



## **Accruals in the Prediction of Forthcoming Cash Flows in the Companies Listed at Pakistan Stock Exchange**

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### **ABSTRACT**

This research finds the relative predictabilities of accruals and further disaggregated accruals—trading accruals, non-trading accruals, and financial accruals in the estimation of future cash flows. The research also examines the effect of the global financial crisis on this association between accruals and future cash flow prediction. The research uses annual data from the period of 1999 to 2018 from 453 firms, which includes 9060 observations. The whole sample period covers data from 1999 to 2018, during the financial crisis period from 2008 to 2009 and Pre financial crisis period from 1999 to 2007 and Post global financial crisis period 2010 to 2018. To examine the relationship between accruals, disaggregated accruals, and estimation of future cash flows, hypotheses were developed and seasoned through OLS. The outcomes confirm that financial accruals, non-trading accruals, and total aggregated accruals were significant, but trading accruals was not a significant contributor to the estimation of future cash flows. Moreover, there was no significant effect of the global financial crisis on the relationship among disaggregated accruals and forecast of imminent cash flows during Pre and Post and during the global financial crisis period.

**Keywords:** Accruals, Trading Accruals, Financial Accruals, Non-trading Accruals, Global Financial Crisis

**JEL Classifications:** G01, G30

### **1. INTRODUCTION**

This article explores the reliability of accruals in the estimation of forthcoming cash flows. Cash flow prediction is always remained the prime task before making investment decisions. Stakeholders like investors want to know the future cash flows to make comparison with the worth of investment because the current market value of expected cash inflows is an investment (Al-Attar and Maali, 2017; Efayena, 2015; Farshadfar and Monem, 2019; Khansalar and Namazi, 2017; Lewellen and Resutek, 2016; Richardson et al., 2005). If the current worth of forthcoming cash flows is higher than the primary investment, it is favorable and if the current worth of coming cash flows is less than the basic investment, it is unfavorable. The cash flows generated by the companies help the share price to rise (Richardson et al., 2005;

Barth et al., 2001) and motivate potential investors to invest in those companies who have higher share prices in the stock exchange. Financial statements provide evidence to assist creditors and investors to foresee future cash flows (Khan and Mayes, 2009; Irwin, 2015; Flynn et al., 2016). However, if the forecasted future cash flows deviate from actual, it would be crucial for amendments in financial statements (Zayed and Liu, 2014). The data presented in financial statements is recorded on accruals-based accounting, as Young (1994) mentioned that earnings calculated based on accruals were a more powerful predictor than cash-based accounting.

All the future cash flow prediction depends on the financial data provided in the financial statements of the firms. Therefore, financial statements should represent the true and fair value of financial assets and resources and managers have exerted such

responsibilities and powers to perform these duties through agency theory (Namazi and Rezaei, 2016; Young, 1994; Morris, 1987). Hence, managers are responsible for providing accurate and fair financial statements as investors usually use that information to make an investment decision. Generally, financial statements manipulated through earnings management; therefore, reliability and relevance challenged often. Farshadfar and Monem (2019) worked on the relevance of accruals in financial statements that ignored in prior literature (Fuad et al., 2019; Lai et al., 2013).

The reliability of financial reporting is essential in the estimation of forthcoming cash flows as the investor's belief in the financial statement. Owners also assess the managers' performance through relevance and reliability of items reported in financial statements published, and that later used for investment (Efayena, 2015; Irwin, 2015; Blessing, 2016; Frank, 2018; Fuad, Juliarto and Harto, 2019). Financial information reported in financial statements sends signals to investors to interpret signals and make economic decisions (Morris, 1987), hence, the investor's belief that data postulated in financial statements is the significant information to invest in the company.

The well-designed model of (Dechow et al., 1998; Barth et al., 2001) is widely used to investigate the association among earnings, accruals and cash flows. Most of the prior researchers (Dechow et al., 1998; Barth et al., 2001; Richardson et al., 2005; Arthur et al., 2010; Barth et al., 2015; Darjezi, 2016; Lewellen and Resuttek, 2016; Khansalar and Namazi, 2017; Farshadfar and Monem, 2019) used accruals (accounts receivable, accounts payable, inventory) and found accrual-based accounting improved forecaster in the forecasting of future cash flows than cash base accounting (Bushman et al., 2016). Most of the researchers worked on trading accruals only whereas (Khansalar, 2012; Khansalar and Namazi, 2017) decomposed accruals into working accruals (already used in prior studies of Dechow, 1994; Dechow et al., 1998; Barth et al., 2001; Richardson et al., 2005; Khansalar, 2012; Bloomfield et al., 2014; Hui et al., 2016; Al-Attar and Maali, 2017; Frank, 2018; Farshadfar and Monem, 2019), non-trading accruals (termed as non-current operating assets in the studies of (Dechow et al., 2014; Irwin, 2015; Farshadfar and Monem, 2019) and financial accruals (termed as financial assets in prior studies of (Dechow et al., 2014) and (Khansalar, 2012; Khansalar and Namazi, 2017), initially, used in the researches (Richardson et al., 2005; Dechow et al., 2014; Dechow, 1994; Dechow et al., 1998) and later used in the studies of (Farshadfar and Monem, 2019; Hussain et al., 2020). The scope of reliability of accruals is examined from balance sheet items and based on estimates and subsequently, tested association among accruals and future cash flows.

The future cash flow estimation is a complicated concept that is still under discussion (ISAB, 2010). Accrual based accounting is considered a better predictor of future cash flows than cash based accounting (Dechow et al., 1998). Therefore, the financial statements should prepare on accruals-based accounting principles (Young, 1994; Hertzberg et al., 2010; Bloomfield et al., 2014; Ciconte et al., 2014; Dechow et al., 2014; Barth et al., 2015; Casey et al., 2017; Leal et al., 2017; Fuad et al., 2019). Accruals narrated in financial statements by various accountants are inconsistent and

customarily recorded on the concept of earnings management. Therefore, it generates the problem of accruals' reliability. The lack of accruals' reliability adversely affects future earnings persistence and vice versa (Khansalar and Namazi, 2017; Farshadfar and Monem, 2019; Dechow et al., 1998; Dechow et al., 2014; Dechow et al., 2019; Richardson et al., 2005). The persistence in earnings explains the degree of current earnings' ability to sustain to subsequent periods. Earnings persistence is lower if it is recognized based on the accrual than if it is recognized based on the cash component of earnings (Hirshleifer et al., 2009; Chen and Li, 2013; Dechow et al., 2014; Hui et al., 2016).

The future cash flow predicted based on such accruals that were recorded in financial statements using creative accounting techniques, the accuracy of such predicted future cash flows become a question mark. The managers are making financial decisions using such predicted future cash flows facing the problem of financial distress (Dechow et al., 2014). On the other hand, investors who are making investment decisions in stocks using such predicted future cash flows could not see actual stock price as it deviates from its fundamental values (Dechow et al., 2019; Lewellen and Resuttek, 2016). As the accruals represented in financial statements manipulated through earnings management (Mulenga and Bhatia, 2017), this study shows how disaggregated accruals like trading accruals, non-trading accruals and financial accruals with their relevant component – assets and liability affect the forecast of forthcoming cash flows in companies listed at Pakistan Stock Exchange.

The estimation of forthcoming cash flows remained under investigation in various developed countries but the still under-researched topic in developing countries like Pakistan where investors had to rely only on the stock price in capital markets like Pakistan stock exchange (PSX). The current research is built on the enhancement of the study of Khansalar (2012) to extend the scope of accruals into aggregated accruals (total of all three accruals), disaggregated accruals (trading accruals, non-trading accruals, and financial accruals) with their relevant assets and liabilities component and see the reliability of accruals-based on the low, medium and high level of reliability.

Information provided in financial statements are used for investment decision making and to understand equity market and it is the prime duty of SECP to regulate companies listed in Pakistan. Most investors are making investments in the manufacturing sector and need to be researched to secure their investment and give them the knowledge to see their future value of the investment.

However, few studies are conducted in Asia to see the forecasted cash flow based on accruals and phenomenon is less explained even though having vital role in organizational performance, but none of the studies is directly conducted in manufacturing sector considering accruals especially working accruals, non-current accruals, and financial accruals and their relevant assets and liabilities (Nallareddy et al., 2020). Furthermore, it is difficult to predict which one is a comparative improved accrual of upcoming cash flows. The study is vital for investors and stock market players because they can become aware of the role of accruals

in the estimation of forthcoming cash flows. Furthermore, the regulators can watch about the proper recording of accruals in the financial statements.

## 2. LITERATURE REVIEW

### 2.1. Future Cash Flows Prediction

Cash flow prediction plays a vital role in the investment decision. The purpose is to see the future cash inflows and outflows in advance to make a better decision for both investment and optimum use of funds (Nallareddy et al., 2020). On the other side, it also minimizes the cost of capital borrowings (Ciconte et al., 2014; Bushman et al., 2016; Al-Attar and Maali, 2017) as the business knows the future inflows. Previously financial statements such as income statement or earnings were determined sole indicators, but now cash flows are deemed essential for decision making as earnings were easily manipulated through creative accounting theory (Kim and Kross, 2005; Hong et al., 2017; Shah et al., 2009) whereas, (Fuad et al., 2019) cited earnings as superior to predict future cash flows than current operating cash flows.

While in economic analysis or decision making, a fiscal prediction is the primary objective of the economist. Prior studies (Hertzberg et al., 2010; Agana et al., 2015; Namazi and Rezaei, 2016) called the capacity and capability of cash generation as the primary measure for decision making and investors always looked-for firms with free flow cash flows. Lenders and creditors also held specific objectives in looking at the cash flows of the company. One of the main objectives of cash flows is deemed to allow stakeholders about future value, estimated return period and ambiguity of future cash flows (FASB, 1978).

The numerous prior researchers worked on the forecast of future cash flows, and a significant part of this work done in developed economies. The results of all prior researchers were different and contradictory. Earnings were considered more potent in the estimation of forthcoming cash flows (Kim and Kross, 2005; Dechow et al., 1998; Badertscher et al., 2012; Barth et al., 2015; Sinnewe et al., 2017) and different from those who were on the other side, were rated past cash flows better predictor for future cash flows (Nallareddy et al., 2020).

#### 2.1.1. Future cash flows prediction in developed countries

Earning is superior forecaster than past cash flows from operations in the estimation of forthcoming cash flows and also increases the accuracy of future cash flow forecasting (Hribar and Yehuda, 2015; Kim and Kross, 2005; Hirshleifer et al., 2009; Hong et al., 2017; Finger, 1994; Murdoch and Krause, 1989). Dechow et al. (1998) and Khansalar (2012) researched the association of earnings, accruals and cash flows and found results consistent with Finger (1994). The primary debate of past earnings better predictor than past cash flows for the estimation of forthcoming cash flows rejected in the study of (Barth et al., 2001). The results were different due to the impact of accruals.

The theory on the prediction of cash flows further enhanced in the studies of (Farshadfar et al., 2010; Farshadfar and Monem, 2019). The researchers used earnings plus depreciation and

amortization and working capital from operations in the estimation of forthcoming cash flows for Australian companies. The inclusion of firm size as an intervening variable made studies more exciting and compelling. Nallareddy et al. (2018) investigated the relative ability of earnings and cash flows in the estimation of forthcoming cash flows due to mixed evidence in past literature. The findings of the research were that cash flows had better predictive abilities over earnings in the estimation of future cash flows in US companies.

Khansalar (2012) and Khansalar and Namazi (2017) had researched the reliability of accruals and the prediction of cash flows. Three categories of accruals were introduced in the study to confirm which one is a better predictor of future cash flows. Financial accruals were found with higher reliability and found with higher predictabilities for future cash flows, and non-trading accruals were on the other extreme side. Farshadfar and Monem (2019) investigated the predictive abilities of accruals – working, non-current operating accruals and financial accruals and future operating cash flows using Australian firms. The findings of the study contradicted with many prior studies (such as Khansalar, 2012; Khansalar and Namazi, 2017) as working capital and non-current operating accruals found better predictor than financial accruals in UK.

On the other hand, there are few demerits of future cash flow prediction. First, cash flows forecasting based on limited information. Accountants frequently gather known information and use this information to predict future cash flows. This information is often wrongly estimated; therefore, it predicts inaccurate future cash flows (Farshadfar and Monem, 2019). Secondly, cash flow prediction is often affected by unforeseen factors that quickly change the estimated values. Thirdly, the business environment is dynamic and volatile; therefore, cash flow prediction is affected. So, cash flow estimation often adjusted in an extended period. Still, future cash flow prediction is necessary for the stakeholders in investment decision making and future expansion plans. It also helps the management to avoid financial distress. This research measures the impact of trading accruals, non-trading accruals and financial accruals on the estimation of forthcoming cash flows.

#### 2.1.2. Future cash flows prediction in developing and emerging economies

Al-Attar and Maali (2017) worked on the earnings quality and estimation of forthcoming cash flows from the information narrated in balance sheet. The data took from the 50 companies listed in the Tehran stock exchange from 2009 to 2013. The findings of the study exhibited that increase in quality of earnings; the accuracy of prediction of cash flows from the operation would increase. Further, it is reliable for the estimation of future operating cash flows. Aghaei and Amir (2010) and Namazi and Rezaei (2016) also studies the manufacturing companies listed at Tehran stock exchange. The findings were consistent with the prior studies conducted in Iran.

The benefits of future cash flow prediction involve discounted cash flows of estimating the future cash flows at present in Malaysian companies. If the present value is more significant than investment, the investor makes an investment decision (Wan

Ismail et al., 2012). Secondly, companies benefit from operating leverage. Thirdly, free cash flows provide the cash which left on hand after paying the expenses. It is also essential to reinvest free cash flows. Jemaa et al. (2014) worked on prediction of future cash flows in Tunisian context and preferred operating cash flows over earnings. Whereas, disaggregated accruals were found with better predictabilities in the studies of (Mulenga and Bhatia, 2017) and similar findings generated in the context of Saudi Arabia (Senan, 2019). Hussain et al. (2020) studied the further disaggregated accruals in Pakistan stock exchange and identified that financial accruals had more predictabilities than other disaggregated accruals in manufacturing companies.

Prediction of future cash flows also remained under discussion in Nigeria in prior studies (Efayena, 2015; Blessing, 2016; Frank, 2018; Umoren and Umoffong, 2018). Past earnings were found better predictor than cash flows in the findings of Umoren and Umoffong (2018), and (Frank, 2018). Both past earnings and past cash flows had predicted abilities for imminent upcoming cash flows (Efayena, 2015; Blessing, 2016).

## 2.2. Independent Variables

### 2.2.1. Trading accruals

Trading accruals are often known as working capital accruals (Badertscher et al., 2012; Dechow et al., 2014; Holten and Bøllingtoft, 2015; Hribar et al., 2018; Fuad et al., 2019; Dechow, 1994; Dechow et al., 1998; Khansalar, 2012; Khansalar and Namazi, 2017). Trading accruals decomposed into receivables, inventories, payables, depreciation, amortization, and others (Khansalar, 2012; Dechow, 1994; Dechow et al., 1998; Barth et al., 2001; Barth et al., 2012; Barth et al., 2016; Farshadfar et al., 2010; Farshadfar and Monem, 2019; Badertscher et al., 2012) and found with the ability to increase predictive ability about future cash flows. Farshadfar and Monem (2019) and (Khansalar, 2012) calculated these accruals as the difference between trading assets and trading liabilities whereas Richardson et al. (2005) and Hribar and Yehuda (2015), Hui et al. (2016) termed it as a change in operating assets and change in operating liabilities. A limited review regarding how Trading Accruals influence the estimation of forthcoming cash flows cited hereafter.

#### 2.2.1.1. Trading accrual as predictor of future cash flows

Trading accruals are considered a mostly better predictor of future cash flows. Trading accruals based on working capital accruals and mostly represents a change in accounts receivable, change in accounts payable, change in inventory, plus depreciation, amortization and other accruals (Barth et al., 2001; Richardson et al., 2005; Khansalar, 2012; Khansalar and Namazi, 2017) and recorded as change in current operating assets and change in current operating liabilities (Richardson et al., 2005; Khansalar, 2012). Trading accruals were found better predictors in prior literature (such as Richardson et al., 2005; Khansalar, 2012; Khansalar and Namazi, 2017). The hypothesis is generated as under: -

H<sub>1</sub>: Trading accruals as a component of disaggregated accruals have the better predictabilities to forecast future operating cash flows in manufacturing firms listed at Pakistan Stock Exchange (PSX).

### 2.2.2. Non-trading accruals

These accruals are associated with non-current assets of the firm that are not frequently bought and sold, for example, property, plant, and equipment, intangibles, and investments (Dechow et al., 2014; Khansalar and Namazi, 2017; Farshadfar and Monem, 2019). These accruals are aligned with non-trading assets (called non-current operating assets) and non-trading liabilities (also called non-current operating liabilities) and found from the difference of non-trading assets ( $\Delta NTA$ ) and non-trading liabilities ( $\Delta NTL$ ). Richardson et al. (2005) and Farshadfar and Monem (2019) called these accruals as non-current operating accruals ( $\Delta NCO$ ). These accruals measured from the change in non-current assets, net of long-term investment and advances, less change in non-current liabilities, net of long-term debt. These accruals based on management's subjectivity and discretion; therefore, non-trading accruals are assigned with a low level of reliability (Dechow et al., 1998; Dechow et al., 2011; Khansalar, 2012). A limited review regarding how non-trading accruals influence the estimation of forthcoming cash flows cited hereafter.

#### 2.2.2.1. Non-trading accruals as predictor of future cash flows

Non-trading accruals not often used in the estimation of forthcoming cash flow in prior studies. Richardson et al. (2005) worked on non-current operating accruals in his studies and found significant in the estimation of forthcoming cash flows. Khansalar (2012) used non-trading accruals in the estimation of forthcoming cash flows and also assigned non-trading liabilities with high reliability than non-trading assets. On the other side, non-current operating accruals were not found reliable for the estimation of forthcoming cash flows in the studies of Farshadfar and Monem (2019).

H<sub>2</sub>: Non-trading accruals as a component of disaggregated accruals have better predictabilities in the prediction of future operating cash flows in manufacturing companies listed at PSX Pakistan.

#### 2.2.2.2. Financial accruals

Farshadfar and Monem (2019) represented financial accruals in terms of financial activities such as dividends, allotment of bonds and shares and debt service. Dechow et al. (2014) and Khansalar (2012) referred to financial accruals as a change in financial activities ( $\Delta FIN$ ). Financial accruals include the difference between long term investment, short term investment and long-term debt and short-term debt and stock (both ordinary and preferred) (Dechow et al., 2008). Prior studies did not include financial accruals (Dechow et al., 1998; Barth et al., 2001; Richardson et al., 2005) but well-addressed in studies of Khansalar (2012), Khansalar and Namazi (2017), Dechow et al. (2014); Barth et al. (2016). Financial accruals were allotted high reliability (Dechow et al., 2008; Khansalar, 2012) as these accruals fluctuate with fair market value; even sometimes considered as cash equivalents (Dechow et al., 2008). The company's shares are traded in the stock exchange, which represents the current market value of the company (Dechow et al., 2008). Long term debt and short-term debt show the current cost of estimated cash flows, and that paid after a specific time with interest (Khansalar, 2012). Therefore, financial accruals are assigned with high reliability in the present study also. A limited review regarding how financial accruals influences the estimation of forthcoming cash flows cited hereafter.

### 2.2.2.3. Financial accruals as predictor of future cash flows

Financial accruals were found more predictable in future cash flows generation (Khansalar, 2012). Khansalar (2012) used regression models to compare predictabilities of trading accruals, non-trading, and financial accruals and found the financial accruals more predictable than trading and non-trading accruals. Financial accruals were found more persistent in the estimation of forthcoming cash flows in the findings of Richardson et al. (2005). On the other hand, some researchers concluded that financial accruals were not found significant in the estimation of forthcoming cash flows in the studies of Farshadfar et al. (2017) and Oei et al. (2008). Based on the empirical literature following relationship is expected.

H<sub>3</sub>: Financial accruals as a component of disaggregated accruals have better predictabilities in the prediction of future operating cash flows in manufacturing companies listed at PSX Pakistan.

### 2.2.3. Total accruals

Total accruals defined as the difference between assets and liabilities excluding cash as because in cash-based accounting, only cash and capital is mentioned in the balance sheet (Richardson et al., 2005). Earnings composed of accruals and operating cash flows (Dechow, 1994; Dechow and Dichev, 2002; Sloan et al., 2004; Chotkunakitti, 2005; Dechow et al., 2008). Accruals accounting is a system of accounting in which revenues and expenses are recognized and reported in financial statements when they have occurred and not when they are received or paid (IASB, 2010; Richardson et al., 2001; Bazley et al., 2004; Elliott and Elliott, 2018). Under South this system of accounting, assets and liabilities generated from the transaction and most of the researcher declared accrual accounting superior to cash accounting for decision making (FASB, 1978; IASB, 2010; Elliott and Elliott, 2018) but accrual-based earnings were deemed less persistent than cash-based earnings, and this is primarily due to subjectivity of accruals (Sloan, 1996). The term of the subjectivity of Sloan (1996) used like accounting term reliability. Reliability could be used interchangeably with the notion of Sloan (1996) as subjectivity. Two qualities are associated with financial information to make it more reliable and useful, i.e. reliability and relevance (FASB, 2002; Dechow et al., 2008). Lev and Sougiannis (1996) and later Sloan et al. (2004) confirmed that less regular accruals found less predictable for future earnings whereas less verifiable accounting estimates compromise the value of accounting numbers (Watts, 2003). Accruals represent the difference between accruals earnings and cash earnings (Healy, 1985).

Some of the prior studies documented that historical operating cash flows combined with aggregated accruals components are superior to earnings and historical operating cash flows in the estimation of forthcoming cash flows (Barth et al., 2001; Al-Attar and Hussain, 2004; Ebaid, 2011; Al-Attar and Mali, 2018). Disaggregating earnings into aggregated accruals and operating cash flows were conducted in prior studies to enhance the predictabilities of the earnings in future cash flows and further disaggregating accruals into its components strengthen predictabilities of earnings (Barth et al., 2001; Al-Attar and Hussain, 2004; Ebaid, 2011). Furthermore, the reliability and relevance of aggregated accruals also affect the persistence of earnings in the estimation

of forthcoming cash flows (Al-Attar et al., 2008). On the other hand, prior studies found that operating cash flows only as a better predictor than operating cash flows with aggregated/disaggregated accruals in the estimation of forthcoming cash flows (Chotkunakitti, 2005). Moreover, few studies found no apparent difference between accruals combining operating cash flows and operating cash flows only in the estimation of forthcoming cash flows.

### 2.2.3.1. Total accruals as predictor of future cash flows

Accruals used as a predictor of future operating cash flows create noisy measurement Farshadfar and Monem (2019) but is used in many prior studies (such as Dechow et al., 1998; Barth et al., 2001; Richardson et al., 2005; Dechow et al., 2008; Barth et al., 2016) worked on the disaggregation of accruals into major six components and found more predictive power of total accruals in predicting future cash flows. Arthur et al. (2010) and Lai et al. (2013) investigated disaggregated accruals, and future cash flow prediction in the US and found that the predictive abilities of disaggregated accruals improved in the estimation of future cash flows. Farshadfar and Monem (2019) also studied on accruals components in Australia and reported that it had enhanced forecasting of future cash flows. Farshadfar and Monem (2019) disaggregated accruals and found their components had better predictive abilities than accruals. Based on the empirical literature following relationship is expected.

H<sub>4</sub>: Aggregated accruals deemed better predictor than disaggregated accruals components (trading, non-trading, and financial accruals) in the prediction of future operating cash flows in manufacturing companies listed at PSX Pakistan.

## 2.3. Global Financial Crisis

Global financial crisis had expected to have an impact on the association of accruals and prediction of future cash. Therefore, following hypothesis is developed: -

H<sub>5</sub>: Global Financial Crisis had significant impact on the relationship of accruals and prediction of future cash flows in manufacturing companies listed at PSX Pakistan.

## 3. RESEARCH METHODOLOGY

### 3.1. Sampling and Data Collection

The study used the cash flow prediction models already developed by Barth et al. (2001) and later used by Khansalar (2012) and Khansalar and Namazi (2017) to find out predictabilities of various disaggregated accruals. The model used an ordinary least square model to compare the predictive abilities of cash flows for a 1-year-ahead. The secondary data was used from the year 1999 to 2018 for 20 years. All manufacturing listed firms at PSX selected as samples for this research. The total sample of this research was 485 manufacturing firms listed at PSX (PSX, 2018). Non-financial firms were not included as those did not have trading accruals. The manufacturing sector was selected as a sample because it was the most significant contributor to the GDP of Pakistan, i.e. 20.91%. The data for 453 firms was available for research due to the mergers of firms, delisted firms. Therefore, 9,060 observations were used to generate the findings of the study. The data was gathered directly from the financial statements of these firms as no database was available in the country.

The firms selected in the sample have homogeneity as these are registered at PSX and follow the same IFRS and IAS. Pakistan did not have its own IFRS but follow the same GAAP developed by IASB and FASB.

### 3.2. Measurement of Variables

#### 3.2.1. Independent variables

The author used trading accruals, non-trading accruals, financial accruals, and total accruals as independent variables and reported in Table 1. The measurement of variables is also shown in Table 1. All the variables were deflated by total accruals like in prior studies (Khansalar, 2012).

#### 3.2.2. Dependent variable

Future cash flows are measured in terms of operating cash flows generated in business and shown in Table 1. The operating cash flows are used as a dummy for the calculation of future cash flows (Barth et al., 2001; Richardson et al., 2005; Khansalar, 2012; Farshadfar and Monem, 2017).

#### 3.2.3. Global financial crisis

The manufacturing firms listed in the Pakistan stock exchange have to face the global financial crisis in 2008-2009. The author used the global financial crisis as a dummy variable to see its impact on the predictors on the estimation of forthcoming cash flows.

### 3.3. Model Specification

The study included time horizon, therefore, balanced panel data was employed as consist with prior studies of (Farshadfar et al., 2010; Khansalar, 2012; Khansalar and Namazi, 2017; Farshadfar and Monem, 2019). The regression equation is narrated below:

$$FCF_{i,t+1} = \alpha + \beta_1 \Delta \text{Trading Accruals}_{i,t} + \beta_2 \Delta \text{Non-Trading Accruals}_{i,t} + \beta_3 \Delta \text{Financial Accruals}_{i,t} + \beta_4 \Delta \text{Total Accruals}_{i,t} + \epsilon_{i,t}$$

Here;

FCF = Future cash flows prediction

$\beta_1$  = Represents change in Trading Accruals

$\beta_2$  = Represent change in Non- Trading Accruals,

$\beta_3$  = Represent change in Financial Accruals

$\beta_4$  = Represent change in Total Accruals

$\epsilon_{i,t}$  = Error term

## 4. EMPIRICAL FINDINGS

### 4.1. Descriptive Statistics

Table 2 reported the descriptive statistics of the study. It showed that the maximum operating cash flow was 176.15, whereas trading accruals (TA) was 19.66. Furthermore, total accruals (TACC) was 79.42, and non-trading accruals (NTA) was 77.92, and financial accruals (FA) were 21.95. Meanwhile, minimum operating cash flows were -64.96, and TA was -2145.94 and TACC was -13.38. Moreover, NTA was -8.30 and FA was -49.00. Table 2 also depicted the values of mean, median, standard deviation and observations of the data. The mean of operating cash flows was 0.14, and the TA was -4.91, whereas TACC was 0.39, and NTA was 0.76. The value of mean for FA was -0.34. The median of operating cash flows was 0.012, and TA was 0.00 and TACC was 0.28. Whereas NTA was 0.55 and FA was -0.24. The standard deviation value of operating cash flows was 4.99, whereas TA was 93.01. The value for TACC was 2.94 and NTA was 3.17 and FA was 1.43. The total number of observations of operating cash flows, TA, TACC, NTA, and FA was 9060 for each.

### 4.2. Stationarity Test

Table 3 showed the stationarity test of all variables of the study. The outcome showed that all variables of interest were found stationary at 1<sup>st</sup> difference which meant series combined at order one, and the series was I (1). These results suggested that all variables were stationary and could use for penal data analysis.

**Table 1: Measurement of variables**

Variable	Description	Source
Prediction of forthcoming cash flows	Future cash flows mean cash flows generated through operating activities of the business	Barth et al. (2001); Richardson et al. (2005); Khansalar (2012); Farshadfar and Monem (2017)
Trading accruals	Trading Accruals is calculated as the difference between trading assets and trading liabilities	Barth et al. (2001); Richardson et al. (2005); Khansalar (2012); Farshadfar and Monem (2017)
Non-trading accruals	Non-Trading Accruals is calculated as the difference between non-trading assets and non-trading liabilities	Dechow et al. (2008) and Khansalar (2012) and Farshadfar and Monem (2017)
Financial accruals	Financial Accruals is calculated as the difference between financial assets and financial liabilities	Khansalar (2012); Farshadfar and Monem (2017); Hussain et al. (2020)
Total accruals	Total accruals are the sum of all three accruals or aggregated accruals	Dechow (1998); Barth et al. (2001); Khansalar (2012); Farshadfar and Monem (2017)
Dummy variable	Pre and Post and during the Global Financial Crisis is measured through a dummy variable	Farshadfar and Monem (2017)

**Table 2: Descriptive statistics**

Variables	Mean	Median	Maximum	Minimum	SD	Skewness	Kurtosis
Trading accruals (TA)	-4.911784	0.000000	19.66800	-2145.949	93.01395	-20.06249	417.3861
Non-trading accruals (NTA)	0.760162	0.555500	77.92200	-8.308000	3.171695	19.16766	411.5834
Financial accruals (FA)	-0.343631	-0.241000	21.95000	-49.00900	1.439286	-15.47122	575.2919
Total accruals (TACC)	0.395878	0.281500	79.42200	-13.38300	2.944505	19.71556	481.5420
Net operating cash flows	0.140486	0.012000	176.1540	-64.96600	4.991435	29.64640	1069.313

### 4.3. Correlation Analysis

The correlation coefficient is presented in Table 4. The results showed that operating cash flows have a significant positive correlation with trading accruals, non-trading accruals, total accruals, and financial accruals. The results revealed that the value of the correlation coefficient was not exceeding the benchmark of 0.9 suggested by Hair et al. (2019) and Field (2017) for multicollinearity. Therefore, it was evident that the problem of multicollinearity did not exist in this model.

### 4.4. Decision of Fixed Effect Method Versus Common Constant Method

Redundant fixed effects tests were run to decide about the standard constant method or fixed effects method of the panel regression model. The results showed Chi-square is significant as  $P < 0.000$ , which suggested that the fixed effect model is appropriate (Table 5).

### 4.5. Decision of Random Effect Method Versus Fixed Effect Method

Hausman test was used to decide whether to go with a random effect method or fixed effects method of a panel regression model. Table 6 suggested that the fixed effect model is appropriate.

### 4.6. Panel Regression Analysis

Table 7 shows the results of regression analysis. The hypotheses predict that accruals as a component of disaggregated accruals have

**Table 3: ADF unit root test results**

Variables	I (0) (means at level)	Prob.**
Trading accrual	-4.7732	0.0000
Non-trading accrual	-10.5735	0.0000
Financial accruals	-7.39895	0.0000
Total accruals	-6.05895	0.0000
Net operating cash flows	-29.1279	0.0000

**Table 4: Results of correlation**

Variables	1	2	3	4	5
Net operating cash flows	1				
Trading accrual	0.021568	1			
Total accruals	0.050801	0.010977	1		
Non-trading accrual	0.026996	0.059242	0.904101	1	
Financial accruals	0.006048	-0.015636	-0.203827	-0.549239	1

**Table 5: Redundant fixed effects tests**

Effects test	Statistic	d.f.	Prob.
Cross-section F	1.383057	(452,7697)	0.0000
Cross-section Chi-square	636.737573	452	0.0000

**Table 6: Correlated random effects - hausman test**

Test summary	Chi-Sq. statistic	Chi-Sq. d.f.	Prob.
Cross-section random	37.293510	4	0.0000

better predictabilities in the prediction of forthcoming cash flows in companies listed at PSX Pakistan. To test these predictions, we regressed operating cash flows on trading, non-trading, financial and total accruals. Table 7 showed that trading accrual ( $\beta = 0.01$ ,  $P = 0.07$ ) was an insignificant predictor of future operating cash flows, so, H1 was rejected. Non-trading accrual ( $\beta = -0.35$ ,  $P = 0.00$ ) was a significant predictor of future operating cash flows, providing support for H<sub>2</sub>. Similarly, a significant negative relationship with operating cash flows found for the financial accruals ( $\beta = -0.20$ ,  $P = 0.03$ ), which supports H<sub>3</sub>. A significant positive association was found between the total accruals ( $\beta = 0.43$ ,  $P = 0.00$ ) and operating cash flows, supporting H<sub>4</sub>.

Table 7 showed 2.7% of the explanatory power of the model that was represented by the adjusted R-square. It means that the independent variables in this model were explaining 2.7% change in the dependent variable. The value of F-statistic was found significant that identify that model as best fits the population from which the data sample. In this equation, only one variable was insignificant and did not explain the dependent variable. All other variables were significantly different from zero and had predictabilities to explain the dependent variable.

Table 8 showed the effect of independent variables on future cash flows prediction during global financial crisis. The during global financial crisis was represented as dummy variable (D1). The coefficient of D1 was  $-0.0907$  and  $P = 0.5357$  which is  $> 0.05$ , therefore, we reject the effect of global financial crisis.

Table 9 showed the effect of independent variables on future cash flows pre and post global financial crisis. The pre and post

**Table 7: Panel regression model**

Variables	Net operating cash flows		
	Coefficient	SE	Prob.
Constant	0.170182	0.059226	0.0041
Trading accrual	0.001420	0.000781	0.0692
Non-trading accrual	-0.347880	0.100610	0.0005
Financial accruals	-0.203196	0.090729	0.0251
Total accruals	0.434218	0.089148	0.0000
R-squared		0.0823	
Adjusted R-squared		0.0279	
F-statistic		1.5138	
Prob (F-statistic)		0.0000	

**Table 8: Effect of accruals on FCF during global financial crisis**

Variables	Net operating cash flows		
	Coefficient	SE	Prob.
Constant	0.1858	0.0643	0.0039
Trading accrual	0.0014	0.0007	0.0703
Non-trading accrual	-0.3504	0.1007	0.0005
Financial accruals	-0.2044	0.0907	0.0243
Total accruals	0.4367	0.0892	0.0000
Dummy variable (D1)	-0.0907	0.1465	0.5357
R-squared		0.0823	
Adjusted R-squared		0.0278	
F-statistic		1.5112	
Prob (F-statistic)		0.0000	

\*D1=Financial crisis period dummy

**Table 9: Effect of accruals on FCF in pre and post global financial crisis period**

Variables	Net operating cash flows		
	Coefficient	SE	Prob.
Constant	0.1701	0.0592	0.0041
Trading accrual	0.0014	0.0007	0.0692
Non-trading accrual	-0.3478	0.1006	0.0005
Financial accruals	-0.2031	0.0907	0.0251
Total accruals	0.4342	0.0891	0.0000
Dummy variable (D2)	-0.2753	0.1312	0.0372
R-squared		0.0823	
Adjusted R-squared		0.0279	
F-statistic		1.3445	
Prob (F-statistic)		0.0000	

\*D2=Pre and post crisis period dummy

global financial crisis was represented as dummy variable (D2). The coefficient of D2 was  $-0.2753$  and  $P = 0.0372$  that is  $< 0.05$ , therefore, we reject the effect of pre and post global financial crisis.

## 5. DISCUSSION AND IMPLICATIONS

The study was conducted to see the impact of disaggregated accruals on the estimation of forthcoming cash flows. Accruals were disaggregated into trading accruals; non-trading accruals and financial accruals.

Trading accruals were found statistically insignificant in the forecasting of future cash flows in companies listed at Pakistan stock exchange. This finding is consistent with the research of Richardson et al. (2005), Dechow et al. (2008) and Frankel and Sun (2018) who have found that trading accruals were an insignificant predictor of future operating cash flows but contradict to the studies of Farshadfar and Monem (2019). Non-trading accruals were found significant in the estimation of forthcoming cash flows in companies listed at Pakistan stock exchange. This finding is matching with the finding by Lewellen and Resutek (2016) and Farshadfar and Monem (2019), who argued that non-trading accruals as a component of disaggregated accruals have better predictive abilities in the prediction of future operating cash flows. The results interpret that financial accruals have a significant negative relationship with an estimation of forthcoming cash flows, which is consistent with the study by Khansalar (2012) who found that financial accruals are more significant, in the estimation of forthcoming cash flows, than other components of accruals like trading accruals and non-trading accruals but inconsistent with the studies of Farshadfar and Monem (2019). Total accruals have a significant positive relationship with the estimation of forthcoming cash flows that are in line with the research conducted by Farshadfar and Monem (2019).

The past earnings disaggregated into accruals have better predictability than past cash. The findings were consistent with prior studies conducted in emerging markets (Efayena, 2015; Blessing, 2016; Frank, 2018; Umoren and Umoffong, 2018). The results were also found consistent with developed economies where financial accruals and trading accruals were significant in prediction of upcoming cash flows (Farshadfar et al., 2010; Khansalar, 2012; Khansalar and Namazi, 2017; Farshadfar and

Monem, 2019). The effect of global financial crisis during the crisis and pre and post global financial crisis on the relationship of accruals and future cash flows prediction was not found that means there was no effect of global financial crisis on the association of variables in companies listed at PSX.

The empirical results are again contradictory and need to be conducted including other financial companies like insurance, banks etc. Furthermore, more variables such as length of operating cash cycle, management role, earnings and Earnings Before Interest and Tax.

Income statement and balance sheet are used to prepare a statement of cash flows on accruals based accounting. Prospect investors can see the reliability of accruals and estimation of forthcoming cash flows in Pakistani stock exchange. Therefore, financial statements should be prepared for reliable and relevant information. The study provides guidelines to users of the financial statement such as financial analysis, creditors and prospect investors to see which part of cash flows activity is important for the estimation of forthcoming cash flows.

## 6. CONCLUSION

In this study, the author finds out the disaggregation of accruals into trading, non-trading and financing accruals and their predictabilities of future cash flow in the Pakistani context. The main question was to see whether it improved the predictive power of these disaggregated accruals over total accruals to explain future cash flows. The study analyzed a sample of 9060 observations related to 453 manufacturing firms over the 1999 to 2018 period. The results of the study suggested that financial and non-trading accruals were relevant in forecasting future cash flows, but trading accruals could not be found significant in the approximation of forthcoming cash flows. Whereas, the fourth variable, i.e. total accruals, were also established substantial effect on prediction of imminent cash flows. Furthermore, the predictabilities of total accruals found more than the disaggregated accruals components.

The study was carried out in emerging markets of Pakistan on the prediction of future cash flows. Further study needs to be conducted for comparison between developed and developing countries. Moreover, moderating variable should be included to enhance the body of knowledge in this field of research.

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