IMPACT OF EARNING MANAGEMENT ON COST OF DEBT: EMPIRICAL ANALYSIS OF LISTED FIRMS ON PAKISTAN STOCK EXCHANGE

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ABSTRACT

In practices of earnings management shareholders and other stakeholders take keen interest because it manipulate the firms' true performance and alternatively it reduces the accuracy of earnings as a performance indicator. The cost of debt for the firm reveals the degree of creditor trust in its loan-repayment capacity. In order to balance the risk of a large number of receivables that the company may not be able to recover and creditors impose a higher rate of return on debt. Therefore, this thesis investigated the effects of earnings management on the cost of debt for 40 non-financial listed firms during 2016 to 2021 with 240 firm-year observations. Panel data techniques are used for analysis. Moreover, firm size, leverage, and profitability are included in this study as control variables. The test results revealed a negative relationship between cost of debt and earnings management. The cost of debt will decrease if profit manipulation increases. The findings of this study are consistent with the study of Faiza and Alifiah (2017), such as they concluded that there is no significant association between cost of debt and earning management. Cost of debt and firm size have a positive association, suggesting a statistically significant relationship. Furthermore, there is a positive correlation between firm profitability and cost of debt, meaning that an increase in firm profitability is linked to an increase in the cost of debt. There is a negative correlation between leverage and cost of debt. In the basis of findings this is suggested that cost of debt is not related with earnings management particularlyy for businesses that have a less creditworthiness. In order to maintain the financial stability of the company the regulatory governing its financial system must be based on creditworthiness.
Keywords: *Earning Management, Cost of Debt, Panel Data Techniques.*

INTRODUCTION

Interest of researchers and academicians have increased in corporate finance sector due to the widespread application of earnings management (EM) and its potential impact on the accuracy of financial reporting and firm performance. However, EM is a deliberate manipulation of financial information to achieve some objectives, such as achieving earnings targets or enhancing financial metrics. As Tuovila, (2019) reported that EM can benefit companies in short term, but in long-term it creates issues such as negatively affected the financial conditions, specifically in relation to the Cost of Debt (CoD).

While making financial decisions, firms should consider CoD because it indicates the cost of borrowing money from investors. It consist of several elements such as; the borrower's creditworthiness, the risks attached to the debt, and state of the market. EM practices affect company's perceived credibility and risk profile and also effect CoD. As a result the interest rates associated with debt issuance also increases (The Financial Crisis Inquiry Commission, 2011).

Stakeholders such as academicians, practitioners, investors, and policymakers who recognize the importance of EM, have been strengthening their efforts to comprehend its influence on the firms' survival and financial performance (Karjalainen, 2011). Developed economies have more literature in this area, though there has been exceptionally little research on EM in developing nations. Li et al. (2014) argued that the process of the information concerning the role of EM and audit quality on borrowing costs less in emerging economies. For this reason, the necessity of further examination has been emphasized. Li et al., (2014) further added as information asymmetry issues are prevalent in emerging economies, scholars are doing more investigation into the institutional distinctions and market changes that characterize these nations. However Bergh et al. (2018) reported that, in Pakistan policymakers, regulators, and financial institution with comparable institutional arrangements, have a deeper comprehension of the relationship between EM, audit quality, and loan costs.

Pakistan is an example of a prosperous economy, since gaining independence in 1992 has undergone considerable policy shifts towards a free market system. The existence of large oil reserves does not necessarily imply a financially stable country. This is evidenced by the fact that the country faces challenges related to corporate governance, financial reporting transparency, and accounting integrity. All of which are the primary conditions for the attraction of foreign investment (Johannesson et al., 2012; Mahmood & Oryzalin, 2017).

EM is a frequently examined area of research these days and is a common feature in the corporate field. EM is defined as deliberate manipulation of financial reporting by a firms to meet some financial goals, such as increasing financial performance measures or achieving earnings targets. Tuovila (2019) also reported that, even though EM may help businesses in the short run. It can be harmful for their long term financial stability particularly in case of CoD.

Policymakers, investors, practitioners, and academics are becoming increasingly aware of EM as a means of improving performance (Akhigbe et al., 2013). There has been a lot of research on EM in the context of developed markets, but there haven't been many empirical studies looking at how common these strategies are in developing countries. In Li et al. (2014) study emerging market strategies are examined in relation to country-level governance in countries including China, Brazil, Russia, and India. There is little evidence available regarding how audit quality and EM affect the cost of borrowing in emerging countries, while Li and Wu (2014) frequently focuses on the interaction between EM and other internal and external variable.

The reliability and integrity of the accounting data offered by for-profit businesses in these sectors, however, are routinely questioned. A few Chinese and Russian companies later abandoned their requests to list on the US market due to the stringent reporting standards and high investor information expectations. Major audit firms have also questioned the veracity of accounting information provided by businesses operating in underdeveloped countries (Li et al., 2014).

In emerging economies, information asymmetry is common. According to Li et al. (2014), future studies on EM should focus on emerging economies, where behaviours appear to be more prevalent because of institutional differences and continuous transitions to free market economies. Policymakers, regulators, commercial organizations, and financial institutions in developing nations with institutional frameworks similar to Pakistan may be interested in the study's conclusions (Bergh et al., 2018).

According to Johannesson et al. (2012) commercial organisations in developing nations like Pakistan should improve their corporate governance practises in order to attract more foreign investors. Stated differently, foreign investors with a focus on emerging economies prioritise financial reporting practises, governance frameworks, and accountability and openness. Mahmood and Oryzalin (2017) found that Central Asian countries have paid much less attention to the significance of corporate disclosures and the accuracy of accounting information provided by corporations than other developed and emerging economies globally.

Concerning the veracity of financial reporting and its impact on the financial system have been highlighted by the recent increase in the predominance of EM. One of the most significant consequences of EM is its effect on the CoD, which is a critical determinant of a firm's financial health. Moreover, in previous literature some studies investigated the impact of EM on CoD such as Kim and Sohn (2013), Ilyas, Khan and Khan (2019) also investigated this area in Pakistan but they used CoD as combination of different sources of financing. The debt financing is very important component of overall CoD, maximum Pakistani listed firms used this source of financing. Hence, this area needs attention of researchers to investigate specifically in the context of Pakistan. This study focuses to fill the research gap and to empirically identify the importance of CoD and EM impact on debt financing sources to encourage creditors. Hence, to investigate the impact of EM practices on CoD of listed Pakistani firms on Stock Exchange.

This is finally conceded that the study provides valuable insights that how EM practices affected the CoD of Pakistan Stock Exchange (PSX) listed companies. This study will also provide information to the creditors and investors. As they significantly rely on the CoD when making lending and investment decisions. Furthermore, this research contributes to the knowledge of EM and the CoD by offering empirical evidence regarding their relationship. Also, this study adds to our understanding in the field of EM and CoD and lays the groundwork for future investigation.

Literature Review

EM and the CoD are two fundamental concepts that have gained considerable attention in accounting and finance nowadays. In this chapter, a detailed review on these two topics is explained. EM is the manipulation of a company's financial reporting to get predefined financial goals. EM practices include manipulating accruals, applying strict accounting standards, and timing revenue recognition. Several theories have been proposed to find out the causes of EM. These theories include the need to meet earnings targets, the need to avoid earnings declines, and the influence of management incentives (Jaggi, 2005).

The CoD is an important factor in a company's financial decision making process. It helps to determine the cost of borrowing money from investors. The CoD is affected by several factors, such as the borrower's creditworthiness, the risk of the debt, and the current situation of the market. As CoD is effected by a firm's perceived risk and creditworthiness. While EM practices can affect these two through financial reporting. For example DeAngelo (1986) reports that aggressive EM practices may lead to extra sales and profitability. As a result it can damage a company's reputation and also increase the perception that its debt is more risky.

However, the relationship between the CoD and EM has been the subject of different empirical studies. The findings of all those studies are contradictory. As some show positive association while others discover no association between EM and CoD (Dechow & Dichev, 2002). The inconsistent results of these studies may be due to the differences in definition and calculating of EM and CoD, as well as from differences in the methods and information used in the studies. To find the complete descriptive dimensions of the relationship between these two variables and how

they affect the financial health of organizations, more research is required (Shahzad et al., 2019).

Agency Theory

The theory of the agency states that in most circumstances, managers will not act in the best interests of creditors when signing loan contracts. Consequently, the agency costs of debt may escalate and be followed by conflicts of interest and knowledge asymmetries (Jensen & Meckling, 1976). Cormier et al., (2010) & Shivakumar, (2013) reports that it is mandatory that financial statements and other corporate disclosures should be utilized as tools to overcome knowledge gaps and agency conflicts between principals and the agents.

Various researches that investigate the relationship between EM and CoD on the foundation of agency theory have been conducted. According to Dechow & Sloan (1991), Managers might adjust their outcomes in order to minimize agency conflicts. They can send the financial report to the lenders to show that things are actually going well. By this, the CoD is reduced and thus the perceived risk by creditors. On the other hand, Beatty et al. (2002) contended that EM causes CoD to increase by enhancing agency issues and reducing financial statement reliability.

Furthermore, studies have demonstrated that several factors connected with agency relationships determine the relationship between EM and CoD. For instance, Jensen and Meckling (1976) imply secured corporate governance as well as external audits as monitoring systems are necessary in order to avoid agency conflicts more and the effect of EM on CoD. Additionally, Fama and Jensen (1983) argue that creditors monitoring and debt covenants may restrict managers' adoption of EM. Hence, on the basis of theoretical perspective of agency theory and empirical findings of literature this theory act as foundation of the current study because CoD and EM decisions are making by board of directors in the best interest of shareholders. Board acts as agent for the shareholders and they are real owner of the business in term of principal.

Signalling Theory

Healy & Palepu (2001); Mahadeo et al. (2011) states to less the cost of capital, make stock more marketable and to increase investor confidence, managers give the capital market more information. Signaling theory supports the hypothesis that lenders should set interest rates more effectively. If they use precise accounting data, particularly regarding earnings, to evaluate the performance, financial stability, and default risks of borrowers (Carmo et al., 2016).

However, to provide a positive snapshot of the company future at the time of credit rating, opportunistic managers use EM more to lower the CoD (Demirtas & Cornaggia, 2013). As previous literature reports that when there is a significant incentive to falsify accounting information. The results are less useful for stakeholders due to the less integrity of financial reporting caused by EM (Ghosh & Moon, 2010; Marquardt & Wiedman, 2004).

There are numerous studies on the role that signaling theory plays in EM influences debt costs. Healy and Wahlen (1999) posits that managers would tell falsehoods just to make their performance look better or worse and borrow on that basis, thus the terms of loan agreements and the estimation of credit risk by creditors would greatly be affected. Also, Beneish and Vargus (2002) mention that managers might use EM to indicate the company's capacity to clear loans promptly and remove worries on financial instability. It has been found that thus companies are able to borrow money at lower rates.

Moreover, literature has reported various factors that influence the effectiveness of EM as a signaling mechanism, such as quality of company governance, the transparency of disclosure standards, and the accuracy of financial reporting. Dechow et al. (2010) revealed that organizations that disclose transparently and higher quality reports are seem to less engage in EM. Because they are less motivated to manipulate earnings in order to communicate information. Bushman et al., (2004) also reports that strong corporate level practices can boost the accuracy of financial reporting and will lessen the need for EM as a signaling strategy. So, on the basis of this theory and empirical findings of previous studies this is concluded that management decisions act as signal for the decisions of creditors and investors. They use these information for their investment decisions.

Earnings Management and Cost of Debt

EM refers to the purposeful manipulation of a company financial reporting in order to meet particular financial goals. While company's credit decision making process heavily relies on the CoD. However, CoD is affected by many factors like the borrower's creditworthiness, risk of the debt, and market conditions (Donaldson, 1985). EM practices may affect CoD because its affect firm's perceived risk and creditworthiness. For example, aggressive EM practices may lead to extra sales and profitability. It can damage a firm's reputation and increase the assumption that its debt is riskier. While in contrast, prudent EM practices can reduce the CoD. It will increasee the trustworthiness and financial reporting reliability of the company (A Note on Finance Essentials for Directors | IMD Article, n.d.).

The relationship between EM and the CoD is further complicated if firms employ EM to reduce their CoD. For example, a corporation with a high CoD will lower its CoD by manipulating its financial reporting to improve its creditworthiness and financial performance (Park & Na, 2018). Furthermore, previous research on the relationship between EM and the CoD in developed and developing nations have produced contradictory results. Francis et al. (2005) revealed a negative correlation between accruals quality and high CoD by evaluating organizations from 1970 to 2001. Alternatively, Bharath et al. (2008) show that lower CoD is associated with higher accounting quality in US enterprises. On the other hand, Gray et al. (2009) find no relationship between discretionary accruals and the CoD.

Stakeholders such as creditors and regulatory agencies usually focus on large firms because of their size and importance in the market. As a result, they might have better visibility and access to resources to perform more EM procedures. Francis et al. (2004) research also states that business size has an influences on more EM as larger companies are more likely to regulate earnings to meet analyst expectations. However, larger firms may subject to strict disclosure regulations and scrutiny, which would promote transparency in financial reporting. This could reduce the need for aggressive EM techniques.

Leuz et al. (2003) found that bigger firms have lower levels of EM.

In most empirical studies which examined the relationship between EM and the CoD, firm size is often used as a controlled variable to isolate its impacts. By taking firm size into consideration, researchers may more significantly analyze the impact of EM on the CoD, independent of the firm's characteristics that are related to size. Similarly, Dechow et al. (1995) studied EM affect on CoD while accounting for business size. Additionally, due to more leverage firms may also experience financial crisis which also encourages management for earnings manipulation. Studies reveal that corporations with elevated leverage ratios are susceptible to manipulating profits to adhere to debt covenant requirements or avert covenant violations (Dechow et al., 1995; Roychowdhury, 2006).

High leverage, nevertheless, can also make the knowledge asymmetry between the company and its creditors worse. High leverage companies may come under more scrutiny from creditors, which would raise the need for accurate and open financial reporting. This could lessen the requirement for drastic methods of managing profits. Research by Beatty et al. (2002) revealed evidence that companies with large debt loads are subject to greater scrutiny from creditors and less EM.

Because leverage modifies creditors' assessments of credit risk, it can have a direct impact on loan costs. Higher degrees of leverage are frequently linked to higher default risk, which raises the cost of borrowing money. Studies by Graham and Harvey (2001) and Frank and Goyal (2009) have demonstrated a positive correlation between leverage and the CoD.

In empirical studies examining the relationship between EM and the CoD, leverage is often used as a controlled variable to determine its influence. Regardless of the leverage-related features of the firm, researchers can assess the impact of EM on the CoD with greater accuracy, Dechow et al. (1995).

The success of the business may have an impact on managers' incentives to apply EM approaches. Businesses with negative net income may face pressure to increase profits in order to meet their required targets. Alternatively, profitable
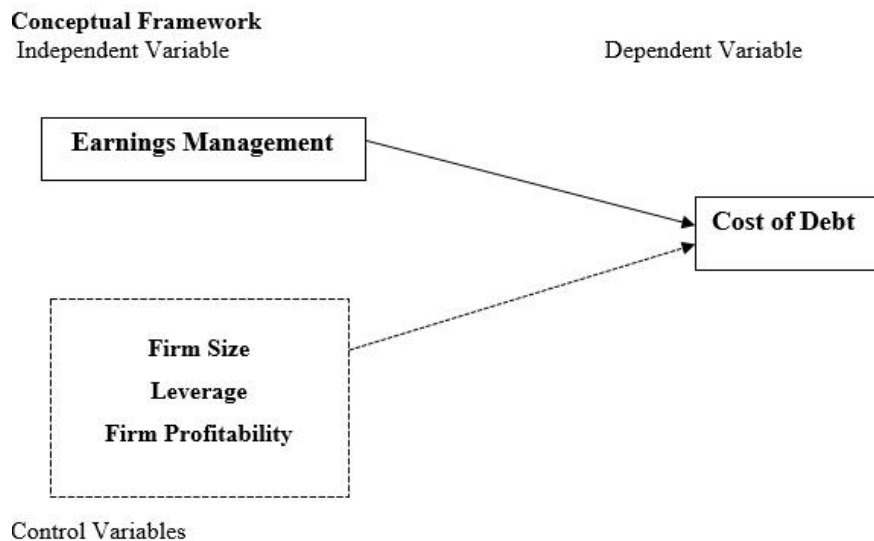
businesses would be less engage in EM. However, Dechow et al. (1995) states that less profitable businesses are more likely to manipulate the results to avoid undesirable outcomes.

Moreover, a company's performance can also affect creditors' perceptions of credit risk and their demands for precise financial reporting. As company with negative income will increase the fear of credit risk in creditor. While companies with positive returns will increase its creditor trust, which will decrease information asymmetry and the likelihood of aggressive EM. Bartov et al. (2002) states that organizations with higher profitability experience lower debt expenses, demonstrating a positive relationship between business success and creditor perceptions of credit risk.

Creditor perceptions of credit risk are directly influenced by the company's performance, and this in turn influences the CoD. Stronger performance makes a company seem like a less hazardous borrower, which lowers borrowing costs. Sufi and Titman (2007) and Wessels (1988) among others has shown evidence in favour of a negative correlation between the CoD and the success of the company.

Firm performance is frequently employed as a controlling variable in empirical studies to study the impacts of EM and CoD. Researchers can more accurately evaluate the effect of EM on the CoD regardless of the performance-related attributes of the firm by accounting for firm performance. For example, Dechow et al. (1995) examined the effect of EM on the CoD, controlling for company performance.

Conceptual Framework

Conceptual Framework
Independent Variable   Dependent Variable

Earnings Management → Cost of Debt

Firm Size
Leverage
Firm Profitability

Control Variables

RESEARCH METHODOLOGY
The study period is selected from 2016 to 2021 and the EM and CoD of listed companies on PSX were thoroughly examined. Therefore, this study population is consisting of all listed non-financial firms on PSX. On the basis of availability of complete data of all companies are sample size of this study. This criterion is used in this study and identified only 40 non-financial firms from PSX whose data was fully available. Thus, the total number of firm-year observations is 240.

Nature and Sources of Data
The nature of the data is panel and secondary. However, the data is collected form the annual reports of the companies from State Bank of Pakistan (SBP) and the Pakistan Stock Exchange (PSX) website.

Variables of the Study
The rate of interest that a firm pay on its debt including bonds and loans, is termed as CoD. It is an important part of capital structure can have a significantly influence on company's financial success. CoD is a vital component in financial decision. Investors and creditors use CoD to

evaluate firm's financial state. Greenbaum et al., (2019) reports that a higher CoD means companies paying a higher interest rate on their debts, which may be harmful to its profitability and overall financial health.

Besides that, there are investors who use it to evaluate a company's risk-return trade-off when buying its securities. Also, creditors rely on CoD for setting interest charges on borrowed amounts and conditions of doing so. A high CoD can restrict the potential for a firm getting debt capital which will consequently affect its ability to expand or grow. On the contrary, low CoD could make it easier for companies to access loan facilities hence improving their overall performance (Massey, 2019).

This indicates that a company can easily manipulate its financial report in order to fulfil certain financial goals. Empirical analysis of listed firms on Pakistan Stock Exchange includes EM as independent variable because the study aims to examine the effects of EM on CoD. EM practices can include deferring revenue recognition, misstating expenses or employing creative accounting techniques with the aim of affecting firm performance financially (Asim & Ismail, 2019).

The field of EM is positively significant as it influences the financial reporting of a business and stakeholders' information such as creditors and investors. For instance, overstating sales and profits due to EM may create a distorted perception of a company's financial position leading to wrong decisions by stakeholders. On the other hand, EM has the potential to enhance a company's performance and the reliability of its financial statements for the advantage of all parties (Shakespeare, 2019).

The Jones model, presented by Jones (1991) for the first time, is among the most widely used methods in locating discretionary accruals that are generally considered to be EM indicators. The model calculates the standard amount of accruals according to industry standards and company's past performance. This is followed by obtaining discretionary accruals through comparing real actual accruals with expected accruals. Due to its flexibility, transparency, availability of data, longevity, and fame, this model has been adopted in this research study.

Typically, studies measuring the relationship between EM and CoD use firm size as a control variable (Al-Malkawi, 2008). Larger companies may attract more investors and have greater resources available to them, which could independently affect their CoD from EM (Barclay & Smith, 1995). A study by Dechow et al., (1995) revealed that companies with low quality earnings tend to experience high borrowing costs associated with manipulation. In another study, Chen et al. (2010) investigated the effect of the EM on CoD during the 2008 global financial crisis. According to them, firms practicing EM paid increased borrowing rates due to creditors' risk aversion and careful assessment of financial statements. Also, larger firms face more scrutiny from lenders making it difficult to hide their practices of EM (Frank & Rego, 2006). The existing literature provides useful insights but more research is needed in order to fully understand this relationship and its influence on corporate funding choices.

DeAngelo's (1986) findings explored that how EM affected CoD. He stated that borrowing firms who practice EM would have higher rates of interest on their loans since such lenders regard them as risky ventures. Additionally, Roychowdhury (2006) found a positive relationship between both variables showing that EM increases income levels which are used later in determining CoD. As a result, firms who manipulate their results are viewed as riskier borrowers making it expensive to borrow from them.

To add into this relationship, Skinner and Sloan (2002) established that firms doing EM meant for revenue enhancement charge higher bond yield spreads implying conscientiously paying lenders acted as promoters of the same companies. In order to offer new insights, Frank and Goyal (2009) looked at leverage including whether it was meant for control variables. They implied that leverage might moderate the effect of EM on CoD. Companies with high leverage showed distinct EM pressure on CoD.

Firm profitability is the main goal for survival of every type of business. Dechow (1995) has measure different EM methods and examines how they affect the CoD. Because of the perceived risk, companies who have falsified their results

may have higher CoD (Skinner, 1997). Also, Cheng and Hollenbeck (2018) address profitability in particular as a moderating factor in the link between EM and the CoD. It highlights firm's profitability affect the relationship between EM and loan payments.

This suggests that companies that are more profitable could have lower equity costs and, as a result, lower loan expenses. Firm profitability has a significant influence on this connection as a control variable. Strong profitability may act as a safeguard against higher debt costs brought on by earnings manipulation, whereas low profitability may exacerbate the detrimental effects of EM on the CoD.

As stated, the EM and CoD of listed companies on the PSX are objectively investigated in this study. Consequently, the regression model used to examine the effect of EM on CoD is as follows:

$$CoD_{it} = \beta_0 + \beta_1 EM_{it} + \beta_2 FS_{it} + \beta_3 LEV_{it} + \beta_4 FP + \varepsilon_{it}$$

Where:

CoD_{it} is the CoD of a firm i at the time t

EM_{it} is EM of firm i at time t

FS_{it} is the firm size of firm i at the time t

LEV_{it} is the Leverage of firm i at time t

FP_{it} is the firm performance of firm i at time t

ε_{it} is the error term of firm i at time t

Descriptive/Summary Statistics

The properties of the dataset are summarized via summary statistics. Indicators of the variable central tendency include the mean, median, and standard deviation. Skewness and kurtosis, however, provide an explanation for how the data/series are distributed. In particular, skewness indicates the data's normality and kurtosis identifies the data's shape – whether it is peaked or flat—in terms of its shape (Hair et al., 2010). Cite the central tendency and dispersion of the data as key components that accurately capture the characteristics of the data (Levin & Rubin, 2006).

Correlation Analysis

The correlational matrix depicts the association between the two variables. Either theory or actual data support the link between the variables. The correlation coefficients range from ± 1. A correlation value that is near the extremes denotes the perfect linear relationship between the variables (Basiruddun, 2011).

Regression Analysis

According to the literature, regression analysis employs ordinary least square (OLS) method of regression to examine the relationship between the dependent variable and a number of independent variables (Basiruddin, 2011). Mention that OLS is also used in the analysis of a certain collection of data. OLS should be utilized, however, when the data are normal, serially independent, homoscedastic, and there is no correlation between the independent variables, according to Habbash (2010). Regression may produce biased results if these premises are broken (Chen et al., 2003; Gujarati, 2003; Hair et al., 2010). In this case, the literature advises applying diagnostic tests to challenge the OLS assumption, such as skewness to look for normality and Durbin's test to look for serial correlation.

Assumptions of Ordinary Least Square
Test of Normality

The fundamental prerequisite of the data for OLS estimation is normality. According to the literature, tests like the Jarque-Bera test are used to determine whether data sets are normal. However, skewness was employed in this study to examine the data's normalcy. According to According to Habbash (2010), the data are normal if the skewness is 1.96 or below. The skewed distribution shows that the data are not normally distributed. On the other hand, kurtosis depicts the data's distribution form and is used to pinpoint dataset peeked and flatness. OLS yields erroneous findings when the distribution of the data is not normal (Hair et al., 2010). Furthermore, Greene (2007) shows that the use of OLS estimators can cause test statistics to become incorrect and biased.

Heteroscedasticity

Homoscedasticity is the second premise of the OLS. The variance of distributional variations, according to Asteriou and Hall (2007), is constant over time. Therefore, these changes are viewed as homoscedastic. If the data contradict this assumption, however, they are considered

heteroscedastic. Regression analysis is said to regularly run into the heteroscedasticity problem. Furthermore, data heteroscedasticity leads to OLS estimators that are reliable and impartial. But the OLS estimators wastefully give a t-statistics value that is greater than intended. As a result, it affects testing of hypotheses and leads to a questionable t-statistic. If the P-value is less than the level of significance, use the Breusch and Pagan LM test to locate the main problem (0.05).

Autocorrelation

It assumes that error terms are randomly distributed. The error terms, on the other hand, are serially or autocorrelated if this assumption is violated. When autocorrelation is present in the data, the OLS estimators remain reliable and unbiased. Nevertheless, they have ineffective estimators, therefore hypothesis testing is invalid. The DW test is utilized to verify the presumption that there is no serial correlation or serial independence (Asteriou & Hall, 2010).

Multicollinearity

It is assumed that there is no correlation between the independent variables. However, if they are connected through correlation, this leads to the multicollinearity issue. Thus, various techniques such as correlation, VIF, and tolerance are utilized to analyse the issue of multicollinearity in the data set. Furthermore, Hair et al. (2010) show that collinearity is more likely to occur when independent variables have high correlations with one another. Additionally, the correlation value of ± 0.90 produces an extremely hazardous situation. According to Habbash (2010) and Mark (2008), the presence of multicollinearity is a concern if the tolerance value is close to zero and the VIF is more than 10.

OLS is the appropriate analytical method if the aforementioned premises are true. If not, non-parametric methods such as the pooled OLS (common constant method), the random effect model, and the fixed-effect model (FEM) are used to test the analysis (REM). The next sections go into extensive detail about each strategy and the underlying presumptions.

Panel Data Analysis

Panel data are used in this study to examine the proposed hypotheses; because the data is panel in nature with multiple time frames and different cross sections. To analyse the data, panel data analysis is performed. According to Habbash (2010), non-parametric tests are preferable for effective and objective results if any simple OLS assumptions are violated. According to Hsu et al. (2013), if OLS assumptions are not met after the diagnostics test, it is preferable to utilize Generalized Least Square (GLS). Gujarati (2003) adds that if there are issues with autocorrelation and heteroscedasticity, it is preferable to utilize GLS. In a similar vein, panel data, according to Javid and Iqbal (2010), aid in reducing the endogeneity issue in the data.

FEM and REM are the two basic models for panel data (Baltagi & Kao, 2001). The Common, FEM, and REM models are the three main models, according to Asteriou and Hall (2007). Below is a discussion of these models.

Common OLS

According to Greene (2007), the common effect model is more suited for keeping a coefficient constant throughout time. The Common Constant estimate methodology, according to Asteriou and Hall (2007), also presupposes that the "cross-sectional dimension has no disparities in data metrics. Or it estimates a common constant model for all cross-sections. This model presupposes that the common constant method (CCM) is preferable because of the homogeneity of the data.

Fixed Effect Model

Since the FE model treats an individual constant as a group-specific constant, it is utilized to evaluate panel data (Greene, 2007). FE models presuppose that "the slope of all remains fixed for both cross-section and time, and the intercept may change for each cross-section but not across time" (Brooke 2008; Asteriou & Hall, 2007). The constant for all groups being the same is the null hypothesis for the F-test; If the statistical significance.

Random Effect Model

A GLS approach to panel data that uses the individual constant as a group-specific disturbance is called a random effect (Brooke, 2008). Additionally, he claims that "REM takes various intercepts for each item and then keeps

them constant across time, and connection with explained and explanatory variables are supposed to be the same at cross-sections and over time" (p. 498). In contrast to FE, it estimates the fewest parameters possible and uses dummies as necessary. It is important to note that the Hausman test, which is shown in the following, is used to determine the selection criteria between FEM and REM.

Hausman test for FEM and REM

According to Asteriou and Hall (2007), Hausman is used to determining which FEM or REM is optimal (1978). Use FEM instead of REM if the Hausman test result is significant (p-value). However, the Breusch and Pagan Lagrange Multiplier Test, which is described below, are necessary to choose between pooled OLS and REM:

Breusch and Pagan Lagrange Multiplier Test

When choosing between pooled OLS and REM, this test is utilized as the selection criterion. According to Akbar et al. (2011), employ REM instead of Pooled OLS if the results of this test are significant (p-value).

Results and Discussions

The analysis of the investigation's empirical findings is presented in this chapter. The descriptive statistics presented in this chapter illustrated the features of the data. The outcomes of correlations and regression analysis are also shown. In addition to testing hypotheses, a regression study uses a panel data model to investigate the impact of EM on CoD of companies listed on the PSX.

Descriptive Statistics of the Study
Table 01: Summary Statistics

	CoD	EM	FS	FP	LEV
Mean	0.0794	4.376322	7.826208	13.05083	1.944225
Median	0.0736	4.394537	7.547256	0.386400	1.409520
Maximum	0.2432	16.45364	10.46066	113.5900	21.15015
Minimum	0.0274	-5.824636	4.621810	-35.40000	-9.685622
Std Dev	0.0461	1.534251	1.117533	22.40457	3.539117

The table 01 reports the summary statistics of the variables. The average level of CoD is low and the median level is almost near with mean value. The level of earnings management practices are low. Moreover, the firm size shows that almost firms are of same nature and size. The performance indicator shows that average performance are good and the leverage level shows the debt financing is high.

Correlations Results

The correlations matrix is used to look at the relationship between two variables and determine if they are positively or negatively connected. The correlation findings for the study's variables are displayed in the table.

Table 02: Correlation Analysis Results

	CoD	EM	FS	FP	LEV
CoD	1				
EM	0.049	1			
FS	-0.108	-0.176	1		
FP	0.018	0.347	-0.161	1	
LEV	0.042	0.066	0.023	0.014	1

The study's correlation matrix is shown in the table. CoD and EM are positively associated which shows that if firms are indulge in the practices of earnings manipulation then their cost of borrowing will be high because the trust of creditors are shacked. Hence, they demand high level of interest rate which increase the level of CoD for firms. FS and CoD have a negative relationship, meaning that as FS increases, CoD will decrease. This findings revealed that large size firms can easily pay their liability to creditors. Additionally, FP and CoD have a positive

correlation. The level of association of LEV with all variables of the study are positive.

OLS Assumptions

This thesis, as previously mentioned, studies the relationship between EM and CoD in a sample of 40 firms that are listed on the PSX between 2016 and 2021. Since the data are panel in nature, panel data techniques are applied. OLS was used as the foundation for analysis when the study first started its investigation. Panel data approaches are described, although the OLS criteria of heteroscedasticity and autocorrelation are not met.

Normality

In this research, skewness is used to verify the normalcy of the data. The concept of normality dictates that both independent and dependent variables have a normal distribution. According to Habbash (2013), data are deemed normal if the skewness is less than ±1.96. The skewed distribution in this study indicates that the data are normally distributed.

Table 03: Normality Test Results

Variables	Skewness	Kurtosis
CoD	1.27	3.419
EM	.841	2.949
FS	1.216	4.332
LEV	.953	2.915
FP	1.684	5.266

Multicollinearity

Multicollinearity arises when there is a connection between the independent variables. In this work, the strong correlation and ensuing multicollinearity among independent variables were investigated using the VIF. Stronger correlations between explanatory variables are indicative of multicollinearity, which skews the estimated results, according to Hair et al. (2009).

Table 04: Multicollinearity Results

Variables	VIF	1/VIF
CoD	1.395	.717
EM	1.338	.748
FS	1.224	.817
LEV	1.204	.831
FP	1.112	.899
Mean VIF	1.195	.

A multicollinearity issue is indicated if the mean VIF value is more than 10. (Gujarati, 2003). The findings demonstrate that the independent variables do not have a multicollinearity issue because the VIF values are less than 10.

Heteroscedasticity

Because heteroscedasticity has the potential to skew the results, the modified Wald test is used in this work to check for it. According to Ludwig (2013), the Wald test is used to determine the significance of the explanatory variables in a model. "Variables that don't add anything to the model can be eliminated without affecting it in any way; those that are significant add something to the model. One of the OLS assumptions is that the model should be uniform and the variance of the error component should be constant rather than correlated (Johnston, 1972).

	Coef.
Chi-square test value	6.7
P-value	0.0000

The P-value in the preceding table indicates significance, indicating a heteroscedasticity issue.

Autocorrelation

According to Drukker (2003), "the error term should not be associated with its prior value as it biased the error term" because of autocorrelation in the data. The autocorrelation test is called the Wooldridge test. Because the Wooldridge test makes fewer assumptions regarding the behaviour of diverse individual effects, Drukker (2003) demonstrated that it is a trustworthy test. The findings indicate that there is an autocorrelation issue with the data and that the P-value is substantial.

	Coef.
F (1, 59)	12.834
Prob > F	0.0007

After completing all diagnostic tests or the OLS assumptions, the results show that OLS is not the optimal method for model analysis.

Model Specification

Given that the data do not align with the OLS assumptions, the study suggests utilising panel data analysis to examine the relationship between EM and CoD. Therefore, model specification tests are used to determine which of the pooling, FEM, and REM models is the best. Similar to OLS panel data approaches, diagnostic techniques like the Hausman test to distinguish between FEM and REM and the Breusch and Pagan LM test to distinguish between Pooled OLS and REM are also required. Dougherty (2011) states that when data are obtained via random sampling, the Hausman test is utilised to select between FEM and REM, and the Breusch and Pagan LM test is utilised to select between REM and Pooled OLS.

Hausman Test: Findings from the Hausman Test to Select Between REM and FEM

	Coef.
Chi-square test value	18.6
P-value	.01

The Hausman test results for selecting between the FE and RE models are displayed in the table. The P-value is substantial, according to the results, suggesting that FEM be used instead of other models.

Breusch and Pagan LM Test Results

Breusch and Pagan Lagrangian Multiplier Test

	Coef.
Chi-square test value	596.89
Prob > Chibar2	0.0000

The outcome of the Breusch and Pagan LM test, which compares pooled OLS with FEM, is displayed in the test above. Given the large discrepancy between the panels and the P-value, it is recommended to use the FEM model instead of the pooled OLS.

Fixed Effect Model Results

Table 05: Regression Results

CoD	Coef.	St.Err.	t-value	p-value	Sig
EM	-.002	.003	-0.56	.574	
FS	.000	.002	0.03	.977	
LEV	.006	.003	2.36	.019	**
FP	-.001	.001	-0.57	.566	
Constant	.025	.081	0.31	.759	

*** $p<.01$, ** $p<.05$, * $p<.1$

FEM is the most suited analysis technique for this investigation as specified. The link between EM and CoD was therefore assessed using the FEM model. The study's fixed effect regression results are displayed in a table. FS, LEV, and FP are used as control variables, while CoD is used as the

dependent variable. EM is used as the independent variable.

Table demonstrates that EM has a negative and insignificant effect on EM level. If profits manipulation increases, CoD will decrease since skewed statistics will not fairly represent the company's growth. This statistical result is consistent with the findings of Faiza and Alifiah (2017), who concluded that there is no meaningful link between CoD and EM. However, the strict regulations in CG code of 2002 and risk of financial loss may have contributed to this outcome. Based on these results, I am able to validate my theory that EM negatively affects CoD. The findings further show that manipulation practices of firms management insignificantly effect the CoD level, it conclude that due to management involvement in the activities of window dressing of their financial position cannot effect the level of CoD.

The coefficient of EM indicates that enterprises engage in manipulation since EM has a negative but negligible impact on CoD. FS is showing signs of a positive effect on CoD but statistically insignificant which means that either firm size is large or small it cannot effect the level of debt cost. Additionally, FP and CoD have a negative and insignificant relationship. The level of profitability cannot effect the level of CoD because in Pakistani market listed firms relay on the level of debts and management financing their business from debt financing.

LEV and CoD have a statistically positive and significantly associated. It can be the result of a business that wants to keep investing on capital projects. Level of debts in capital structure of firms effect the level of CoD because high level of debts can reduce the level of trust of creditors hence they demand high rate of interest from management. Hence, this is suggested that management can properly manage the level of capital structure of their firms to reduce the level of CoD.

Conclusion

The purpose of this study is to look into how EM affects the CoD. This study first examines whether accruals and bond ratings are systematically associated in order to ascertain the impact. This is important because it's possible that default ratings will completely offset whatever effect accruals have on yield spreads; in that scenario, accruals won't have a separate effect on yield spreads. Overall, we find that discretionary accruals are not given considerable weight by rating agencies when assessing risk. This study employed a model to take any self-selection bias into account. The research takes into consideration the likelihood that organisations that are less (or more) creditworthy may decide to take a more (or less) aggressive approach to managing their profitability. The model would be miss-specified in the event of such a bias, which would also increase the likelihood that any apparent accrual influence on yield spreads is actually capturing a default risk dimension rather than the distinct impact of EM on CoD. The model indicates that companies with a lower creditworthiness level engage in more extensive marketing. The yield spread estimates show that markets do penalise all firms for higher EM, regardless of creditworthiness. Consistent with previous studies conducted by Prevost et al. (2008), the analysis finds that the yield for EM is significantly higher on non-investment grade debt. In summary, this study provides evidence that EM effects the CoD. This is especially valid for companies with lower creditworthiness (high yield or investment grade). The idea that debt markets are able to identify managers' self-serving attempts to mislead the public about their company's profitability.

This analysis suggests that investors and credit rating agencies give discretionary accruals more weight when evaluating a firm's risk because the market penalizes higher EM. It is recommended that models that appropriately take into consideration self-selection bias and the effect of EM on credit risk be further developed and improved. This can increase the precision of yield spread forecasts and evaluations of credit risk. It is important to encourage businesses to make their EM processes more transparent and open. In addition to reducing the negative effects on their CoD, this can increase market trust. In order to present a balanced and truthful picture of the state of the financial system, regulators ought to consider tightening regulations and monitoring associated money laundering practices, particularly for businesses that have a lower credit

rating. Prospective investigations could delve into discretionary accruals alongside other EM indicators or proxies. This could involve exploring additional elements of the financial statements or adopting alternative approaches that more closely resemble real-world EM patterns. In other words, it is essential to investigate the various business factors that affect EM risk, such as size of the firm, type of industry, prevailing legal practice and economic parameters among others. The interaction between these components would help in pinpointing the mechanisms that underlie EM.

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