

EFFECT OF THE BOARD OF DIRECTORS ON EARNINGS MANAGEMENT WITH THE MODERATING ROLE OF FIRM SIZE

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ABSTRACT

The principal objective of this research study is to scrutinize and explore the influence of board of directors' characteristics such as gender diversity, education diversity, nationality, board size, and board experience have an influence on EM. The population of this study includes the financial and non-financial sectors of Pakistan Stock Exchange (PSE) which includes 559 firms. The target population of this study is comprised 14 sectors of non-financial firms of Pakistan Stock Exchange which includes 369 firms. This study examined the non-financial sectors of Pakistan Stock Exchange listed companies. This study conducted on three industries, namely, Cement industry, automobiles industry and pharmaceutical industry in Pakistan. Study sample includes 17, 18 and 43 Pakistani listed non-financial companies from Cement, automobiles and Pharmaceutical sectors respectively, during the period of 2010-2020. In this study secondary data was used. Board gender diversity and foreign directors' results are negatively significant and they play vigilant role in controlling earnings management and managers' opportunistic priorities. This result follow stewardship theory and reduce agency cost. The relationship between board education and earning management is positively significant. Board size is negatively insignificant and board experience positively insignificant. Moderating variable firm size concludes that firm size diversity has no significant effect on earning management. Firm size and gender diversity put combined significant effect on earnings management. Firm size and education diversity and firm size and foreign diversity respectively put combined positive and significant effect on earnings management. Firm size and board size and board experience respectively does not put combined significant effect on earnings management.

Key Words: Pakistan Stock Exchange, Earning Management, Board of Directors, Firm Size

INTRODUCTION

Enron's bankruptcy is the most serious bankruptcy case in the US and hurts the US capital market and financial market dramatically. Beside Enron, there still are a few scandals in financial statement fraud and earnings manipulation, such as Xerox and World.com overstating sales and profitability. These cases in accounting scandals provide evidence of artificial earnings management. Enron went bankrupt in 2001. In Taiwan, there are several financial

distress cases during Asian financial crisis in 1997. These financial distress cases result from poor operations and from lack of corporate governance on the behaviors of the management or controlling shareholders. Even though the board of directors is designed to monitor the management, it is evidenced that management or the controlling shareholders engage in earnings management and announce false financial reporting to cover their transferring wealth

from the minority shareholders to themselves. Corporate governance is thus urged to facilitate a solid capital market. Fama and Jensen (1983) indicate that the board of director is the core of corporate governance and that the structure of board of directors is influential to the functions of the board. They argue that outside directors are more efficient in monitoring the management and will not collude with the management. Therefore, under the separation of ownership and control, outside directors facilitate the governance functions of the board. Most of previous studies related to the functions of the board focus on the relationship between firm performance and the characteristics of the board. Lee et al. (1992) point out those stockholders' wealth in-crases in management buyouts when outside directors are in charge. Kosnik (1987, 1999) shows that outside directors reject the proposal of greenmail against on takeover. Brickley and James (1987) find that CEO compensation is negatively related to the number of outside directors, while Weisbach (1988) finds that CEOs are more likely to quit due to poor performance when faced without side directors. Previous studies argue that an efficient board of directors can reduce the agency costs significantly. Beasley (1996) also shows the likelihood of financial statement fraud is reduced because of the existence of outside directors and audit committee. The financial distress cases in Taiwan can be attributed to poor corporate governance mechanism. As mentioned earlier, board of directors is the core of the corporate governance system, the composition and characteristics of board influence the monitoring functions of board and the wealth of stockholders. little research ever investigates the effect of board characteristics on financial statement fraud and on earnings management (Banderlipe, 2009). Therefore, this study focuses on this issue to provide more evidence about the relationship between earnings management and the board characteristics, especially in group-affiliation firms and in non-electronic firms. Group-affiliation firms encounter more severe agency problem due to less transparency of transactions, while non-electronic firms have lower percentage of foreign institutional ownership and thus have higher agency cost. Financial accounting is used to reflect economic reality of any company. Managers of these companies are considered primarily responsible for the preparation of financial reporting. Earning is an interesting single item in financial reporting. It took

a particular interest in management science research. So, it is one of the major concerns of company partners. Given the significance of earnings, managers are interested in the way they are reported. For this reason they have to learn how to manage their earnings (Banderlipe, 2009). Thus, they will be able to enhance both the form and the content of financial reporting by adjusting the accounting income in order to maximize its utility.

Corporate governance is responsible for monitoring the managers on behalf of the shareholders and overseeing financial reporting process by company law. Therefore, the board of directors should play a role in retaining the earnings management. Several definitions of earnings management have been proposed. Authors mention some definitions, but beforehand, it is necessary to reveal the confusion between fraud and earnings management: fraud is defined as "one or more intentional acts designed to deceive other persons and cause them financial loss" (the National Association of Certified Fraud Examiners). Hence, fraud is considered an illegal act committed by a person belonging to a company. In contrast, earnings management is a legal act that derives its practical flexibility from accounting standards which can produce the best information in terms of quality and quantity. Earnings management is the selection of accounting methods carried out by the manager, and indicates the ability of the manager to improve the situation of company while respecting the rules of accounting. There are many definitions of the earnings management. Over the past 20 years, a chain of corporate failures and financial crises have raised many questions and focused specifically on corporate governance issues for financial institutions (Srairi, 2015). Similarly researchers, expert, regulator, and governments focused on dimensions of corporate governance to depict the true picture of fairness, transparency and accountability for their stakeholder in order to optimize the corporate proceedings (Zain, Muda, & Rashid, 2018). Corporate governance is an emerging filed and perform an important role in the overall performance of corporation (Younas & Ahmed, 2018) because corporate governance have focus on three pillars i.e. transparency, accountability and security, all these three pillars play a vital role in the success of corporation(s) and forming professional relationships between their stakeholders which include managers, employees, board of directors and most importantly shareholders.

Research Objectives

In the light of our research questions we develop the following objectives which are given below.

1. To investigate the effect of Board size on Earnings management?
2. To investigate the effect of Board members financial expertise on Earnings management?
3. To investigate the effect of Board gender on Earnings management?
4. To investigate the effect of Board experience on Earnings management?
5. To investigate the effect of Board foreign nationality on Earnings management?
6. To investigate the moderating effect of firm size on Earnings management?

LITERATURE REVIEW

Earnings management

Healy (1985), Guidry, Leone, and Rock (1999), Holthausen, Larcker, and Sloan (1995), Sweeney (1994), and Defond and Jiambalvo (1994) adopt the view of contractual motivation that earnings management can be regarded as an opportunistic behavior to maximize personal utilities under compensation and debt covenant. Perry and Williams, (1994), Friedman (1994), Erickson and Wang (1999) and Teoh, Welch, & Wong (1998) stand for the argument of stock price motivation that managers engaged in earning management in order to mislead the market. More specifically, Healy (1985) examines how bonus schemes affect the choices of accounting policy. He argues that the managers tend to maximize their bonuses through opportunistic earnings management. When earnings fall within an expected range, managers will choose accounting policies to raise the reported earnings up to the upper bound stipulated by the covenant to maximize their bonuses. However, when earnings are above the upper bound or below the under bound, managers tend to choose accounting policies that could defer earnings into the future to maximize their bonus in the long run. The interesting finding is that managers would choose accounting policies to reduce earnings when they find that the reported income is still unable to reach the lower bound required for bonus even if they adopt the aggressive accounting standards. This strategy would eventually defer the current income into the future, which in turn would allow them to make less effort to receive bonus in the coming years. This finding is contrary to previous studies that suggest managers monotonously choose ac-counting

policies to increase reported earnings, and has been referred to the so called “big bath theory” since then. Guidry et al. (1999) extend their study to investigate the opportunistic behavior of business-unit managers. The empirical results are congruent to the arguments of Healy (1985). Holthausen et al. (1995) also find that managers who are at their maximum bonus would manipulate accruals to lower reported earnings, which is congruous to Healy (1985). However, there is no sufficient evidence that managers would “take a bath” as suggested by Healy (1985).

Corporate Governance

Board size and earnings management

Literature relating to corporate governance is largely interested in the study of the influence of the board size on the effectiveness of the board of directors. Board size and performance have positively significant associated found by (AlQudah, Azzam, Aleqab & Shakhatreh, 2019) in Jordanian companies but negatively insignificant association was found by (El-habashy, 2019) in Egyptian listed firms. Board size plays vital role in effectiveness of the board (Beasley et al., 1996). EM is affected by BS (Park & Shin, 2004). Small boards and EM are positively related (Defond & Jiambal, 1994). Small BS is more effective (Klein, 2002; Peasnell, Pope, & Young, 1998). Larger boards are more efficient to reduce earnings management found (Fama & Jensen, 1983) and suggested that board size should be 5 to 9, but Al Azeez, Sukoharsono, Roekhudin & Andayani (2019) in contrast found that larger the board size less efficient on monitoring of the board. Negative association was found in US firms between BS & EM by (Cheng, Werfiel (2005). Thus; we propose to study the following hypothesis.

Hypothesis 1: The larger the board size, the higher extent of earnings management.

Board Members with Financial Education and earnings management

The board role is the internal governance of the firms (Fama, 1980). Board of directors overseeing administration decision in a well-organized way will improve performance of the firms. Doing so needs each member of the board must completely have equipped with management know how. In this study, if a Board member has obtained at least one accounting or finance qualification, that person was considered as a financial expertise. This was

measured by taking the number of directors with an accounting qualification as a percentage to the total number of directors of the board. Xie et al. (2003) have found that firms having board members with financial expertise have lower discretionary current accruals and negative and significant relationship were found by (Jeon, 2019) in Korean listed firms that expertise of the board of directors are associated with lower related party transactions .

Hypothesis 2: Firms with more directors in the board having financial Expertise will be positively associated with earnings management.

Board Gender and earnings management

Females are known for their achievement with moral and social values and enhance firms' performance positively. Females are more conservative and risk averse than men (Schubert, 2006) and found positively significant association between women directors and EM (Al Azeez, et al., 2019) in International Oil and Gas Corporation. Nigerian companies are dominated by male directors, chairs and CEOs (Sanda, Mikailu, & Garba, 2010). MacLeod and women are less expected to manipulate financial disclosures (Heminway, 2007). Women presence are associated with low level of EM found by (Adams & Ferreira, 2009; Srinidhi, Gul & Tsu, 2011; Khattak et al., 2021). EM is affected by the presence of female directors on the board and audit committee (Arun, Almahrog, Aribi, 2015). We hypothesized that;

Hypothesis 3: Female gender board member has no significant influence on earnings management.

Board Experience and earnings management

The experiences of the board members play a pivotal role in enhancing the performance of the organization. Experience and know-how of the board members significantly contribute to the firm performance. Younger CEOs are more competent than older (Hambrick & Mason, 1984) to the

business growth. The tenure of the CEO has been studied by several researchers (Hambrick & Fukutomi, 1991). Negative and significant relationship was found by (Bouaziz, Salhi, & Jarboui, 2020) in firms using model 1, 2 and 3 in French firms. According to restrained resources theory board associates with more experience and know-how perform better and handle organizational problems effectively. Therefore, human resource manager of the organization tries to select most experience candidates during the selection process. We hypothesized that;

Hypothesis 3: Experience of board member has no significant influence on earnings management.

Board Nationality and earnings management

Foreign board members who are not belong to the host country (Oxelheim & Randoy, 2003) and they suggested minimum one foreign director in the board. Foreign directors may bring diversity and maximized monitoring effectiveness (Srinidhi et al., 2011). Foreign directors and EM are negatively and significantly associated (AlQudah, et al., 2019) in Jordanian companies. But Reggy, Niels, Oxelheim, and Rand (2015) examined the Nordic firms & found that the presence of a non-Nordic (foreign director) is associated with significantly higher levels of EM. Presence of foreign directors prevents groping (Forbes & Milliken, 1999). Due to independency foreign directors are more efficient and reduce financial fraud (Fama, 1980; Fama & Jensen, 1983). The possibility of EM is lower in the presence of outside directors (Beasley, 1996). Therefore, we propose the following hypothesis:

Hypothesis 5: The more outside directors, the lower the extent of earnings management.

Firm size and earnings management

A moderator variable, M, is a third variable that effects the strength of the relationship between a dependent variable and independent variables.

$$Y = \beta_0 + \beta_1 X + \beta_2 M + \beta_3 XM + \varepsilon \dots(3.7)$$

Where,

$\beta_0, \beta_1, \beta_2$ and β_3 are regression coefficients

Y dependent variable

X independent variable

M moderate variable

XM interaction factor and

ε random error

Moderating variable alters the strength of an effect between independent variable and dependent variable. The moderator thus changes the effect component of the cause-effect relationship between the two variables. The size of the firm is vital in assessing the level of earnings management practices. Size of the firms moderates the relationship between corporate governance role and earnings management. Most management of corporate organizations takes advantage of the size of the firm to manipulate financial statement in such a way that can impress the dispersed shareholders and users. The firm size may have a positive or a negative impact on earnings management. Firm size negatively significant with narrative disclosure (Abozaid, Elshaabany, & Diab, 2020) and consistent with (Salehi, Moradi, & Paiydarmanesh, 2017) in Egyptian firms and concluded that small firms are more involved in EM but contradicted with (Legoria et al., 2018; Grediani, 2019) found significant positive relationship. Highly leveraged are involved in increasing accruals to relax the contractual debt-constraints (Ali, Salleh, & Hassan 2008; Jiang, Lee, & Anandarajan, 2008). Big companies are associated with low level of absolute discretionary accruals (Banderlipe, 2009; Jiang, Lee & Anandarajan, 2008; Peasnell, Pope, & Young, 2000). But Lobo and Zhou (2006) argued in contrast. We hypothesized that;

Hypothesis 6: Firm size has significantly moderate influence of board characteristics on earnings management.

METHODOLOGY

Population of the study

The population of this study includes the financial and non-financial sectors of Pakistan Stock Exchange (PSE) which includes 559 firms. The target population of this study is comprised 14

sectors of non-financial firms of Pakistan Stock Exchange which includes 369 firms. This study examined the non-financial sectors of Pakistan Stock Exchange listed companies.

Sample and Sampling Technique

In this study, the authors used the simple random sampling technique using lottery method. This study conducted on three industries, namely, Cement industry, automobiles industry and pharmaceutical industry in Pakistan. Study sample includes 17, 18 and 43 Pakistani listed non-financial companies from Cement, automobiles and Pharmaceutical sectors respectively, during the period of 2010-2020. The reason behind the selection of these industries is their size because these industries could provide all information related to the predictor variables in the study. The data in this study are collected manually from various sources. We used the annual reports and the consolidated financial statements of cash flows available on the websites of PSE. All the data related to corporate governance variables and earnings management.

Operationalization of the Variables

Dependent Variable

This study applies discretionary accruals (DA) as a proxy of earnings management. This measure is suggested by Healy (1985), Jones (1991), Defond and Jimbalvo (1994), and Teoh et al. (1998). Accruals consist of discretionary and non-discretionary accruals. DA is the part of accruals that can be manipulated and is typically used as the measure of earnings management. Teoh et al. (1998) further argue that current accruals can measure earnings management more precisely. The discretionary accruals calculated by the following Jones Modified formula.

$$\frac{TA_t}{A_{t-1}} = \hat{\alpha}_0 \left(\frac{1}{A_{t-1}} \right) + \hat{\alpha}_1 \left(\frac{\Delta REV_t - \Delta REC_t}{A_{t-1}} \right) + \hat{\alpha}_2 \left(\frac{PPE_t}{A_{t-1}} \right) \dots (3.1)$$

Where

TA_{t-1} = Total accruals in year t ,

ΔREV_t = Revenues in year t less revenues in year $t-1$,

ΔREC_t = Net receivables in year t less net receivables in year $t-1$,

PPE_t = Gross property plant and equipment in year t

A_{t-1} = Total assets in year $t-1$,

$\hat{\alpha}_0, \hat{\alpha}_1$, and $\hat{\alpha}_2$ = Estimated parameters, namely alphas.

and

Independent Variables

Exploring the advantages of corporate Governance has been given huge consideration over the previous decade. Board Size, Board members having Financial Education, Board Gender, Board Experience, Board Nationality and moderating variable, Firm Size.

Board Size

Fama and Jensen (1983) indicate that the most important function of board is to alleviate the agency cost resulting from the separation of ownership and control. The larger the size of the board, the lower the monitoring from the board. When the board size is larger, it is more difficult for the board members to communicate efficiently with one another. Hence, function of board is weaker when there are more members in the board. Jensen (1993) argues that the

$$DA_t = TA_t - NDA_t \dots (3.2)$$

Where

DA_t stands for discretionay accruals

TA_t stands for total accruals

NDA_t stands for non-discretionay accruals

management is more likely to engage in earnings management when the board is weak. Board size is calculated by the total number of members serving in a firm's board as used by (AlQudah, Azzam, Aleqab & Shakhatreh, 2019) in Jordanian companies and (El-habashy, 2019).

Board members with Financial Education

In this study, if a Board member has obtained at least one accounting or finance qualification, that person was considered as a financial expertise. This was measured by taking the number of directors with an accounting qualification as a percentage to the total number of directors of the board. Xie et al., (2003) have found that firms having board members with financial expertise have lower discretionary current accruals. Financial expertise is calculated by the total number of members having accounting or finance related degree in a firm's board as used by (Jeon, 2019).

Board Gender

Gender diversity is the proportion of the number of female to total board size is used as a measure of board gender. The presence of a female on the board leads to gender diversity. It is generally accepted that female board members are more independent (Carter, Simkins, & Simpson, 2003; Al Azeez, et al., 2019).

Board Experience

The experiences of the board members play a pivotal role in enhancing the performance of the organization. Experience and know-how of the board members significantly contribute to the firm performance. According to restrained resources theory board associates with more experience and know-how perform better and handle organizational problems effectively. Therefore, human resource manager of the organization tries to select most experience candidates during the selection process.

Board experience is calculated by the total number of years of board members serving in a firm(s) as used by (Bouaziz, Salhi, & Jarboui, 2020).

Board Nationality

Different scholars have defined board diversity in different time. It can be defined that board members have different countries. In modern economies, foreign directors have turned out to be a larger percentage of the labor force and play a significant role in firm performance. The percentage of board members who have a foreign nationality to the board size is defined as foreigner directors as used by (AlQudah, et al., 2019).

Statistical Tools

$$EM_{it} = \alpha_0 + \alpha_1 BS_{it} + \alpha_2 ED_{it} + \alpha_3 GD_{it} + \alpha_4 BE_{it} + \alpha_5 BN_{it} + \alpha_6 FS_{it} + \varepsilon_{it} \dots(3.3) \quad \text{where}$$

α_0 = constant and $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$ and α_6 are partial regression coefficients

BS_{it} = Board Size

ED_{it} = Education Diversity

GD_{it} = Gender Diversity

BE_{it} = Board Experience

BN_{it} = Nationality

FS_{it} = Military Presence

ε_{it} = Random Error



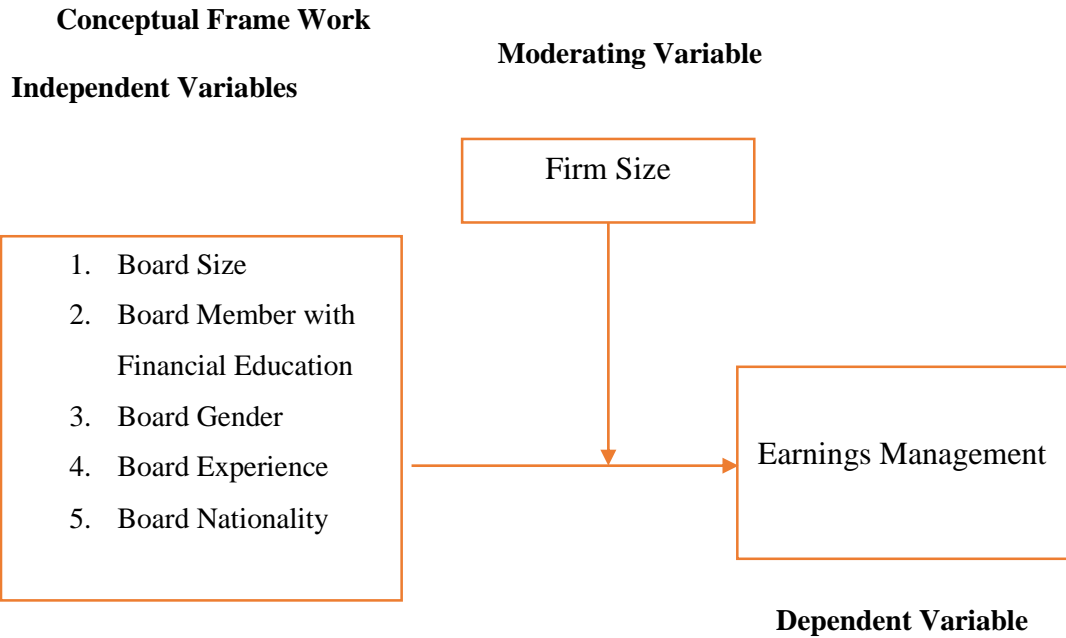


Figure1: framework

RESULTS

Table 1 Summary Statistics

Variable	Minimum	Maximum	Mean	Std. Dev.
DA	-0.799	1.935	-0.163	0.208
BGDR	0.000	3.000	1.076	0.793
BREDU	0.000	4.000	2.123	1.486
N	0.000	1.000	0.143	0.351
BS	5.000	14.00	7.970	1.214
BEXP	92.00	393.0	221.47	60.548
FRMSIZ	1.115	14.155	11.135	1.554

Note: DA, BGDR, BREDU, N, BS, BEXP, and FRMSIZE denote discretionary accruals, gender diversity, education diversity, nationality, board size, board experience, and firm size respectively.

Table 1, presents descriptive statistics of the study variables including of earning management (DA) as dependent variable and gender diversity, education diversity, nationality, board size, and board experience respectively as independent variables, whereas firm size as moderating variable. According to statistics the mean value of earnings management (DA) is -0.163, with a minimum value of -0.799 and maximum value of 1.935, whereas standard deviation is 0.208. This indicates that on average, sample firms have negative earning management. It is the indication of managing their earnings towards downward. Furthermore, the mean value of gender diversity is 1.076, with a minimum of 0.000 and

maximum value of 3.000, and standard deviation is 0.793. Similarly, the statistics regarding education diversity indicating the mean value of 2.123, with a minimum and maximum value 000 and 4.000, respectively and standard deviation is 1.486. Nationality which represents the mean value of 0.143, with a minimum of 000 and maximum value of 1.000, and standard deviation is 0.351. The table shows the mean value for board size is 7.970, with a minimum and maximum value 5.000 and 14.00, respectively and standard deviation is 1.214.

Moreover, the statistics for Board experience highlights the mean value of 221.47, with a minimum of 92.000 and maximum value of 393.00, and

standard deviation is 60.548. Lastly, the MODERATING variable i.e. Firm size statistics indicates the mean value of 11.135, with a minimum

and maximum value 1.1152 and 14.155, respectively and standard deviation is 1.554.

Table 2 Correlation coefficients Matrix

	DA	BGDR	BREDU	N	BS	BEXP	FRMSIZ
DA	1.0000	-0.0638	-0.1974	0.1063	-0.0140	0.0155	-0.1747
BGDR		1.0000	-0.0354	-0.1027	0.2495	-0.0009	0.0988
BREDU			1.0000	-0.3270	-0.2701	-0.1798	0.2736
N				1.0000	-0.1004	-0.0061	0.1271
BS					1.0000	-0.0872	-0.0606
BEXP						1.0000	-0.0099
FRMSIZ							1.0000

Note: DA, BGDR, BREDU, N, BS, BEXP, and FRMSIZE denote DISCRETIONARY accruals, gender diversity, education diversity, nationality, board size, board experience, and firm size respectively.

Table 2 reports results of correlation analysis among the variables. The statistics in the table indicating that board gender diversity and education diversity has a negative correlation with earning management. A positive correlation is found between nationality and

earning management. Similarly, board experience and earning management also has positive correlation with earning management. Board size has negative correlation with DA while firm size have negative correlation with earning management.

Table 3 Diagnostic Tests for Entire Independent Variables

Tests	Value	P-Value	Suggested Test
Chow test	2.85065	0.000	FE
Breusch-Pagan test	20.8118	0.000	RE
Hausman test	10.5452	0.061	FE
Wald test	Chi-square(31) = 7512.07	0.000	No Heteroscedasticity

Table 3 reports an appropriate model for the data analysis. This study was employed to choose an appropriate test among Chow test, Breusch-Pagan test and Hausman test statistic to select among pooled OLS, Fixed effect model and random effects model. The results of Chow test, Breusch-Pagan test and Hausman test statistic are presented in the Table 3. These test statistics were run under the null hypothesis for the current data analysis. The results of Chow test and Hausman test statistic are significant as evident by the F statistic value 0.000 and 0.061 respectively. This results suggests to run

fixed effect model and rejects random effects model and pooled OLS. As a result, fixed effect model is found as a more adequate model as compared to random effects model and pooled OLS.

Table 3 reports more important information about Heteroscedasticity problem. Wald test for Heteroscedasticity was employed and the results are presented in a table. Chi-square test statistic has a value 7512.07 with p-value is 0.000 which is the indication of homoscedasticity, means there is no Heteroscedasticity problem.

Table 4 Panel Data Analysis for Dependent variable Earnings Management and Independent Variables

	Coefficient	Std. Error	t-ratio	P-value	
Constant	-0.108	0.158	-0.686	0.493	
BGDR	-0.348	0.133	-2.605	0.009	*
BREDU	0.045	0.017	2.536	0.012	**
N	-0.280	0.102	-2.758	0.000	*
BS	-0.011	0.016	-0.666	0.506	
BEXP	0.0003	0.0003	0.680	0.497	
R-squared	0.256	F-value	3.009	P-value(F)	0.000
S-W value	0.776	p-value = 0.000	J-B value	15012.1	p-value = 0.00

Note: *, **, and *** represents significance level at 1%, 5%, and 10% respectively. BGDR, BREDU, N, BS, BEXP, S-W, and J-B denote gender diversity, education diversity, nationality, board size, board experience, Shapiro-Wilk and Jarque-Bera respectively.

Table 4 shows results of panel data regression analysis, where earning management is the dependent variable and, gender diversity, education diversity, nationality, board size, and board experience are the independent variables.

According to statistic the constant value of earning management is insignificant and negative is (-0.108; p=0.493), indicating the minimum value of earning management that will prevails in the market without any effect of all other variables.

Further, the effect of board gender diversity on earning management is negative and significant and this result is in line with (Gull, Nekhili, Nagati, & Chtioui, 2017). Because, coefficient value is negative with a p value (0.009) less than that 5% i.e. ($\beta = -0.348$; p value = 0.009 < 0.05). Therefore, hypothesis for gender diversity (BGDR) is significant and concludes that board BGDR has significant effect on earning management and this result follow stewardship theory and reduce agency cost.

Similarly, the relationship between board education (BREDU) and earning management is significant and positive, because coefficient value is positive with a significant p value i.e. ($\beta = 0.045$; p = 0.012 < 0.05), suggesting that positive level of BREDU indicating higher magnitude of earnings manipulation. Therefore, hypothesis of BREDU is significant and conclude that board education has a significant effect on earnings manipulation and similar positive relationship discovered in many studies (Sagitaria & Mita, 2019).

Further, the effect of board foreign director (N) on earnings management is negative and significant and this result is in line with (Kao & Chen, 2004).

Because, coefficient value is negative with a p value (0.000) less than that 1% i.e. ($\beta = -0.280$; p value = 0.000 < 0.05). Therefore, hypothesis for board foreign director diversity (N) is significant and concludes that board N has significant effect on earning management and this result follow stewardship theory and reduce agency cost.

According to statistic the board size value of earning management is insignificant and negative is -0.011; p=0.506), suggesting that high level of board size indicating insignificant earnings manipulation and negative and insignificant results were found in Norway by (Einer, et al., 2016). Therefore, hypothesis of board size diversity is insignificant and conclude that board size has an insignificant effect on earning management.

Similarly, the influence of board experience (BEXP) on earning management is also positive, but this relationship is insignificant with a p value of greater than 5%; i.e. ($\beta = 0.000$; p value = 0.497 > 0.05). This provides the evidence for the hypothesis of BEXP and concludes that BEXP has no significant effect on earning management.

R² value is 0.256 that explains 25.6 percent of variation in dependent variable i.e. earnings management is explained by gender diversity, education diversity, nationality, board size, and board experience.

F-stat shows 3.009 with a p value of 0.000 which is less than 0.05 indicating highly significant and it is strong evidence that overall model is good fitted.

Shapiro-Wilk test has a value 0.776 with p-value = 0.000 and Jarque-Bera test has value 15012.1 with p-value = 0.000, both test indicated normality.

Table 5 Diagnostic Tests for Entire Independent Variables and Moderating Variables.

Tests	Value	P-Value	Suggested Test
Chow test	2.630	0.000	FE
Breusch-Pagan test	14.126	0.000	RE
Hausman test	12.400	0.000	FE
Wald test	Chi-square(31) = 5106.27	0.000	No Heteroscedasticity

Table 5 indicates an appropriate model for the data analysis. This study was employed to select an appropriate test by utilizing Chow test, Breusch-Pagan test and Hausman test statistic. The results of Chow test, Breusch-Pagan test and Hausman test statistic are presented in the Table 4.5. These tests were run under their null hypothesis for the current data analysis. The results of Chow test and Hausman test statistic are significant as evident by the F statistic value 0.000 and 0.000 respectively. This results suggests to run fixed effect model and rejects

random effects model and pooled OLS. As a result, fixed effect model is found as a more adequate model as compared to random effects model and pooled OLS.

Table 5 reports more important information about Heteroscedasticity problem. Wald test for Heteroscedasticity was employed and the results are presented in a table. Chi-square test statistic has a value 5106.27 with p-value is 0.000 which is the indication of homoscedasticity, means there is no Heteroscedasticity problem.

Table 6 Panel Data Analysis for Dependent variable Earnings Management with Independent Variables and moderating variable

	Coefficient	Std. Error	t-ratio	p-value
Constant	6.418	13.722	0.467	0.640
BGDR	-0.026**	0.0122	-2.165	0.031
BREDU	0.177*	0.043	4.051	0.000
N	-11.331*	0.380	-29.76	0.000
BS	-0.022	1.816	-0.0122	0.990
BEXP	-0.006	0.026	-0.259	0.795
FRMSIZ	-0.718	1.216	-0.591	0.554
M1	-0.364*	0.065	-5.596	0.000
M2	0.045**	0.016	2.781	0.006
M3	0.026***	0.012	2.166	0.061
M4	-0.004	0.159	-0.025	0.979
M5	0.0008	0.002	0.359	0.719
R-squared	0.312	F-value	3.318	P-value(F) 0.000

Note: *, **, and *** represents significance level at 1%, 5%, and 10% respectively. BGDR, BREDU, N, BS, BEXP, S-W, and J-B denote gender diversity, education diversity, nationality, board size, and board experience, respectively. M1, M2, M3, M4, and M5 denote moderating effect of FRMSIZE*BGDR, FRMSIZE*BREDU, FRMSIZE*N, FRMSIZE*BS, FRMSIZE*BEXP, respectively.

Table 6 reports results of panel regression analysis of earnings management and independent variables with moderate variable firm size. According to statistic the constant value of earning management is insignificant and positive is ($\alpha = 6.418$; $p=0.640$), indicating the minimum value of earning management that will prevails in the market without any effect of all other variables.

The effect of board gender diversity (BGDR) on earnings management is negative and significant and this result is in line with (Gull, Nekhili, Nagati, & Chtioui, 2017). Because, BGDR coefficient value is negative with a p value less than 5% i.e. ($\beta = -0.026$; $p\text{-value} = 0.031 < 0.05$). Therefore, hypothesis of gender diversity is significant and concludes that board gender diversity has significant effect on

earning management and indication of agency problems.

Similarly, the relationship between board education (BREDU) and earning management is significant and positive and similar positive relationship discovered in many studies (Sagitaria & Mita, 2019), because BREDU coefficient value is positive with a significant p-value i.e. ($\beta = 0.177$; $p = 0.000 < 0.01$), suggesting that high level of board education indicating upward earnings manipulation. Therefore, hypothesis of board education is accepted and conclude that board education has a significant effect on earning management.

Board nationality (foreign directors) also has a negative and significant impact on earnings management with coefficient value of ($\beta = -11.331$) and p-value of ($p \text{ value} = 0.000 < 0.01$) indicating the number of board foreign members reduce the earnings management and this result is in line with (Kao & Chen, 2004). Therefore, hypothesis of board foreign members is accepted and concludes that board foreign members have a significant effect on earning management.

The impact of board size (BS) on earnings management is negative, however it fail to get the significance level, because coefficient value is insignificant with a p-value (0.990) of grater that 0.010 i.e. ($\beta = -0.022$; $p = 0.990 > 0.010$) and negative and insignificant results were found in Norway by (Einer, et al., 2016). Therefore, hypothesis of board diversity concludes that board diversity has no significant effect on earnings management.

Similarly, the influence of board experience (BEXP) on earnings management is also negative, but this relationship is insignificant with a p-value of greater than 0.05; i.e. ($\beta = -0.006$; $p \text{ value} = 0.795 > 0.10$). This provides the evidence for the rejecting of hypothesis of board experience (BEXP) and concludes that board experience has no significant effect on earnings management.

Moreover, the effect of firm size (FRMSIZ) on earnings management is negative, however insignificant. Because, FRMSIZ coefficient value is negative with a p-value grater that 0.010 i.e. ($\beta = -0.718$; $p \text{ value} = 0.554 > 0.010$) but in contrast negative and significant by (Chou & Chan, 2018). Therefore, hypothesis of FRMSIZ

concludes that firm size diversity has no significant effect on earning management.

Table 6 also reports the moderating effect of firm size with all independent variables on earnings management. M1 (FRMSIZE*BGDR) represents the moderating effect of firm size and gender diversity on earnings management. The coefficient value of FRMSIZE*BGDR is negative and significant (i.e. $\beta = -0.364$ with p-value = $0.000 < 0.010$). It means that firm size and gender diversity put combined significant effect on earnings management.

Furthermore, M2 (FRMSIZE*BREDU) represents the moderating effect of firm size and education diversity on earnings management. The coefficient value of FRMSIZE*BREDU is positive and significant (i.e. $\beta = 0.045$ with p-value = $0.006 < 0.010$). It means that firm size and education diversity put combined positive and significant effect on earnings management. Additionally, M3 (FRMSIZE*N) represents the moderating effect of firm size and foreign diversity on earnings management. The coefficient value of FRMSIZE*N is positive and significant (i.e. $\beta = 0.026$ with p-value = $0.016 < 0.05$). It means that firm size and foreign diversity put combined positive and significant effect on earnings management.

M4 (FRMSIZE*BS) represents the moderating effect of firm size and board size on earnings management. The coefficient value of FRMSIZE*BS is negative and insignificant (i.e. $\beta = -0.004$ with p-value = $0.719 > 0.10$). It means that firm size and board size does not put combined significant effect on earnings management.

Additionally, M5 (FRMSIZE*BEXP) represents the moderating effect of firm size and board experience on earnings management. The coefficient value of FRMSIZE*BEXP is positive and insignificant (i.e. $\beta = 0.0008$ with p-value = $0.979 > 0.10$). It means that firm size and board size does not put combined significant effect on earnings management.

R² value is 0.312 that explains 31.27 percent of variation in dependent variable i.e. earnings management is explained by gender diversity, education diversity, nationality, board size, and board experience, and firm size. F-stat shows 3.318 with a p value of 0.000 which is less than

0.01 indicating highly significant and it is strong evidence that overall model is good fitted.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The principal objective of this research study is to scrutinize and explore the influence of board of directors' characteristics on EM. More specifically, the author try to find to answer the following question: Do board of directors' characteristics such as gender diversity, education diversity, nationality, board size, and board experience have an influence on EM? First, this research study discovered that board gender diversity has negative significant effect on earnings management. Board gender diversity foreign director made it ensure that all stakeholders' interests are protected and financial disclosure is transparent. Consequently, board gender diversity and foreign director are vigilant in controlling earnings management and managers' opportunistic priorities. This result follow stewardship theory and reduce agency cost. Second, the relationship between board education and earning management is positively significant and conclude that board education has a significant effect on EM. The board education has little incompetent on the reduction of earnings management because, the result is positive. Third, Board size is negatively insignificant and concludes that board size has an insignificant effect on EM. Similarly, board experience (BEXP) positively insignificant and concludes that BEXP has no significant effect on earning management.

Finally, Hypothesis of moderating variable firm size (FRMSIZ) concludes that firm size diversity has no significant effect on earning management. M1 represents that firm size and gender diversity put combined significant effect on earnings management. Furthermore, M2 and M3 represents that firm size and education diversity and firm size and foreign diversity respectively put combined positive and significant effect on earnings management. M4 and M5 represents that firm size and board size and board experience respectively does not put combined significant effect on earnings management.

Recommendations

Following recommendations are as given below;

1. Since, managers and shareholders conflict exist, therefore, it is strongly recommend to increase the quota of female directors and foreign directors which are an essential part of corporate governance, in order to control and minimize the EM practices.
2. However, security exchange commission of Pakistan (regulatory agency) should take suitable measurements to improve board of directors' rules to enhance the supervisory function of the Board of Directors to halt EM.
3. Corporate governance of Pakistan should be given proper knowledge to stop or at least EM.

Limitations and Future Research Direction

Though the current research study has added value in the form of additional knowledge about earnings management, board characteristics (gender diversity, education diversity, nationality, board size, and board experience) and moderating variable (firm size) for investor vision, but this thesis still has some limitations. This study emphases only on Cement, Automobiles and Pharmaceutical sectors and ignored other non-financial such as textiles, transportation etc. and financial sectors, such as banks, which is a top business sectors in Pakistan.

This study provides a source of information about earnings management, board of directors' characteristics and moderating variable firm size for potential investors who are interested in Cement, Automobiles and Pharmaceutical sectors, but those investors who are interested in financial institutions like banks and insurance companies have no information. In the future, a study could be conducted on whole non-financial sector comparing all industries in Pakistan. Additionally, a study of the relationship between financial and non-financial sector could be conducted in Pakistan.

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