICAP council also monitors these standards once implemented. Adoption of IFRS gave some challenges. For example non-compliance of these rules with existing regulations etc but these standards play an important role in the harmonization and coordination of accounting rules and procedures within and outside of a country. ICAP has taken serious steps for the adoption of standard audit rules and ethics codes issued by the International Auditing and Assurance Boards (IAAB) and the Ethics Board respectively.

2.3. Hypothesis Development

Previous research show evidence about the incremental information content of both earnings and cash flows measures. To examine the incremental information content of earnings and cash flows, we draw following hypothesis:

H 1: Earnings (Cash flows) measures do not provide incremental information beyond that provided by cash flows (Earnings)

It is also evidenced from the past literature that earnings have a different valuation role with respect to stock returns for extreme versus moderate earnings due to transitory nature of extreme earnings. Earnings valuation role decreases in the presence of transitory earnings and in this situation, cash flows may be used as an alternate value relevant variable. This notion is captured by following hypothesis:

H 2: Cash flow measure becomes more strongly associated than Earnings measure with stock returns in the presence of transitory earnings.

Previous studies support that firm specific factors such as size, leverage and growth affect the incremental information content of earnings and cash flows. Earnings and cash flows have different valuation implications with respect to size, leverage and growth of the firm. In order to examine the effect of firm specific factors following hypotheses have been included in the study.

H 3: For large versus small firms both earnings and cash flows have no differential valuation implications

H 4: For highly leveraged firms, cash flow is strongly associated than earnings with stock returns

H 5: Security return response to both unexpected earnings and operating cash flow is lower (higher) for low (high) growth firms when both measures earnings and cash flow are used jointly to explain security returns.

Chapter No. 3

Methodology

3.1. Statistical Tests

3.1.1 Test of Relative Information Content of Earnings and Cash Flows

In order to investigate superiority of earnings or cash flows for explaining security returns following regression equations are adopted from Habib's (2008) study:

$$Rit = \theta 0 + \theta 1 EARit + \theta 2 \Delta EARit + \varepsilon it \quad (1)$$

$$Rit = \theta 0 + \theta 3 CFOit + \theta 4 \Delta CFOit + \varepsilon it \quad (2)$$

In equations illustrated above equation 1 is the earning model and equation 2 is the cash flow model. Rit is the dependent variable, represents effective annual return of firm i in year t, EARit, ΔEARit, CFOit and ΔCFOit are earnings, earnings change, operating cash flow and operating cash flow change of firm i in year t respectively. In consistent with previous research of Habib (2008) we jointly use earnings and cash flows both at levels and changes for explaining stock returns. Both levels and changes in earnings and cash flows are a better proxy for unexpected earnings and cash flows than using either level or change of both measures (Ali and Zarowin, 1992 and Brown et al., 1987).

Following methodology of Pouraghajan et al (2012), relative information content of earnings and cash flows is examined by comparing the adjusted R-squared values and Akaike information criteria. Initially, accuracy of models is checked by Akaike information criterions (AIC). Model having a low value of AIC is less biased (Akaike, 1974). Similarly, model having high adjusted R-square value will be relatively more explanatory. Common effect model have been used because sample was divided into small versus large firms. Secondly fixed effects

minimize when firms wrer grouped on the basis of earning extremity, leverage, size and growth.

3.1.2. Test of Incremental Information Content of Earnings and Cash Flows

In order to fmd incremental information content of earnings and cash flows, the following equation is replicated from the work of Habib (2008):

$$Rit = \theta0 + \theta1EARit + \theta2\Delta EARit + \theta3CFOit + \theta4\Delta CFOit + \varepsilon it \quad (3)$$

Incremental information content of earnings and cash flows is assessed by examining the significance of the slope coefficient of the following null hypothesis (Biddle et al. 1995; Bown et al; 1987).

H0: $\theta1 = \theta2 = \theta3 = \theta4 = 0$

For testing the hypothesis, we use Wald test. If probability of F value is less than .05, we reject our null hypothesis and conclude that both earnings and cash flows measures have incremental information content.

3.1.3. Test of Incremental Information Content of Earnings and Cash Flows under Contextual Firm Specific Factors

In order to find incremental information content of earnings and cash flows under contextual firm specific factors of transitory earnings, size, leverage and earnings growth, following equations are reproduced from Habib (2008):

$$Rit = \theta0 + \theta1EARit + \theta2\Delta EARit + \theta3CFOit + \theta4\Delta CFOit + \theta5EARit \times DX + \theta6\Delta EARit \times DX + \theta7CFOit \times DX + \theta8\Delta CFOit \times DX + \varepsilon it \quad (4)$$

$$Rit = \theta0 + \theta1EARit + \theta2\Delta EARit + \theta3CFOit + \theta4\Delta CFOit + \theta5EARit \times DLEVERAGE + \theta6\Delta EARit \times DLEVERAGE + \theta7CFOit \times DLEVERAGE + \theta8\Delta CFOit \times DLEVERAGE + \varepsilon it \quad (5)$$

$$Rit = \theta0 + \theta1EARit + \theta2\Delta EARit + \theta3CFOit + \theta4\Delta CFOit + \theta5EARit \times DSIZE + \theta6\Delta EARit \times DSIZE + \theta7CFOit \times DSIZE + \theta8\Delta CFOit \times DSIZE + \varepsilon it \quad (6)$$

$$Rit = \theta0 + \theta1EARit + \theta2\Delta EARit + \theta3CFOit + \theta4\Delta CFOit + \theta5EARit \times DGROWTH + \theta6\Delta EARit \times DGROWTH + \theta7CFOit \times DGROWTH + \theta8\Delta CFOit \times DGROWTH + \varepsilon it \quad (7)$$

Whereas DX, DLEVERAGE, DSIZE and DGROWTH are dummy variables incorporated to examine transitory earnings, leverage, size and growth effects respectively, on incremental information content of earnings and cash flows. Estimation models have been adopted from Habib(2008).

3.2. Sample Selection, Variable definition

3.2.1. Data Sample

For calculating values of independent variables used in this study, we have downloaded balance sheets of non financial firms of KSE, available on SBP official website, while for calculating dependent variable, we have used monthly stock price of firms available on "brecorder.com". Only those firms were selected those were listed on KSE from 2001 to 2010. However final data reduced to 9 years from 2002 to 2010 due to calculation of lag value of some variables used in this study. A sample of 284 firms was initially selected based on availability of data. Further we deleted 337 firm year observations having extreme low or high values. As a result our sample size reduced to 2232 firm year observations of 279 firms from 2002 to 2010. Financial entities have different capital structure and operations from non financial firms, so they are excluded from the sample.

List of sectors and no of firms selected of each sector are available below.

SECTORS	NUMBER OF FIRMS
TEXTILE	125
CHEMICAL AND PHARMACEUTICAL	23
AUTO & ALLIED	19
ENGINEERING	8
SUGAR AND ALLIED INDUSTRIES	31
PAPER AND BOARD	6
CEMENT	14
POWER & ENERGY	15
TECHNOLGY AND COMMUNICATION	3
TOBACO	2
GLASS AND CERAMICS	6
MISCELLANEOUS	27
TOTAL NUMBER OF FIRMS	279

3.2.2. Variables

3.2.2.1. Dependent Variable

Our dependant variable is effective annual raw return of sample firms, computed from the monthly sock prices as follows:

Effective annual return = (1+r)^12-1

Where "r" is 12 months average return calculated from month end stock prices. Effective annual return is used to represent the cumulative gains or losses effect.

3.2.2.2. Independent Variables – Relative and Incremental Information Content of Earnings and Cash Flows

In order to investigate the relative and incremental information content of earnings and cash flows both level and change variables of earnings and cash flows are used. These variables are EAR, ΔEAR; CFO and ΔCFO.

3.2.2.2.1. EAR

EAR is annual earning level, computed as follows:

EAR = Net profit before tax – Tax provision

3.2.2.2.2. ΔEAR

ΔEAR is change in annual earnings, computed as follows:

ΔEAR = EARt – EARt-1

Where EARt is current-year earnings and EARt-1 is previous year earnings.

3.2.2.2.3. CFO

CFO is Cash generated from operating activities. It is calculated as follow:

CFO = Net profit after tax + Depreciation – Change in C.A + Change in C.L + Financial Expenses*(1+Tax rate)

CA and CL in above equation stand for current assets and current liabilities respectively.

3.2.2.2.4. ΔCFO

Change in operating cash flow is

$\Delta CFO = CFOt - CFOt\text{-}1$

Where CFOt is current-year CFO and CFOt-1 is the previous year CFO.

To minimize effect of heteroscedasticity, level and change variables of both earnings and cash flows are deflated by beginning of the year's market value of equity.

3.2.2.3. Dummy Variables – Incremental Information Content of Earning and Cash Flow

According to the literature (Clubb, and Andreou, 2001; Cheng, Liu, and Schaffer, 1996 and Freeman & Tse, 1992) there are certain firm specific factors those have a significant impact on the incremental information content of earning and cash flow. In order to investigate the effect of transitory earnings, size, leverage and growth factors on incremental information content of earning and cash flow, following dummy variables have been incorporated in earning and cash flow model:

a. DX (Transitory earnings Dummy)

b. DLEVERAGE (Leverage Dummy)

c. DSIZE (Size Dummy)

d. DGROWTH (Growth Dummy)

3.2.2.3.1. DX (Transitory earnings Dummy)

As previously discussed that extreme earnings are less persistent having low information content than moderate earnings for security returns. In order to investigate the value relevant information of earning and cash flow for both extreme and moderate earnings, dummy variable "DX" is used. Earnings extremity, consistent with prior research of Habib (2008), is measured by ΔNI / MVE t-1. If observations lie above median value of ΔNI / MVE t-1, DX equals "1" otherwise it will be equal to "0".

3.2.2.3.2. DSIZE

Both earnings and cash flows differential valuation role for large sized versus small sized firms have been examined by incorporating dummy variable DSIZE. Size is natural log total assets (Habib, 2008). DSIZE takes value 0 for an observation value is less than the median value of size and 1 for observations lying above the median value of size.

3.2.2.3.3. DLEVERAGE

In order to investigate the valuation role of both earnings and cash flows for high leveraged versus low leveraged firms, dummy variable DLEVERAGE is used. DLEVERAGE equals 0 for an observation value less than the median value of leverage ratio and 1 for observations lying above the median value of the leverage ratio.

3.2.2.3.4. DGROWTH

Growth is another factor affecting incremental information content earnings and cash flows. Market to book ratio is used as a proxy of growth (Habib, 2008). To find the effect of growth on incremental information content of earnings and cash flows, dummy variable DGROWTH is included. DGROWTH is equal to 0 for an

observation value less than the median of market value of equity to book value of equity ratio and 1 otherwise.

3.3. Descriptive Statistics

Descriptive statistics represent the minimum and maximum value of variable, range, mean, median, standard deviation and number of observations. In this study, one dependent variable and seven independent variables are discussed. Each variable has total 2232 firm year observations.

3.4. Correlation Analysis

Correlation analysis shows the association of one variable with other variables. The magnitude and direction of relationship among variables are described by the correlation coefficient. In this study, we have used the correlation matrix to find the association among return, EAR, ΔEAR, CFO, ΔCFO, Size, Leverage and Growth. Correlation between two variables can be positive, negative or even null. Its lowest value equals to -1 and highest value equals to +1.

3.5. Panel data Analysis

In order to examine the relative and incremental information content of earnings and cash flows, we have used the panel estimation technique. Researchers have preferred panel data to cross-sectional and time-series. Panel data removes heterogeneity effect of cross-sectional and time-series data. In the presence of heteroscedasticity regression estimates are unbiased but test significance is inconsistent (Moulton 1986). Results of panel data analysis are more efficient than cross-sectional and time-series data. Further panel data analyses contain more degree of freedom and have more information content. In addition, Wooldridge

(2001) preferred panel data to cross-sectional and time-series data due to powerful results drawn from panel data.

3.6. Panel Data Analytic Model

3.6.1. Multiple Regression Analysis (Ordinary Least Squares Method)

In a typical study of explaining stock return, financial variables are jointly regressed with stock return using ordinary least squares (OLS) as regression technique. On the basis of t-statistics one can predict relationship of stock return with financial variables. If t-value is greater than 2 then there is strong evidence for the predictability of returns (Campbell and Yogo, 2006). OLS is used to estimate the significance of the relationship between dependent and independent variables. In OLS method, regression line is estimated such that the distance between the predicted values of regression equation and observed data points is minimum. This method is one of the popular regression analysis techniques. Important properties of OLS method are as follows:

I. OLS estimators provide single value of the relevant population parameter. They are also called point estimators.

II. Estimators of OLS can be easily computed.

III. It is easy to obtain the regression line while using OLS regression.

OLS estimates are unbiased and have minimum variance if underlying assumptions are met. Two of the most easily violated assumptions are i) homoscedasticity and ii) no perfect multicollinearity. OLS estimates are corrected using appropriate correction methods if these assumptions are violated. For example, when data is heteroscedastic and assumption of homoscedasticity is violated, we use OLS with White's Heteroscedasticity corrected standard errors to remove heteroscedasticity.

3.6.2. Wald Test

Incremental information content of earnings and cash flows is tested by applying Wald test. It is a parametric test named after the famous statistician Abraham Wald with a great variety of uses. A nice feature of Wald test is the requirement of one model for estimation. Wald test is based on testing null hypothesis that coefficients are equal to some value (e.g Kennedy, 1985, Biddle et al 1995, Fletcher and Kihanda, 2005). If the null hypothesis is rejected it means that variables partially add to model. Null hypothesis of our test model is that both earnings coefficients and cash flows coefficients are equal to 0. If the test rejects the null hypothesis, this suggests that independent variables of earnings and cash flows are helpful in predicting stock return (dependent variable). Habib (2008) used F test for assessing incremental information content of earnings and cash flows. However, the choice is not really important that F test and Wald test are asymptotically equivalent. That's why we have chosen Wald Test for our ease.

Chapter No. 4

Results& Analysis

4.1. Descriptive Statistics

Table1. Descriptive Statistics

Descriptive Statistics

	Return	Net Profit	Change in Net Profit	Cash Flow	Change in Cash Flow	Size	Leverage	Growth
Mean	0.149	0.00936	0.11052	0.58522	0.01791	7.11328	0.670539	0.79795
Median	≥0	0.09374	0.008804	0.33600	0.02242	7.09808	0.638565	0.60447
Standard Deviation	0.630	0.80602	0.882759	1.33474	1.64208	1.38249	0.408326	1.31893
Minimum	-0.907	-4.6134	-3.31884	-6.30962	-7.97764	1.84955	0.013868	-21.5
Maximum	3.923	7.55379	8.79485	7.92036	7.58454	10.1515	4.243457	6.64
Count	2232	2232	2232	2232	2232	2232	2232	2232

Table 1 is the descriptive statistics of the sample firms. Total no of variables are 8. Each variable contains 2232 observations and at least 1 year firm data of the period from 2002 to 2010.

Average return produced by non financial firms in Pakistan is about 14.9 % for the period from 2002 to 2010. Minimum return is -90.7 % percent while the highest value is 392.3 percent. The mean of EAR & CFO, are 0.009361 and 0.5852 respectively. CFO standard deviation i.e 1.33 is more than EAR 0.80. Dechow (1994) suggests that managers are involved in earning management and use accruals to smooth out fluctuations in earnings. The mean ΔCFO is 0.017.

Minimum value of ΔCFO is -7.97 while the maximum value of ΔCFO is 7.58. This corresponds to standard deviation of 1.64.

The mean value of size of the firm is 7.11. Size is natural log of total assets. Taking antilog of the number, the average value of assets of sample firms is 1224 million. Low minimum and high maximum value of size show that sample firms include very small and very large-size firms. Leverage mean is .67. This shows the capital structure of sample firms on average consists of 67% debt. Minimum value of leverage is 0.01386 and maximum value 4.24. Leverage standard deviation is comparatively low (0.40). Growth is the market to book ratio, which has average value of 0.79. Minimum and maximum values of growth are -21.5 and 6.64 respectively. Due to low minimum and high maximum values, standard deviation of growth is high (1.31).

4.2. Correlation Matrix

Table2. Correlation Statistics

Correlation Matrix

Variables	RETURN	EAR	ΔEAR	CFO	ΔCFO	SIZE	LEVERAGE	GROWTH
RETURN	1							
EAR	0.205366	1						
ΔEAR	0.157911	0.509698	1					
CFO	0.103463	0.067978	0.149085	1				
ΔCFO	0.018689	0.069619	0.009634	0.557399	1			
SIZE	-0.0441	0.092056	-0.01768	0.055152	0.053912	1		
LEVERAGE	-0.02515	-0.25886	0.082593	0.126906	-0.02416	-0.24081	1	
GROWTH	0.161628	0.125989	-0.03339	-0.11193	0.018829	0.202678	-0.23159	1

Table2 depicts that security return has positive relationship with EAR, ΔEAR, CFO, ΔCFO and Growth. It means that security return, EAR, ΔEAR, CFO, ΔCFO and firm Growth moves in the same direction. Whereas Size and leverage are negatively correlated to security returns. EAR & ΔEAR are positively correlated to both CFO and ΔCFO variables. Size has positive relationship with growth and negative relationship with leverage and finally leverage is negatively related to growth.

As panel data analytical models can only be run when data are in panel form, we converted cross-sectional and time-series data into panel form by using the statistical package Eviews V.5. To decrease the variance of data points, extreme outliers of data have been removed. This results in unbalanced panel data as cross sectional units contain an unequal number of observations.

4.3. Ordinary Least Squares Model

Relative Information Content Test of Earnings and Cash Flows

$$Rit = \theta 0 + \theta 1 EARit + \theta 2 \Delta EARit + \varepsilon it \quad (1)$$

$$Rit = \theta 0 + \theta 3 CFOit + \theta 4 \Delta CFOit + \varepsilon it \quad (2)$$

Table3. Relative Information Content Test of Earnings and Cash Flows

	Model 1		Model 2	
Variable	**Coefficient**	**t-Statistics**	**Coefficient**	**t-Statistics**
Intercept	0.142567*	10.82475	0.112544	7.521950
EAR	0.132009*	7.016067		
ΔEAR	0.051384*	2.990973		
CFO			0.063782*	5.325559
ΔCFO			-0.021720*	-2.231122
R Square	0.046004		0.012909	
Adjusted R Square	0.045148		0.012023	
Akaike Information Criteria	1.871133		1.905236	
Schwarz criterion	1.878809		1.912912	
Durbin-Watson stat	1.845542		1.812608	
F-statistic	53.74367		14.57515	
Prob(F-statistic)	0.000000		0.000001	

Table 1 show that EAR, ΔEAR, CFO and ΔCFO have significant relationship with return, as t values are greater than 2. Coefficient values of EAR, ΔEAR and CFO are positive. This show that marginal increase in EAR, ΔEAR and CFO will increase dependent variable, return, whereas coefficient value of ΔCFO is negative which shows that marginal increase in ΔCFO will decrease return.

Model 1 (earnings model) has adjusted R2 of 4.51 % and model 2 (cash flows model) has adjusted R2 of 1.2 %.

Results were drawn without checking for possible heteroscedasticty. Due to heteroscedasticity in data, results of test are inefficient. In order to get a clear

picture, we will test data for the presence of heteroscedasticity. For this purpose, we have used White's heteroscedasticity test.

4.4. White's Heteroscedasticity Test

White Test was proposed by Halbert White in 1980. It is test statistic used for checking heteroscedasticity of data. The white's test generates the following hypothesis:

H0: There is no heteroscedasticity in data

H1: There is heteroscedasticity in data

White test is the special case of the Breusch-Pagan test and has widely been used in academic research.

After running OLS, we applied the White's Heteroscedasticity Test to both models.

Model 1.

White Heteroskedasticity Test: Earnings model

F-statistic	11.57336	Probability	0.000
Obs*R-squared	56.55262	Probability	0.000

Model 2.

White Heteroskedasticity Test: Cash Flows model

F-statistic	2.494548	Probability	0.029159
Obs*R-squared	12.43667	Probability	0.029270

Results of White test of model 1 show that probability of Obs*R-squared is less than .05, so we reject H0 and accept H1 and conclude that earnings data is heteroscedastic. Similarly, results of White test of model 2 also indicate the presence of heteroscedasticity in cash flows data, as the probability of Obs*R-squared

is less than .05. It has been identified from test statistic that both earnings and cash flows data are heteroscedastic. Therefore, earnings and cash flows data needs to be corrected to get more informative results after controlling heteroscedasticity. We have used White's heteroscedasticity consistent covariance matrix (HCCM) to correct heteroscedasticity of data.

4.5. White's Heteroscedasticity consistent covariance Matrix (HCCM)

The linear regression model has extensively been used by researchers. It is based on some assumptions. One of the important assumptions is homoscedasticity which states that variance of the residual term is constant. If this assumption is violated we say that data is heteroscedastic. Due to heteroscedasticity in data, results of test are inefficient. In order to get efficient results in the presence of heteroscedasticity, various methods may be used. Heteroscedasticity has different forms and magnitude and methods to remove it is based on a particular case of heteroscedasticity with known form and magnitude. When data have heteroscedasticity with unknown form and magnitude, HCCM is the best technique to remove heteroscedasticity of data. The traditional HCCM was first proposed by Eicker (1963) and White (1980). It is also evidenced that use of HCCM may be wise even in the absence of detected heteroscedasticity

Long and Ervin (1998) suggested that whenever heteroscedasticty is expected to be present in the data, HCCM should be used to get consistent results. Similarly, they recommend HC3, a small sample version of HCCM, for sample size less than 250.

4.5. Least Square Model with White Heteroskedasticity-Consistent Standard Errors & Covariance

Relative Information Content of Earnings and Cash Flows

$$Rit = \theta 0 + \theta 1 EARit + 02 \Delta EARit + \varepsilon it \quad (1)$$

$$Rit = \theta 0 + \theta 3 CFOit + \theta 4 \Delta CFOit + \varepsilon it \quad (2)$$

Table5. Relative Information Content of Earnings and Cash Flows Test (OLS Model - Heteroskedasticity corrected)

	Model 1		Model 2	
Variable	**Coefficient**	**t-Statistics**	**Coefficient**	**t-Statistics**
Intercept	0.142567*	11.04286	0.112544*	7.53678
EAR(θ1)	0.132009*	4.832034		
ΔEAR(02)	0.051384*	2.990973		
CFO(θ3)			0.063782*	4.394723
ΔCFO(θ4)			-0.021720*	-2.005850
Adjusted R2	0.045148		0.012023	
Akaike Information Criteria	1.871133		1.905236	
Schwarz criterion	1.878809		1.912912	
Durbin-Watson stat	1.845542		1.812608	
F-statistic	53.74367		14.57515	
Prob(F-statistic)	0.000000		0.000001	

*Statistically significant at 5% level

Table 5 depicts the results obtained from OLS regression, after controlling heteroscedasticty with White Heteroscedasticity-Consistent Standard Errors & Covariance test. AIC of earning's model is 1.87 which is lower than the cash flow model, 1.90. From AIC it is concluded that earnings model is the best fit model. Earning's model has adjusted R2 4.51 % and cash flow model having adjusted R2 1.2 %, which is less than former, so we can say that earnings have relatively more explanation for stock returns than cash flow. As we know that data is heteroscedastic, we run OLS heteroscedasticty corrected on further equations.

4.6. Least Square Model with White Heteroskedasticity-Consistent Standard Errors & Covariance

Incremental Information Content of Earnings and Cash Flows

$$Rit = \theta 0 + \theta 1 EARit + \theta 2 \Delta EARit + \theta 3 CFOit + \theta 4 \Delta CFOit + \varepsilon it \quad (3)$$

Table6. Incremental Information Content of Earnings and Cash Flows Test (OLS Model - Heteroskedasticity corrected)

Model 3		
Variable	**Coefficient**	**t-Statistics**
Intercept	0.112224*	7.681065
EAR (θ1)	0.137040*	5.169351
ΔEAR (θ2)	0.037011	1.501126
CFO (θ3)	0.055176*	3.673180
ΔCFO (θ4)	-0.022696	-1.95979
Adjusted R2	0.053428	
Durbin-Watson stat	1.833511	
θ1= θ2=0	21.18701 (0.0000)	
θ3= θ4=0	6.843373 (0.0011)	

*Statistically significant at 5% level

Table 6 reports that earnings and cash flows measures have incremental information content. Incremental information content of earnings and cash flows is assessed by significance of the slope coefficient using Wald test. Probability of F values is less than .05. So we reject null hypothesis that coefficients of earnings measures and cash flows measures are equal to 0. This indicates that both earnings and cash flows have incremental information content with respect to stock returns. Model adjusted R2 improved to 5.34% when both variables are jointly used.

4.7. Least Square Model with White Heteroskedasticity-Consistent Standard Errors & Covariance

Transitory and Incremental Information Content Test

$$Rit = \theta 0 + \theta 1 EARit + \theta 2 \Delta EARit + \theta 3 CFOit + \theta 4 \Delta CFOit + \varepsilon it \quad (3)$$

$$Rit = \theta 0 + \theta 1 EARit + \theta 2 \Delta EARit + \theta 3 CFOit + \theta 4 \Delta CFOit + \theta 5 EARit \times DX + \theta 6 \Delta EARit \times DX + \theta 7 CFOit \times DX + \theta 8 \Delta CFOit \times DX + \varepsilon it \quad (4)$$

Table7. Transitory earnings and Incremental Information Content Test (OLS Model - Heteroskedasticity corrected)

	Model 4	
Variable	**Coefficient**	**t-Statistics**
Intercept	0.121407*	8.133845
EAR (θ1)	0.094093	1.845367
ΔEAR (θ2)	1.159240*	4.305269
CFO (θ3)	-0.031725	-1.398058
ΔCFO (θ4)	0.018429	1.002603
EAR × DX (θ5)	0.066118	1.123906
ΔEAR × DX (θ6)	-1.142564*	-4.223938
CFO × DX (θ7)	0.107668*	4.121245
ΔCFO × DX (θ8)	-0.049897*	-2.228735
(θ1+ θ2)	1.253333*	6.150636
(θ3+ θ4)	-0.013296	-0.395455
(θ5+ θ6)	-1.076446*	-3.100032
(θ7+ θ8)	0.057771	1.89251
Adjusted R2	0.064711	
Adjusted R2 of Model 3	0.053428	
Adjusted R2 of Model 4	0.064711	
Durbin-Watson stat	1.839462	

*Statistically significant at 5% level

Transitory earnings hypothesis states that valuation role of earnings for stock returns decreases when earnings are transitory and alternately cash flows information content increases. In order to examine the differential valuation role of cash flows in the presence of transitory earnings, equation 4 is regressed. Results show that the sum of both level and change coefficients of earnings is 1.253 which is statistically significant (6.150). For transitory earnings, the sum of the both level and change of earnings coefficients is negative i.e -1.076 which is statistically significant (-3.100). The results indicate that in the presence of transitory earnings, information content of earnings decreases. Our results also indicate that in the presence of transitory earnings, information content of cash flows does not increase. Sum of cash flows coefficients for transitory earnings ($\theta 7 + \theta 8 = 0.057$) (1.892) is statistically not significant as is for persistent earnings ($\theta 3 + \theta 4 = -0.013$) (-0.395). In summary, these results provide no clear evidence of superiority of cash flows over earnings in explaining security returns when earnings are transitory.

4.8. Least Square Model with White's Heteroskedasticity-Consistent Standard Errors & Covariance

Size of Firm and Incremental Information Content Test

$$Rit = \theta 0 + \theta 1 EARit + \theta 2 \Delta EARit + \theta 3 CFOit + \theta 4 \Delta CFOit + \varepsilon it \quad (3)$$

$$Rit = \theta 0 + \theta 1 EARit + \theta 2 \Delta EARit + \theta 3 CFOit + \theta 4 \Delta CFOit + \theta 5 EARit \times DSIZE + \theta 6 \Delta EARit \times DSIZE + \theta 7 CFOit \times DSIZE + \theta 8 \Delta CFOit \times DSIZE + \varepsilon it \quad (5)$$

Table8. Size of Firm and Incremental Information Content Test (OLS Model - Heteroskedasticity corrected)

	Model 5	
Variable	**Coefficient**	**t-Statistics**
Intercept	0.105986*	7.257426
EAR (θ1)	0.080513*	2.628591
ΔEAR (θ2)	0.046412	1.510366
CFO (θ3)	0.077154*	3.987162
ΔCFO (θ4)	-0.031221*	-2.200653
EAR × DSIZE (θ5)	0.208393*	3.487739
ΔEAR × DSIZE (θ6)	-0.039655	-0.748373
CFO × DSIZE (θ7)	-0.053977*	-2.032696
ΔCFO × DSIZE (θ8)	0.018224	0.792713
(θ1+ θ2)	0.126925*	4.138957
(θ3+ θ4)	0.045933*	1.786509
(θ5+ θ6)	0.168738*	2.739366
(θ7+ θ8)	-0.035753	-1.239983
Adjusted R2	0.066075	
Adjusted R2 of Model 3	0.053428	
Adjusted R2 of Model 5	0.066075	
Durbin-Watson stat	1.850906	

*Statistically significant at 5% level

The size hypothesis states that when unexpected earnings and cash flow from operations data are used jointly to explain stock returns, the security return response to both unexpected earnings and cash flow from operations is higher (lower) for small (large) firms. The sum of the coefficients of small size firms ($\theta 1 + \theta 2 = 0.126$) is statistically significant (4.138). For large-size firms the sum of the coefficients significantly increases ($\theta 5 + \theta 6 = 0.168$) (2.739). As far as cash flows are concerned, our results provide no clear evidence of differential valuation role for small versus large firms. The sum of the coefficients for small size firms ($\theta 3 + \theta 4 = 0.045$) is statistically not significant. For large firms the combined sum decreases ($\theta 7 + \theta 8 = -0.035$) but the reduction is insignificant. Contrary to our hypothesis, results indicate that security return response to earnings increases for large firms. However differential valuation role of cash flows for small versus large firms is not found.

4.9. Least Square with White's Heteroscedasticity-Consistent Standard Errors & Covariance

Leverage and Incremental Information Content Test

$$Rit = \theta 0 + \theta 1 EARit + \theta 2 \Delta EARit + \theta 3 CFOit + \theta 4 \Delta CFOit + \varepsilon it \quad (3)$$

$$Rit = \theta 0 + \theta 1 EARit + \theta 2 \Delta EARit + \theta 3 CFOit + \theta 4 \Delta CFOit + \theta 5 EARit \times DLEVERAGE + \theta 6 \Delta EARit \times DLEVERAGE + \theta 7 CFOit \times DLEVERAGE + \theta 8 \Delta CFOit \times DLEVERAGE + \varepsilon it \quad (6)$$

Table9. Leverage and Incremental Information Content Test (OLS Model - Heteroscedasticity corrected)

Model 6		
Variable	**Coefficient**	**t-Statistics**
Intercept	0.095617*	6.206112
EAR (θ1)	0.324866*	3.570518
ΔEAR (θ2)	0.005907	0.084303
CFO (θ3)	0.061923	1.917551
ΔCFO (θ4)	-0.027578	-1.184725
EAR × DLEVERAGE (θ5)	-0.249688*	-2.612832
ΔEAR × DLEVERAGE (θ6)	0.027993	0.374386
CFO × DLEVERAGE (θ7)	-0.018971	-0.549750
ΔCFO × DLEVERAGE (θ8)	0.011858	0.451540
(θ1+ θ2)	0.330773*	3.65482
(θ3+ θ4)	0.034345	0.732826
(θ5+ θ6)	-0.221695*	-2.238446
(θ7+ θ8)	-0.007113	-0.09821
Adjusted R2	0.068707	
Adjusted R2 of Model 3	0.053428	
Adjusted R2 of Model 6	0.068707	
Durbin-Watson stat	1.836018	

*Statistically significant at 5% level

Results show that the sum of earnings coefficients for low leverage firms is 0.330, statistically significant (3.65). The sum of the earnings coefficients diminishes to -0.221 for highly leveraged firms. This value is statistically significant. This is consistent with our hypothesis that security return response to earnings decreases for high leverage firms. However, the additional role of cash flows in case of high leverage firms is not found as specified by the results. The sum of the coefficients, $\theta 3 + \theta 4 = 0.034$, which is not significant. For high leverage firms the sum of the coefficients, $\theta 7 + \theta 8 = -0.007$, which is also insignificant.

4.10. Least Square with White's Heteroskedasticity-Consistent Standard Errors & Covariance

Growth and Incremental Information Content Test

$$Rit = \theta 0 + \theta 1 EARit + \theta 2 \Delta EARit + \theta 3 CFOit + \theta 4 \Delta CFOit + \varepsilon it \quad (3)$$

$$Rit = \theta 0 + \theta 1 EARit + \theta 2 \Delta EARit + \theta 3 CFOit + \theta 4 \Delta CFOit + \theta 5 EARit \times DGROWTH + \theta 6 \Delta EARit \times DGROWTH + \theta 7 CFOit \times DGROWTH + \theta 8 \Delta CFOit \times DGROWTH + \varepsilon it \quad (7)$$

Table10. Growth and Incremental Information Content Test (OLS Model – Heteroskedasticity corrected)

	Model 7	
Variable	**Coefficient**	**t-Statistics**
Intercept	0.061937*	3.551757
EAR (θ1)	0.071801*	2.693422
ΔEAR (θ2)	0.047860	1.896998
CFO (θ3)	0.030460	1.991133
ΔCFO (θ4)	-0.013809	-1.173048
EAR × DGROWTH (θ5)	0.262130*	2.891186
ΔEAR × DGROWTH (θ6)	0.213069*	2.703581
CFO × DGROWTH (θ7)	0.257703*	5.548289
ΔCFO × DGROWTH (θ8)	-0.133480*	-3.271236
(θ1+ θ2)	0.119661*	4.59042
(θ3+ θ4)	0.016651	0.818085
(θ5+ θ6)	0.475199*	5.594767
(θ7+ θ8)	0.124223*	2.277053
Adjusted R2	0.117514	
Adjusted R2 of Model 3	0.053428	
Adjusted R2 of Model 7	0.117514	
Durbin-Watson stat	1.850575	

*Statistically significant at 5% level

Hypothesis of growth is that the stock return response to both unexpected earnings and cash flows is lower (higher) for low (high) growth firms, when earnings and cash flows are associated with security returns. The sum of the earnings coefficients equals to .119 which is significant as t value is 4.590, for low growth firms. The sum of the earnings coefficients increases to 0.475199 which is also significant as t value is 5.594. For high-growth firms the sum of the cash flows coefficients i.e 0.124 is significant. For low growth firms the sum of the cash flows coefficients, 0.016 is insignificant. Our results support that only earnings have a differential valuation role for low versus high-growth firms.

4.11. Discussion

From tests results, it is concluded that explanatory power of earnings is more than explanatory power of cash flows from operation. While incremental information content test supports that both earnings and operating cash flows are important value relevant variables. Earnings and cash flows model has an adjusted R2 of 5.34% which is comparable to previous research of Cheng and Yang (2003) in the United States (an adjusted R2 of 9%). Among firm specific factors, growth has the highest positive impact on earnings incremental information content. The model adjusted R square improves to 11.75% when the growth variable is jointly regressed with earnings and cash flows from operations.

Transitory earnings, leverage and size used as firm specific factors affecting earnings and cash flows incremental information content, add little explanation to earnings and cash flows model. Contrary to previous research (Hodgson & Stevenson-Clarke, 2000 and Charitou et al. 2001) earnings incremental information content increases for large-size firms. Size positive impact on earnings incremental

information content may be due to the reason that large-sized firms have high earnings quality as documented by Becker, Defond, Jiambalvo and Subramanyam (1998). They argue that there are fewer chances of earning management in large firms due to two reasons i) external audit by audit firms ii) a well-developed internal control system to monitor the earnings smoothing activities of managers. As far as the differential valuation role of operating cash flows for low to high value of firm specific factors, including transitory earnings, leverage, size and growth is concerned, this study provides no clear evidence for such effects.

Chapter No. 5

Conclusion

5.1. Conclusion

In this study, we have investigated which performance measures earnings or cash flows from operations has relatively more explanatory power for stock returns and whether explanatory power of both variables used jointly is greater than when used separately. Similarly, the effect of four firm specific variables, including transitory earnings of firm, leverage, size and growth, affecting valuation role earnings and cash flows have also been explored in Pakistani stock market. The study reveals that earnings have superior explanatory power than cash flows and both earnings and cash flows better explain stock returns when used jointly. Our study supports the empirical research of Habib (2008) that in New Zealand, both earnings and cash flows are important value relevant variables.

The findings of our study suggest that in the presence of moderate (extreme) earnings, incremental information content of earnings increases (decreases). However additional role of cash flows in case of extreme earnings are not found. For large firms the incremental information content of earnings increases, which is contrary to previous research of Hodgson & Stevenson-Clarke (2000). Moreover, no significant results were found for differential valuation role of cash flows for small versus large firms. Earnings of highly leveraged firms have less valuation role, but cash flows additional valuation role for high leveraged firms is not determined in Pakistani stock market. Growth is the last factor empirically studied. Incremental information content of earnings increases for high-growth firms, whereas cash flows differential valuation role for low versus high growth is not found in this study.

The findings that both earnings and operating cash flows have value relevant information will help Pakistani investors in making investment decision. Similarly, to international investors as well, our research will aid in investment decision making in Pakistani stock market.

Capital market participants should seriously consider, among others, the relevant factors examined in this study vis-a-vis how earnings and cash flows are valued when earnings is transitory, since evidence shows that capital market participants penalize those kind of firms. Other factors which affect incremental information content of earnings and cash flows such as leverage, size, and growth also need to be studied while making investment decisions. Furthermore, investors, financial analysts and credit analysts should be very cautious about whether earnings follow accounting standards or are merely based on aggressive accounting by managers.

5.2. Future Research Directions

Accounting literature is full of the view that mangers have a keen desire to maintain a high bottom line figure of firm performance as their compensations are often based on firms' earnings. Due to this reason managers use aggressive accounting to manipulate earnings. Earnings management is due to two reasons, i) flexibility in accounting rules and ii) use of extraordinary items. Earning smoothing has an adverse effect on the quality of earnings and there is growing concern regarding the notion that earnings should reflect fundamental values.

Previous studies (Chan et al, 1991, Degeorge, Patel and Zeckhauser, 1999) show that managers are involved in earning management activities. Study of Bernard and Thomas (1989) and Foster, Olsen and Shevlin (1984) provide evidence that unexpected increase in earnings is associated with positive abnormal returns.

However, this association is affected adversely by earning management activities of managers who use aggressive accounting to manipulate earnings.

Shleifer and Vishny (1997) argue that in an environment of concentrated ownership structure minority shareholders are expropriated by collusion of major shareholders with management. So concentrated ownership structure enhances managerial discretion to manipulate earnings. In Pakistan ownership is concentrated. If this is the case, earnings will be less credible and return earnings relationship will be not true. So there is a great need that earnings quality measure be included also while studying return, earnings and cash flows relationship in Pakistan.

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