Country-level Risk and the Trade-off between Real Earnings Management and Accrual Earnings Management: Evidence from Pakistan

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Abstract

The aim of this study is to understand whether real earnings management (REM) and accruals earnings management (AM) can be used as substitute of one another in the context of Pakistan. Additionally, we also examine the effect of country-level political risk on earnings management. To achieve our desire objectives, we used a panel sample of 197 Pakistani firms for a period of 13 years (2007-2019). To measure REM, we follow Roychowdhury (2006) and to measure AM, we follow Jones (1991) and modified Jones (1995) model. For data analysis, we used simultaneous equation modelling and ordinary least square (OLS) regression with time and firm fixed effects. The results indicate that when the cost associated with REM(AM) increases, the firm's inclination towards AM(REM) decreases which suggests that managers use both REM and AM approaches as substitutes of one another. Further, the results show that country-level political risks positively affect real REM while it has insignificant effect on AM. Moreover, the adoption of IFRS as accounting standards does not have any effect on the earnings management in Pakistan. This study can be extended to firm-level risk factors to examine their role in earnings management. Moreover, how manager use to adopt REM and AM in the highly regulated industries i.e., financial and services industries, also provides a promising opportunity for future research.

1. Introduction

An imminent outlook into how accounting managers may influence earnings is critical for investment and financial market stakeholders looking for the optimal use of the financial statements for their decisions. The analysts, investors and other users of financial statements has to be well aware of the manipulating actions, managers usually take to manage earnings. Such awareness may support market constituents to disentangle the outcomes of any such management and to lessen the adverse effect of earnings management techniques. This has not only been true for Developed economies but also a matter of concern for the Developing and Emerging nations like Pakistan. The extent of BCCI's crimes, chronicled in detailed American and British investigations, is breath-taking. There was financial fraud gone wild: unrecorded deposits, phony payments, and illegal share-buying. The bank also specialized in improper loans; it reportedly disguised one bad loan to a British shipping company by using nearly 100 shell companies. So elaborate and expansive was BCCI's ploy that it somehow managed to secretly control three major American banks. Founded in 1972 by a Pakistani named Agha Hasan Abedi (who served as director until 1990), the bank became synonymous with fraud on the most massive (and global) of scales. BCCI attracted all the wrong superlatives: Biggest corporate criminal enterprise, biggest Ponzi scheme, and biggest bank fraud scandal. Many jokingly called it the Bank of Crooks and Criminals International. The scandal caused great embarrassment for governments around the world. According to Kerry's report, BCCI had relationships "that ranged from the questionable, to the improper, to the fully corrupt" with officials in Pakistan and at least 31 other nations. In recent days, Pakistan has been rocked by revelations about the improprieties of Axact, a Karachi-based software company. A May 17 New York Times report alleged that Axact has secretly run an Internet-driven fake diploma business. It describes how scores of unknowing victims–from accountants in the Middle East to bakery workers in Michigan–have been foiled by Axact's scheme. The Axact and BCCI scandals share several things in common. Many of their activities were Karachi-based, they arguably committed unprecedented levels of fraud, and their operations were highly global. (https://foreignpolicy.com).

The collapse of a corporation generally occurs when a corporation is declared bankrupt. Such corporate collapses can be linked with corporate scandals which happened due to some illegal actions taken the managers. Recently, many firms that experienced bankruptcy and scandals were found to be involved in fraudulent accounting in earnings management. These scandals mainly arise due to manipulation of financial statement by trusted executives to disclose wrong financial information to the government or corporation. Such misdeeds of information usually involve pursuing methods to misuse or misdirect funds, understating expense, exaggerate revenues and the asset valuation and not providing the accurate report of the liabilities. The important point to consider here is that such misdeeds of information can mislead the shareholders and investors. For instance, at the start of the 21st century, the ENRON scandal in 2001 created a need to develop a more transparent set of principles in the accounting discipline.

A Houston-based energy, commodities and service firm held large debt off-balance sheet which resulted in a loss of $74 Billion lost to shareholders. Moreover, many employees and investors lost their jobs and retirement account, and high stock prices created external doubts among investors. Thus, the company filed bankruptcy by manipulating Enron's accounts (Li, 2010). Similarly, in 2008 around $50 billion of loan of Lehman Brothers had allegedly reported as sale. In 2007, the company was ranked as #1 by the Fortune magazine as the "most admired securities firm" but later forced to the largest bankruptcy in US history. In view of the above events in the past, corporate insolvency occurred due to bad practices in corporate accounts through the manipulation in accounting earnings generally refers as earnings management. Therefore, to mitigate such injustice with all stakeholders, research in this area becomes imperative. (www.britannica.com).

In order to avoid these crimes of fraud and injustice to investors and shareholders, it becomes an important issue to be explored in the context of Pakistan and its importance of prevalence in the rest of the World, by looking at the decision-making of Management on two Accounting techniques of Real Earnings Management and Accrual-based Management, both of which are used to mitigate the transparency of Financial Statements for companies operating on the Stock Exchange leading to injustice to investors and shareholders. Therefore, the main motivation for this study has explored the implications for such decision making by the Management.

According to Beneish (2001), earnings management (hereafter EM) is a phenomenon that has several definitions, and consensus on a common definition seems to be difficult. EM can be defined as when managers use their assigned discretion to alter earnings in a way that is beneficial to them (Mostafa, 2017). Roychowdhury (2006) defines EM as an occurrence when management use their own discretion to adjust financial reporting to mislead or to determine outcomes. Researchers suggests both positive and negative aspect of EM. The positive aspect of EM is that it implies a smooth reporting of earnings, meaning no surprises, which in turn should mean a stable share price. On the other hand, the negative aspect is that it is used in an opportunistic manner, displaying the company's finances in a brighter light than what is actually the case which implies that the management is not working in the interest of the owners. Thus, management follow different approaches to management of corporate earnings.

Research highlighted two broad approaches to EM. First, Accruals-Based Earnings Management (hereafter, AM), which is the conventional approach that involves adjustments such as timeliness of the transactions, provisions, and impairments. Second, Real Earnings Manipulation (hereafter REM) also termed interchangeably as Real Activities Manipulation (hereafter, RAM) in some studies, which involves managing actual activities such as advertising, R&D, and production decisions (Roychowdhury, 2006; Jie, Baichao and Xiao, 2017). Recently researchers have taken interests to examine how managers trade-off between the AM and REM during earnings management. For instance, Roychowdhury (2006) and Zang (2012) study earnings management through trade-off between REM and AM in the US. Their study found that when cost factors associated with REM increases managers shift to AM and when cost factors associated with AM increases then managers shift to REM. Gao, Gao and Wang (2017) and Jie, Baichao and Xiao, (2017) studied earning management using a sample of Chines firms. They empirically test the trade-off

model to know whether managers choose between REM and AM based on their relative's costs. However, research regarding the trade-off between REM and AM in the context of Pakistan is scarce. Most of the previous studies that focuses on earnings management in Pakistani firms are limited to the determinants of earnings management and its impact on firm outcomes. For instance, Latif and Abdullah (2015) and Kamran and Shah (2014) studied the association of ownership structure and corporate governance to EM. The only study that examines EM trade-off model in Pakistani firms which is conducted by Shah, Rashid and Malid (2020). However, their study is limited to the potential substitution between REM and AM.

The purpose of this study is two folds: first, to examine whether managers trade-off between REM and AM in non-financial and non-utilities firms of Pakistan. Second, to investigate the effect of country-level political risk on earnings management. The following problem statement conceptualizes it: *"to assess the trade-off by managers between rem and am to manipulate earnings in the Pakistani firms and the effect of country-level political risk on the earnings management of the Pakistani firms"*.

Considering the above problem statement, we developed the following research questions:
(1) Do managers trade-off between REM and AM in the Pakistani firms?
(2) Is there any effect of country-level political risk on the earnings management of the Pakistani firms?

The rationale of examining both the approaches of the EM at one point is that to understand the overall effect of EM as an examining one approach cannot explicate the effect of EM as a whole. Particularly, when manager use both approaches as a substitute for one another, then studying only one aspect of EM separately cannot provide a meaningful conclusion (Zang, 2012). Therefore, it is important to study the trade-off between these two accounting choices or approaches.

This study extends the existing literature on earnings management in two ways. First, we contribute to the literature focusing on the determinants of real earnings management (REM) (Roychowdhury, S. 2006; Zang, 2012 Shah et al., 2020), by revealing that country-level political risk (PRISK) increases management tendency to increase REM. Second, we use the PRISK in the trade-off model as the determinant of both REM and AM to improve the overall predictability of the model. To our knowledge this is the first study in Pakistan which explores country-level political risks and IFRS as the determinants of earnings management as well as examine the trade-off model of REM and AM in a single study.

This study is valuable to investors and shareholders as they receive misleading information provided by companies and this makes it more essential to investigate the AM and REM practices prevailing in past and current times to understand which approach is beneficial. This study is also useful for the participants of the financial markets since it both provides insight into how extensive the use of earnings management is and what earnings management strategies are used. The remaining sections are in the following order. Section 2 explains the associated literature. Section 3 reports the data and sample and explain design of the study. Section 4 reports the empirical results and section 5 reports the conclusion of the study.

2. Literature Review and Hypothesis Development

2.1. Theoretical Review

The earnings management (EM) literature has shown the agency theory as the main underlying theory that can be associated with earnings manipulations. Agency relationship arises when the owner of a firm (shareholder or director) assigns some duties to an agent (manager) to work on behalf of owner under the agency contract (Jensen and Meckling 1976; Fame, 1980). From the perspective of agency theory, ownership of a firm is separated from its control. Thus, firm owners' handover the control to an agent (manager) which works on behalf of owner. However, managers may expropriate firm's resources for their own interest which create agency problem. Jensen and Meckling (1976) concluded that there are valid explanations why shareholder interests are not always given priority by managers.

Firm managers take decisions that meet their own interest at the expense of owner's interests (Arnold & Lange, 2004). For instance, the scandal of Enron arises because the alleged action of manager to report high profit at the cost of shareholders. Managers can manage profit due to the flexibility of discretionary spending and accountings standards (Dechow & Skinner, 2000). The anecdote of Enron indicate that earnings management is related to agency theory. Kamran and Shah (2014) found that firms with high entrench management can easily affect corporate decisions and financial statements which leads to earnings management/ manipulation. Managers manipulates reported earnings and the representation of financial reporting in such way that help them to achieve their own objectives rather than the objectives of shareholders. According to Alexander (2010) due to such opportunistic behaviors of managers numerous studies uses agency theory as an underlying concept in EM research. This leads us to the investigation into the two types of accounting choices stimming from the agency theory namely AM and REM.

According to Bautista et al. (2018) the importance of REM in the domain of EM cannot be underrated as many studies document that management engages in EM through the management of accrual or real operation. Therefore, management has two ways of manipulating earnings. Management can do this through the selection of accounting approaches and the assessment of earnings management through accrual manipulation (McNichols & Wilson, 1988; Jones, 1991; Holland & Ramsay, 2003), or they may change the nature and of economic activities such advertising sales, R&D, and training, to achieve their profit goals which are real earnings management (Roychowdhury, 2006). Many studies have investigated the mechanisms of management decision regarding the trade-off between AM and REM (Cohen, Dey & Lys, 2008; Cohen & Zarowin, 2010; Zang, 2012). There is a trade-off between using REM and earnings based on accruals. Managers move to REM when the comparative costs of administering accrual-based earnings outweigh the expenses of REM (Zang, 2012).

Organizations trying to forecast positive profits will prefer to send a favourable signal to their shares on capital market with either two forms or both of accounting choices decisions. Jiang et al. (2018) claims that executives may tend to use REM rather than AM to deal with income Second, executives consider REM more ethical than real AM (Bruns and Merchant, 1990). Second, it is difficult to sought out

earnings that comes through real activities i.e. overproduction and sales discount. Therefore, it is less attractive for government and auditor scrutiny. For example, as higher-quality auditors limit their accrual discretions, Chi, Lisic, and Pevzner (2011) discover that businesses revert to REM. Although Badertscher (2011) found that in the early years, executives use REM during the continuous time of overvaluation, real manipulations of operations in subsequent years.

2.2. Empirical Review

A recent study has examined the effects of real manipulation of operations by providing evidence that manager handled earnings via tangible activity. Where Graham, Harvey and Rajgopal (2005) noted that 80% of executives managed to manipulate REM to report greater earnings than AEM. Ipino and Parbonetti (2017) discovers that earnings management is more prevalent through REM, rather than AM in nations with powerful legal enforcement systems that follow the implementation of International financial reporting standards (IFRS).

Chen, Rees, & Sivaramakrishnan (2011) discover companies with better future results using only REM rather than AM if firm's future performance measurement is restricted to ROA or adjustments to ROA. Chen et al. (2011) found, a company's performance in future (after adopting REM') is not worse than its performance when they have not engaged in either REM or AM. Cohen & Zarowin (2010) examine the effect REM and AM activities on firm's performance around seasoned equity offerings (SOEs). They found that firm's performance after the SOEs is poor and this performance is largely due to REM rather than AM. In related research between companies engaging in real activity manipulation on future companies' performance in a 15-year global environment, Jiang et al. (2018) discover that REM is strongly linked to future firm's performance and that firms in nations with powerful institutional settings drive a positive performance impact.

Whilein, Al-Shattarat et al. (2018) found that manipulating working activities like sales, production expenses, and discretionary expense to fulfill earnings benchmarks has a considerably beneficial effect on working performance in future of UK companies for 2009-2015. Khuong et al. (2019) discovered that all REM operations have a beneficial effect on firm's performance in energy sector of Vietnam. This means that executives closely assess the expenses and advantages of managing real earning operations to prevent harming the company's future performance. Thus, these findings assist to alleviate worries about the effect of REM operations on the company's subsequent operational performance.

Contradictory empirical findings about the positive or negative effect of REM on performance have given rise to contradictory explanations as to why executives adopt real earnings management. Mizik (2010) discovers that businesses adjust earnings by engaging in the myopic management of real earnings operations by decreasing R&D and marketing expenditure usage a higher negative effect on future financial performance and inventory yields. Cohen and Zarowin (2010) reports that substantial changes in return on total assets (ROA) is associated with a decrease in earnings management. Badertscher (2011) studies whether overvaluation of earnings management (EM) provide incentive to manager. His study found that during early stage of firm, managers uses EM, during later stage, they use real activities manipulation and as a last choice, they use non-GAAP EM.

The choice of managers to adopt earnings manage approaches depends on the length of overvaluation time, however, he does not design the trade-off between the two accounting approaches. The sequential nature of the two approaches has implications during the entire years which is not take into consideration by him as well. Cohen and Zarowin (2010) studied several costs of AM and prove that they are positively related to the probability of using REM. Their study does not discuss the cost related to REM or nor they tell about the sequence of the two approaches. So, therefore, the trade-off decision based on their cost's aspect is missing.

2.3. Local Literature and Hypothesis Development
In the context of Pakistan, earlier studies on earnings management mainly focuses on the different determinants of earnings management Latif and Abdullah (2015) and Kamran and Shah (2014) and the effect of earnings management on financial outcomes (Tahir, Sabir and Shah 2011; Tabassum, Kaleem and Nazir, 2015; Khalid, Nazir and McMilllan, 2020). For example, Latif and Abdullah (2015) studied the effect of firm-level governance and ownership structure on EM. They found that firms with entrench ownership constantly increase their discretionary accrual. Kamran and Shah (2014) examine the impact of three main components of corporate governance i.e. audit committee, board characteristics and ownership structure on earnings management. Their results conclude that audit committee independence (CEO duality) has a negative (positive) impact on earnings management.
Tahir et al. (2011) examine different factors related to earnings management and its impact on capital structure. The results show a negative effect of earnings management on capital structure. Khalid et al, (2020) found that firms with more earnings management are more likely to suffer financial distress which suggest that earnings manipulation negatively affect the financial health of the firms. Although the above studies discussed different factors associated with earnings management, limited attention was given to the fact whether managers trade-off between the two common approaches of earnings management, namely REM and AM. Recently used a sample of 150 firms listed in PSX and found that firm's does not use both of the earnings management approaches at a time instead they substitute between REM and AM to manage earnings.
In Pakistan, the legal system is relatively weaker and the requirement for firms to disclose accounting information is low. In such system where the legal system is weak management may use their agency position to manipulate earnings easily and reports their desired earnings level. However, Zang (2012) found that the decision to adopt a particular earnings management approach either REM or AM depends on their relative cost. Hence managers use trade-off between REM and AM based on their relative costs. Thus, we developed the following hypothesis.

> *H1: Manager trade-off between REM and AM to manipulate earnings in the Pakistani firms.*

Additionally, researchers studied different country-level regulatory factors that influence earnings management that includes country-level investor's protection (Wen, et al.,2017), adoption of Mandatory IFRS (Ipino & Parbonetti, 2016) and political risk (Dahlstedt & Lindvall, 2019). Some of the pioneering studies on political uncertainty suggest that uncertainty related to political environment affect economic agents as well as their behaviour.

Political uncertainty is highly associated with firm-level factors related to earnings management such as market prices (Hooper et al., 2009) quality of financial reporting (Bushman et al., 2004), the effectiveness of their legal system (Eleswarapu and Venkataraman, 2006), and managerial delinquency in financial disclosure (Francis and Ofori, 2015). Moreover, it affects earnings management by reducing transparency in the country and increases the managerial agency problem (Colak et al., 2017). High level of political risk may lead towards increase information asymmetry between management and the ownership which increases the likelihood of earnings manipulation. During time of high uncertainty, the miscommunication between management and shareholders increases. Thus, the ability of shareholders to monitor and limit earnings manipulation is retrained which provide a chance to the entrenched manages to increase earnings management through manipulation of earnings (Cheng & Warfield, 2005). Choi, Choi, Kim, & Sohn (2018) presented evidence by using data from 25 countries, discovered that the relative intensity of AM and REM are positively linked to the strength of the country legal system, as companies tend to move from AM to REM in states with elevated comparative costs of accrual-based earnings management. Braam et al. (2015) revealed that politically linked firms are more probable than non-connected firms to substitute REM with AM because the elevated secrecy of REM can be used to mask political favors. Through using data from 38 nations for the period 1991- 2010, Enomoto, Kimura, & Yamaguchi (2015) demonstrate that managers in nations with greater investor safeguards tend to participate in REM rather than AM. In Pakistan, firms that experience more political influence are more likely to involve in accrual manipulations (Sadiq Othman & Keong, 2019). Thus, we expect that when political risk increases the tendency of firms to manipulate earnings may increase. From the above discussion we developed the following hypothesis.

H2: Country-level political risk is positively associated with earnings management in the Pakistani firms.

3. Methodology of the study

3.1. Description of sample and data

The sample of this study includes 197 non-financial firms from Pakistan Stock Exchange (PSX). We exclude financial firms and utilities firms because discretionary accruals are not an appropriate proxy for earnings management in these firms. Moreover, these firms normally hold statutory capital requirement and marketable securities that could affect their investment decisions. We also excluded firms that are delisted from the stock exchange and are currently non-active on Thomson Reuters DataStream. The data is collected on an annual basis via Thomson Reuters DataStream from 2007 to 2019. We obtain country-level political risk data from international country risk guide (ICRG) website[1]. The reason for selecting this period is that key amendment in accounting standard in Pakistan took place in 2005-2006. Firm year observation with zero total assets have been excluded from the sample. The final sample is a panel data that contains multiple firms over 19 years of period with a total of 2250 firm year observations.

Firms in regulated industries and financial institutions will be excluded from the data. To mitigate the effect of outliers, the study use winsorization techniques. The data is winsorized at top and bottom 1% level.

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[1] For detail on the construction of the variable; please visit: *https://www.prsgroup.com/explore-our-products/international-country-risk-guide/*

3.2. Variables of the Study

3.2.1. Earnings Management (EM)

Our main variable of interest is EM which is defined as situation when manager manipulate accountings information and provide misleading information for their self-interest or to determine a certain outcome (Roychowdhury, 2006). Researchers suggests both advantage and disadvantage of EM. There are two broad forms of EM that is used in this study, i.e. real activities manipulation/management (REM) and accrual manipulation/ management (AM). According to Zang (2012) REM is a planned and purposeful step to change the reported earnings either through change in structure or timing of an operation, investment, or financing transaction results in substandard business consequences. The most common way to manipulate real earnings are bringing changes in sales, reporting less cost of goods sold to increase production, decease R&D, maintenance, and advertising expenditures. Unlike REM, which is followed by managers to alter real accounts, Accrual-based manipulation (AM) are done through altering accounting methods, for instance altering depreciation method and create business in the reported earnings.

3.2.2 Measuring Earnings Management (EM)

As discussed, there are two main approaches to earnings management, one REM and another is AM. To measure REM, we follow Roychowdhury (2006) and use the following two models: production cost (Equation 1) model and discretionary expenditure (Equation 2). To measure AM, we use Jones (1991) model provided in Equation 3 and modified Jones (1995) model provided in Equation 4.

3.2.3. Production Cost Model

First, we run a regression model shown in Equation 1 to regress production cost on its determinants as shown in Equation 1. After that we estimate the residual of Equation 1 that will measure the abnormal level of production cost, which measure the REM. The residual value shows the difference between the actual value and the predicted value.

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \alpha + \beta 1\left(\frac{1}{A_{i,t-1}}\right) + \beta 2\left(\frac{S_{i,t}}{A_{i,t-1}}\right) + \beta 3\left(\frac{\Delta S_{i,t}}{A_{i,t-1}}\right) + \beta 4\left(\frac{\Delta S_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon t \quad (1)$$

PRODi,t is calculated as the sum of change in inventory from year *i,t-1* to t plus cost of goods sold divided by lag of total assets. St is net sales at time t; and change in sales (ΔSt) is calculated as the difference between sales value at time t minus sales value at time *i,t-1*. ΔSi,t-1 is calculated as net sales at t-1 minus the net sales at time t. All the variables are divided by lag of total assets (Ai,t-1).

3.2.4. Discretionary Expenditure Model

Manager may also manipulate discretionary expenditures which affect the real earnings of the firm. The following model will be used to measure real earnings management (REM) through discretionary expenditure.

$$\frac{DISX_{i,t}}{A_{i,t-1}} = \alpha + \beta 1\left(\frac{1}{A_{i,t-1}}\right) + \beta 2\left(\frac{S_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \qquad (2)$$

Where $DISXt$ is the discretionary expenditures which is the sum of R&D and SG&A expenditures in year t. The residual from Equation 2 is the difference between the actual level and predicted level of discretionary expenditure estimated through Equation 2. The residual value above the predicted (normal) level will have a positive sign while the residual value below the predicted value will have a negative sign. We add the residual from Equation 1 and Equation 2 to get the aggregate amount of REM.

3.2.5. Accrual Manipulations (AM)

The following two models; Jones (1991) model (Equation 3) and modified Jones (1995) model (Equation 4) are used to calculate the accrual-based earnings model (AM).

$$\frac{ACCRUALSt}{Ai, t-1} = \alpha + \beta1\left(\frac{1}{Ai, t-1}\right) + \beta2\left(\frac{\Delta St}{Ai, t-1}\right) + \beta3\left(\frac{PPEt}{Ai, t-1}\right) + \varepsilon i, t \quad (3)$$

$$\frac{ACCRUALSi, t}{Ai, t-1} = \alpha + \beta1\left(\frac{1}{Ai, t-1}\right) + \beta2\left(\frac{\Delta St - \Delta ARt}{Ai, t-1}\right) + \beta3\left(\frac{PPEt}{Ai, t-1}\right) + \varepsilon i, t \quad (4)$$

where ACCRUALSi,t is measured by subtracting cash flow from operation from net income divided by lag of total assets (At-1). PPEi,t is the ratio of property, plant and equipment to At-1. The only difference between Jones (1991) model and modified Jones (1995) model is that in later model (Equation 4) change in account receivable ($\Delta ARi,t$) is subtracted from change in sales ($\Delta Si,t$). The reason for subtracting $\Delta ARi,t$ is that generally managers record discretionary revenues when at the time of sales irrespective whether they received the payment of sales or not which may influence the overall accruals. Thus, we expect that modified Jones (1995) may predict accrual manipulation more efficiently. We measure the AM by taking the residual from Equation 3 and 4.

3.2.6 Control Variables

We also control for variable that may affect earnings management. First, we use firm's size (SIZE) as control variable which is calculated by taking the natural log of book value of total assets. Large firms are well reputed and have high quality internal control system which makes it difficult for management to manipulate earnings (Habib et al., 2013; Alzoubi, 2016;). Thus, we expect a negative relationship between firm's size and EM. The second control variable is leverage ratio which is defined as the ratio of total liabilities to total assets. Firms with high leverage are more likely to involve in EM to overcome the violation of using debt covenant (Gombola et al., 2016). We also control for firm's profitability also known as return on assets (ROA) which is computed as dividing net income on total assets. Firm's growth (Growth) is calculated as the percentage change in total assets of a firm from the previous year. Sharma and Kuang (2013) and Gonzalez and Garcia-Meca (2014) found that firm's tendency towards earnings management increases when firms have high growth rate to maintain steady earnings.

We also use two additional control variables that capture the effect of regulatory environment, one is country-level political risk (PRISK) and other is the international financial reporting standards (IFRS). The PRISK is a dummy variable that is given a value of 1 if the annual score of country-level political risk is greater than the median of the entire periods (2008-2019) and otherwise 0.

The IFRS is a dummy variable, a value of 1 indicates the year and onward periods in which IFRS was adopted and zero indicates the periods before IFRS adoption. In Pakistan, IFRS has been adopted since July 2018, so the value of IFRS is 1 for years 2018-2019 and 0 for other years (2007-2017). Previous literature has discussed the role of IFRS in influencing earnings management. According to Brown (2011) the adoption of IFRS brings improvement in the transparency of accounting information and its reliability which improve the quality firm's financial statements compare to pre-IFRS periods. Thus, EM significantly reduced after the adoption of IFRS standards. Anagnostopoulou (2016) studied whether the adoption of IFRS affect EM. Their findings show that tendency towards AM reduces after the adoption of IFRS, however Graham et al. (2005) pointed out that firms start practicing REM as alternative when AM related activities are strictly monitored.

3.2.7. Trade-off between REM and AM

To test our hypothesis regarding the trade-off between REM and AM, it is important to check the relationship the two earnings management approaches. The following OLS regression model has been used to examine the trade-off between real earnings management (REM) and accrual management (RM). Instead of using the individual cost components of REM and AM, we used aggregate proxies of REM and AM to avoid measurement biases.

$$
\begin{aligned}
REM_{i,t} &= \alpha \; \beta1 AM_{i,t} + \beta2 \, SIZE_{i,t} + \beta3 Leverage_{i,t} + \beta4 ROA_{i,t} + \beta5 Growth_{i,t} \\
&+ \beta6 PRISK_{i,t} + \beta7 IFRS_{i,t} + Year\ fixed\ effect + Firm\ fixed\ effect \\
&+ \varepsilon_{i,t} \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad (5)
\end{aligned}
$$

$$
\begin{aligned}
AM_{i,t} &= \alpha \; \beta1 REM_{i,t} + \beta2 \, SIZE_{i,t} + \beta3 Leverage_{i,t} + \beta4 ROA_{i,t} + \beta5 Growth_{i,t} \\
&+ \beta6 PRISK_{i,t} + \beta7 IFRS_{i,t} + AM_t - 1 + Year\ fixed\ effect \\
&+ Firm\ fixed\ effect \\
&+ \varepsilon_{i,t} \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad (6)
\end{aligned}
$$

In Equation 5, $REM_{i,t}$ is real earnings manipulation which is the dependent variable, $AM_{i,t}$ is accrual manipulation which is the independent variables. While the subscript i,t represent a value of a firm i at time t. which In Equation 6, AM is the dependent variable while REM is the independent variables. The details of the variables used in the above models are provided in appendix. One concern about the use of OLS regression is the endogenous selection bias which means that the relationship between the REM and AM in above models may be explained by some other firm's level unobservable factors. To overcome this concern, we include firm fixed effect in the regression model.

Table 1 presents total number of firm's firm-years observations (N) and percentage of contribution of each industry. Our sample constitute a total of 17 industries with a total of 197 firms and 2255 firm-years observations. Among these industries, the top five that contributes more to the overall sample are personal goods (19.73%), unclassified (15.88), Food producers (12.11%), cement (10.42%) and chemical (7.10%) industry.

Industry	Firms	N	%	Cum.
Automobiles and Parts	13	150	6.65	6.65
Cement	19	235	10.42	17.07
Chemicals	13	160	7.1	24.17
Construction and Materials	2	26	1.15	25.32
Electricity	13	140	6.21	31.53
Fixed Line Telecommunications	3	39	1.73	33.26
Food Producers	24	273	12.11	45.37
Gas, Water and Multiutilities	2	24	1.06	46.43
General Industrials	6	61	2.71	49.14
Industrial Engineering	3	33	1.46	50.6
Industrial Metals and Mining	8	79	3.5	54.1
Industrial Transportation	4	44	1.95	56.05
Oil and Gas Producers	7	85	3.77	59.82
Personal Goods	41	445	19.73	79.56
Pharmaceuticals and Biotechnology	8	78	3.46	83.02
Tobacco	2	25	1.11	84.12
Unclassified	29	358	15.88	100
Total	197	2255	100	

Source: *Thomson Reuters DataStream.*

4. Results and Discussions
4.1. Summary Statistics

The descriptive statistics of our study are provided in table 2. The mean value of REM is -0.002 show that on average Pakistan firms manipulate earnings (decreases) by 0.2 % by changing cost of goods sold, selling, generals and administration expense and R&D expenditures. This indicates that Pakistani firms showing low cost of goods sold, generals and administration expense and R&D expenditures to manipulate earnings. The average value of AM and AM_mod is -0.026 indicating that Pakistani firms, on average manipulate (decreases) accruals by 2.6 %.

The mean value of firm's size (natural log of total assets) is 16.306. The mean leverage (total debt to total assets) value is 0.323, mean value of ROA (net income to total assets) is 0.243 and the mean value of firm's growth (Growth) is 0.145. The mean value of country-level political risk (PRISK) is 0.427 (42.7 %). PRISK is a dummy variable which is denoted as 1 if in a specific year the value of political risk is higher than the sample median and 0 otherwise. AM $_{t-1}$ and AM_Mod $_{t-1}$ are the accrual management in the previous years calculated through Jones (1991) model and modified Jones (1995) model. The mean values of AM $_{t-1}$ and AM_Mod $_{t-1}$ are -0.025 which nearly equal to the value of AM and AM_Mod.

This table reports the summary statistics of all the variables used in the study. The summary includes total number of observations (N), mean, standard deviation minimum median and maximum value.

	N	Mean	Std. Dev.	Min	Median	Max
REM	1610	-0.002	0.376	-1.953	0.026	0.991
AM	2155	-0.026	1.084	-3.168	-0.181	11.616
AM_mod	2155	-0.026	1.084	-3.176	-0.181	11.62
SIZE	2255	16.306	1.239	11.495	16.118	19.519
Leverage	2255	0.323	0.229	0	0.319	1.066
ROA	2239	0.243	1.999	-2.071	0.014	15.367
Growth	2171	0.145	0.252	-0.304	0.091	1.45
PRISK	2255	0.427	0.495	0	0	1
IFRS	2255	0.169	0.375	0	0	1
AM t-1	1943	-0.025	1.001	0	0.286	11.616
AM_Mod t-1	1943	-0.025	1.001	0.001	0.287	11.62

Note: N= 2255. REM, real earnings manipulation. AM, accrual manipulations. AM_mod, accrual manipulation measured through modified Jones (1995) model. SIZE, firm's size. Leverage, the ratio of total debt to total assets. ROA, return on assets. Growth, firm's growth rate. PRISK, country-level political risk, IFRS, international financial reporting standards.

4.2. Correlation Matrix

The correlation analysis results of our sample variables are provided in table 3 which is used to confirm the direction of relationship between two variables. Both accrual manipulation (AM) and accrual manipulation measured through modified Jones (1995) models are negatively associated with real earnings management (REM). This indicates that when firms engage more in REM activities, they are less likely to practice AM. Country-level political risk (PRISK) is positively associated with REM while negatively associated with AM and AM mod which suggests that firms increase their real earnings management (REM) when country-level political risk (PRISK) is high while decreases AM when PRISK is high. Again, this is an indication of the trade-off between REM and AM. There is a positive (negative) relationship between IFRS and REM (AM). Firm's size is negatively related to earnings management, to both REM and AM which show that large firms are less likely to involve in earnings management. The relationship between Growth and all the three measure of earnings management i.e. REM, AM and AM_Mod is positive which indicates that high growth firms are more likely to engage in earnings management (Kuang 2013) González and García-Meca, 2014).

Variables	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11
(1) REM	1										
(2) AM	-0.014	1									
(3) AM_Mod	-0.015	1	1								
(4) SIZE	-0.073	-0.231	-0.231	1							
(5) Leverage	0.147	-0.032	-0.032	-0.101	1						
(6) ROA	-0.202	0.024	0.025	0.057	-0.424	1					
(7) Growth	0.089	0.075	0.076	0.041	-0.044	0.133	1				
(8) PRISK	0.048	-0.06	-0.06	0.246	-0.081	-0.017	0.055	1			
(9) IFRS	0.034	-0.036	-0.037	0.201	0.02	-0.036	0.013	0.481	1		
(10) AMt-1	-0.022	0.888	0.888	-0.245	-0.009	0.015	0.056	-0.091	-0.065	1	
(11) AM_Modt-1	-0.023	0.888	0.888	-0.244	-0.009	0.016	0.056	-0.091	-0.065	0.98	1

Note: N= 2255. REM, real earnings manipulation. AM, accrual manipulations. AM_mod, accrual manipulation measured through modified Jones (1995) model. SIZE, firm's size. Leverage, the ratio of total debt to total assets. ROA, return on assets. Growth, firm's growth rate. PRISK, country-level political risk, IFRS, international financial reporting standards. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

4.3. Trade-off between REM and AM

Following Shah, Rashid and Malik (2020), we use simultaneous equations modelling approach to examine the trade-off between REM and AM. While examining the trade-off between REM and AM, previous studies argues that when activities related to REM (AM) increases, firm's tendency towards AM (REM) decreases which suggests that managers cannot use both approaches at a time (Zang, 2012; Shah et al., 2020). Since both REM and AM are jointly determining one another. Thus, it can potentially generate endogeneity issue particularly when using OLS regression in a linear Model. To avoid this issue, we run the regression analysis employing simultaneous equation modelling (SEM).

According to Hamza and Kortas (2018), the SEM is generally a superior approach when handling endogeneity. For data analysis we used ordinary least square (OLS) regression along with year and firm fixed effect to avoid endogeneity concern. Table 4 reports the results of the trade-off between REM and AM. In column 1, the results show that the regression coefficient of accrual management (AM) is -0.043 and statistically significant at 1% significance level. This result shows a negative relationship between AM and REM indicating that firms involved in accrual manipulation are less likely to adopt real earnings manipulation practices. The results provide significant evidence that Pakistani firms use both REM and AM as substitutions to one another rather than using both earnings management approaches at one time. In Column 2, the regression coefficient of REM is -0.132 and significant 5% significance level which indicates a negative impact of REM on AM: accrual manipulation through (Jones 1991) model. In Column 3, we regress AM_Mod: accrual manipulation through modified (Jones, 1995) model.

The regression results are statistically same in AM and AM_Mod model. The findings are consistent with previous studies of Zang (2012) and Shah et al. (2020) that managers trade-off between REM and AM based on their relative cost's factors. If the cost associated with REM is high, then management less likely to adopt REM and as alternative option they will choose AM as substitute of REM. The relationship between firm's size and earnings management is negative and statistically significant in all the three regressions. The results are consistent with the correlation results which suggests that managers in large firms cannot easily manipulate earnings because of the strict audit monitoring by analyst and outsiders' shareholders (shah et al 2020). Moreover, Growth is positively associated to earnings management in all three regressions which is consistent with the previous studies of Kuang (2013) and González and García-Meca (2014) which suggests that high growth firm's increases earnings manipulation to maintain steady earnings.

Following Shah, Rashid and Malik (2020) we include the lag value of AM in both model 2 and 3 to control for the previous year's accrual manipulation (AM) as they may affect the current year AM. The results of both AM $_{t-1}$ and AM_mod $_{t-1}$ is positive and statistically significant which suggest that accrual manipulation of the current year is highly related to the accrual manipulation of the previous year. Although we used IFRS as control variable but the results of IFRS needs special attention as to our knowledge this variable has rarely been used before in the REM and AM trade-off model, particularly in the context of Pakistan.

The coefficient of IFRS is positive but insignificant in all the three models (Column 1-3) which indicates that the adoption of IFRS as an accounting standard does not bring any significant changes in earnings management in Pakistani firms. One possible reason for this insignificant effect is that the adoption of IFRS is still at the infantry stage in Pakistan. After the adoption of IFRS with effect from 1 July 2018, while the first profile issued by the international accounting standards boards is on 12 September 2019 to illustrate the extent of implementation of IFRS Standards. Thus, it is more likely that most of the Pakistani firms are still unaware of the IFRS standards which needs few more years to be properly implemented. In the future, the policy makers should implement the IFRS as mandatory criteria for the firms to improve the accounting and earnings quality of the corporate sector.

VARIABLES	-1	-2	-3
	REM	AM	AM_mod
REM	.	-0.132**	-0.132**
		(-2.139)	(-2.126)
AM	-0.043***	.	
	(-5.234)		
SIZE	-0.177***	-0.109***	-0.109***
	(-11.893)	(-2.965)	(-2.958)
Leverage	0.299***	-0.099	-0.095
	-8.262	(-1.153)	(-1.107)
ROA	0	0.004**	0.004**
	(-0.504)	-2.503	-2.555
Growth	0.221***	0.161***	0.165***
	-11.894	-3.592	-3.704
PRISK	0.333***	-0.025	-0.023
	-11.695	(-0.413)	(-0.388)
IFRS	0.016	0.031	0.03
	-0.989	-0.727	-0.71
AM t-1		0.489***	
		-28.838	
AM_Mod t-1			0.490***
			-28.921
Constant	2.811***	2.036***	2.025***
	-12.2	-3.542	-3.527
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	1,597	1,523	1,523
R-squared	0.2	0.46	0.46

Table 4:
Regression Results on the trade-off between REM and AM

Note: *N = 2255. REM, real earnings manipulation. AM, accrual manipulations. AM_mod, accrual manipulation measured through modified Jones (1995) model. SIZE, firm's size. Leverage, the ratio of total debt to total assets. ROA, return on assets. Growth, firm's growth rate. PRISK, country-level political risk, IFRS, international financial reporting standards. t statistics is reported in the parenthesis. *** p<0.01, ** p<0.05, * p<0.1*

4.4. Country-level Political Risk and Earnings Management

Table 5 presents the results on the relationship between PRISK and earnings management. Previous research identified that country-level political factors influence earnings management (Cohen, Bisogno & Malkogianni, 2019). As discussed, earnings management can be measure through two main accounting approaches i.e. real earnings manipulations (REM) and accrual manipulations (AM). In Coulumn 1, we report the results of REM model while in Column 2 and 3 we report the results of AM and AM_Mod models. The coefficient of PRISK is positive (0.378) and statistically significant at 1% level. This indicates that firm's increases manipulation in real earnings when political risk is high.

In Columns 2 and 3, the coefficients of PRISK are negative but statistically insignificant. The negative coefficient shows that when firm's increases REM during high political uncertainty, the tendency of firm's towards AM reduces which is an indication of the substitution effect between the REM and AM. However, we do not significantly confirm the reduction in AM during high political risk/uncertainty. Altogether, the results suggest that PRSIK is more likely a determinant of REM rather than AM. Firm's size (SIZE) has a negative relationship with earnings management in all the three models. This confirm the findings of the literature that large firms are less likely to adopt earnings management due to strict monitoring environment.

The results implied that during a high political uncertainty the information asymmetry between managers and stakeholders increases which provide managers a chance to manipulate earnings and to conceal actual earnings (Schipper, 1989). Thus, firm's stake holders need to properly oversight the management in time of high political instability. This could be done particularly through improvement in corporate governance and internal audit. Moreover, it also implies that political stability is important to improve the firm-level earnings management because it reduces uncertainty, reduces firm's excess cash holdings propensity which results in a reduction in agency cost (Jensen, 1986).

Table 5:

Country-level Political Risk and Earnings Management

VARIABLES	-1	-4	-5
	REM	AM	AM_Mod
PRISK	0.378***	-0.034	-0.036
	-12.319	(-0.366)	(-0.380)
SIZE	-0.158***	-0.290***	-0.289***
	(-10.728)	(-6.433)	(-6.414)
Leverage	0.283***	-0.044	-0.039
	-7.751	(-0.373)	(-0.328)
ROA	-0.001	0.005*	0.005**
	(-0.994)	-1.946	-1.973
Growth	0.208***	0.336***	0.339***
	-11.143	-5.399	-5.446
Constant	2.479***	5.198***	5.181***
	-10.96	-7.403	-7.379
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	1,610	2,155	2,155
R-squared	0.18	0.08	0.08

Note: N = 2255. REM, real earnings manipulation. AM, accrual manipulations. AM_mod, accrual manipulation measured through modified Jones (1995) model. SIZE, firm's size. Leverage, the ratio of total debt to total assets. ROA, return on assets. Growth, firm's growth rate. PRISK, country-level political risk, IFRS, international financial reporting standards. t statistics is reported in the parenthesis. *** p<0.01, ** p<0.05, * p<0.1

5. Conclusion and Future Research Recommendation

This study examines two important research hypotheses regarding earnings management. First, we hypothesized that there is a positive relationship between political risk and earnings management. Second, Pakistani firms uses real earnings management and accrual earnings management as substitutes rather than excer-

cising both at the same time. We test these two hypotheses for a sample of 200 non-financial firms listed in PSX. We used two approaches to calculate earnings management i.e., real earnings manipulation (REM) and accrual management (AM) that are widely used in the literature. To measure REM, we first adopt Roychowdhury's (2006) model and to measure AM we adopt Jones (1991) and modified Jones (1995) models. To examine the trade-off between REM and AM, the study employs simultaneous equation modeling using OLS as an econometric technique.

The study reveals that Pakistani firms adopt the trade-off between REM and AM to manipulate earnings. This suggests that when firm's tendency towards REM increases, they decrease AM and vice versa. Moreover, the study found that an increase in country-level political risk also increase REM but has no influence on the AM. This study has implications for manager, government, and policy makers to understand the scenarios under which firms are more likely to go for earnings manipulations particularly that is related to regulatory conditions of the country. Moreover, under the scenario of higher political instability, policy makers and corporate owners should focus on the monitoring of earning management to increase the quality of financial reporting. This study is limited to non-financial and non-utilities firms listed in Pakistan stock exchange (PSX). Also, the study is limited to two years of IFRS data because the IFRS has been adopted in Pakistan since 2018 and is a limitation for this study. There is a space for further research to extend this study to financial and services industries which are generally highly regulated industries. So, it will be interesting how managers engage in EM practices in a highly regularized environment. Moreover, future research is needed to extend the determinants of earnings management to firm-level political uncertainty, systematic risk, and stock prices volatility.

Recommendations for future research can be extended on the basis of the results of this study to further understand the relationship between earnings management techniques applied in Pakistani firms other than non-financial firms and different sectors using a larger sample. A large sample size would provide more convincing evidence on the relationship between earnings management decision making beneficial for investors, shareholders and for future earnings growth.

The implications derived from this study is an eye opener for the Securities and Exchange Commission of Pakistan (SECP) to understand and ensure the efficiency criteria, i.e. allocation efficiency, investment efficiency and information efficiency with effective enforcement of existing laws as followed by Accounting bodies to ensure that trading is fair and that investor's and shareholders' rights are protected.

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