

The causal influence among CG mechanism, accounting frauds and earnings multiple

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ABSTRACT

The core purpose of this research is to explore the causal influence among CG mechanism, accounting frauds and earnings multiple. For this purpose, board size, board meetings and audit committee size are taken as the measures for corporate governance mechanism. I have the accounting measures i.e., ROE and ROA as the proxies for earnings multiples. I have measured accounting frauds through earning management. I have measured earnings management through Modified Jones model. I have used 6 years' data from 2013-2019 of top 15 non-financial firms listed in PSX based on their outstanding shares. The data I have used is panel data. I have extracted the data from Data stream and annual reports of the selected firms. I have used OLS, random effect GLS and fixed effect GLS in STATA 15 for the empirical investigation of the data. The results of the study showed that ROA has significantly affected by board meetings and board meetings effected the ROE significantly while Earnings management has significantly affected by board size.

Keywords: Managerial Ownership, Corporate Governance Mechanism, accounting frauds, Earning Multiples.

INTRODUCTION

In present era corporate structure is based upon the traditional theory of separation of ownership from its managers. Because of this separation, conflict of interests arises between the firm's stakeholders, specifically in large corporation Returns on investments is the primary objective of shareholders. However, managers usually consider their own personal objectives which includes completion of fringe benefits of their position.(Jensen & Meckling, 1979). According to (Jensen & Meckling, 1979), Researches in the field of corporate governance are linked with Agency Theory because of the agency conflicts between stakeholders and managers of the firms.

In modern era the trend to register as corporations is increasing rapidly in business organizations. In corporations the management is separated from ownership. Management of corporations is serving on the behalf of corporation owners. And they are the representative of their owners. Due to the separation from ownership the management would have absolute freedom and authority to fulfill their own goals. Owners are interested in high returns but management have their own interests because of these differences in the priority's agency problems arises. According to (Aguilera, Filatotchev, Gospel, & Jackson, 2008) owners and managers are different individuals, an agency conflict arises between owner (principal) and manager (agent) because of their mutual interests.

Accounting, Earning Management is considered as an act of intentional manipulation of financial reports of the firm to achieve some personal goals. Earnings management includes the manipulation of firms' financials to misguide the stakeholders about the firm's basic performance. Earning management practices are of various forms i.e. accruals management; intentional alteration in accounting measures, and altering various transactions, expenses, and revenues. Documented earnings management are considered as legal if alterations fulfill the assumptions of GAAP. For example, alteration in the methods of estimation of inventory and depreciation. Whereas, it is considered as illegal if earning management does not follow the assumptions of GAAP.

(Bazaz & Mashayekhi, 2010), asserted that in capital markets the earning quality holds much importance for resource allocation. Information related to quality earnings are usually used by policy makers and investors to make investment decisions. For the valuation they mostly use earnings as a proxy of firms' performance. For instance, earnings are used in valuation models for the pricing of securities, evaluation of the possible outcomes, and to forecast the future performances of their firms. Ownership of the firms always have serious concerns about the management who controls the wealth of the firms' owners could misuse or misallocate the resources of the firms (Jensen, Meckling, & Economics, 1976). Governance

structure/mechanism of a company plays a vital role in the issues of ethical hazards and asymmetric information relevant to managers' operating and investment choices.

Corporate governance plays an important role to minimize conflict or differences of interest between management of the corporation and its shareholders. CG is used to balance the objectives of society and individuals. We have studied various research papers regarding the influence of corporate governance on accounting frauds and earnings multiple, for this purpose we have used the data from 2013 to 2018 for non-financial sector firms listed at PSX. This study has extended the existing literature by analyzing the association among CG mechanisms, Earnings multiples and Accounting frauds of the firms listed in non-financial sector in Pakistani market.

The core objective of this research study is to analyze the causal relation among CG mechanism, accounting frauds & Earnings Multiples of the firms. The corporate governance variables of this study are: BOD size, BOD Meetings and audit committee size. The purpose of this study are to:

- i. Analyze the relation of specific CG mechanism and earnings multiples.
- ii. Determine the effect of specific CG mechanism on accounting frauds.
- iii. Examine the capability of specific corporate governance mechanism to control accounting frauds.

This study aims to fulfil the gap in existing studies of Earning management & Earnings multiple by investigating the causal relation among (CG), earnings multiples and accounting frauds. This research analyzes key measures of CG, earnings multiples & accounting frauds and examines their role in preventing the firms from earning management practices. The problem statement and literature review sections of the research pointed out the research gaps of the study. In this research the I extend the literature by analyzing the causal relationship between specific CG mechanisms variables on earning management and earnings multiples in Pakistani market. The outcomes of this study have provided the guidelines in academic field. The findings have provided an important guideline for stakeholders and managers of the firms to understand that whether the firms have good or bad CG. My research has provided guideline to the future researchers by extending the literature.

Literature review

Corporate Governance Mechanism and Accounting frauds

(Afzal & Habib, 2018) did research on earnings management and corporate governance. For their research they took earning management as their explained variable whereas, their independent variable was corporate governance. Their purpose was to find the relationship among CG variables and earning management. For this objective they took discretionary accruals as a measure of EM and calculate it through Modified Jones Model. And their proxies for corporate governance were institutional ownership, board meeting, managerial ownership, dichotomy of CEO, size of members in board and independence of board. They took data of 74 listed companies of non-financial sector in KSE 100 index. Their data was of 6 years from 2013 to 2018. They used correlation analysis, and they used Random effect GLS using STATA. According to their results there was a negatively significant relation among institutional owners, managerial owners, board meeting, size of board, board independence & Discretionary accruals. And the correlations between ownership control and duality of CEO showed a positively significant effect on earnings management. Their outcomes exposed that the variables of CG are significant forecaster of EM and minimize the chances of EM practice in a firm.

(Afza, 2018) did research to examine the board structure and audit structure on the discretionary earning management behavior managers of the Pakistani firms. For this objective they used Modified Model of Jones to measure the discretionary earning management. For corporate governance they have used the proxies including; audit committee members, frequency of audit committee's meetings, audit committee's independence, number of board members and external auditor attributes. They took data of 200 firms Listed in PSX of 2004 to 2011. The findings of the study revealed that internal committees are very effective for the progress of the firms. This study also revealed that mechanisms of CG are necessary for effective and reliable accounting information.

Corporate Governance Mechanism and Earnings Multiple

A study was conducted (Sow & Tozo, 2019) to check the influence of CG on firm's performance and on EM in China. For this, they collect the data of 2098 listed companies of China for 7 years from 2008-2014. They used pooled OLS model and fixed effect regression model to test their hypotheses. There results proposed that board size is a main factor for firm's performance in China. In China the boards members do not exceed 22 members. The result also proposed that EM is bad practice for the performance of a firm.

(Babar Ansari, 2017) did research to analyze the association among (Profit margin and ROE), CG mechanism (i.e., Size of board and audit committee, AGM, duality of CEO) on Automobile Listed firms in PSX. For this objective they got the data of 11 Listed companies of Automobile sector of PSX for 2010-

2016. The results of this research showed that Size of board, audit committee size and number of meetings has positively influenced the firm performance. Whereas approximately 70% of CEOs had dual positions in this this sector. Which indicates the negative influence on firm performance. Results concluded that there exist positive association among firm performance measures and BOD size, audit committee size, duality of CEO and board meetings. Findings also revealed that profit margin and board size, audit committee size, CEO duality & board meetings have negative relationship. And return on equity and BOD size, size of audit committee, duality of CEO meetings of audit committee also has negative relationship.

(Sathyamoorthi, Baliyan, Dzimir, & Wally-Dima, 2017), did research to explore the effect of corporate governance on the financial performance of companies listed in the consumer service sector of Botswana stock exchange. For this purpose, they took ROAs as their explained variable and size of board diversity of gender, male or female in the board, composition of directorship and frequency of board meeting as their independent variables. Their findings showed the positive significant impact number of male and females in the board and board size, and the number of non-executive directors in the board meetings. Their results suggested that this study will be useful for the stakeholders to appreciate various directions of corporate governance and their influence on the firm’s financial performance.

Conceptual Framework/Theoretical Framework

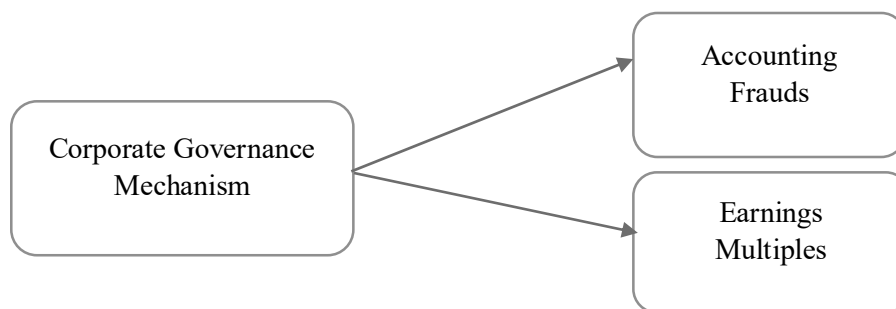


Figure 2.1. Conceptual Framework

Corporate Governance mechanism and Earning Management

Finance theories are developed to allow a complete analysis of the issues raised by differences of interest between principal and agent (McColgan & Paper, 2001). (Jensen & Meckling, 1979), showed that agency relationship makes agent to perform some services for the principal on his/her behalf. (Jensen & Meckling, 1979), first suggested moral-hazard problem of agency divergence. Supposing a situation where

an owner of the firm is a single manager, they develop a model where the managerial owner motivates to consume private privileges, instead of investing in projects having positive NPV. Agency conflicts are supposedly higher in publicly listed companies due to conflict of interests among engaging parties.

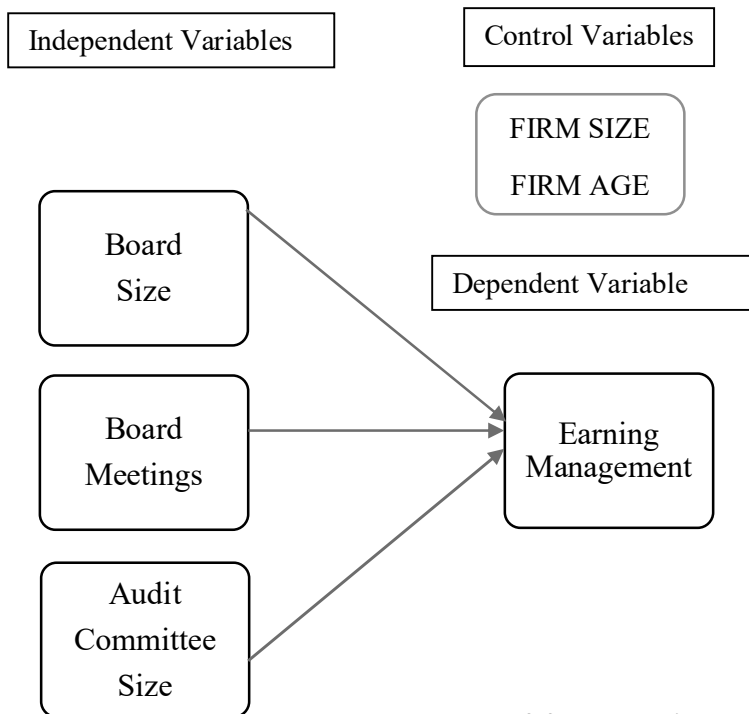
(Jensen & Meckling, 1979) One such conflict may arise between internal managerial owner and external minority shareholders. According to (Swastika & Management, 2013), (Fama et al., 1983) claimed that the independent directors monitors the board more effectively and limits the managerial opportunism. This is because independent directors are appointed to guard the interests of external minority shareholders. Therefore, to minimize the agency divergences, independent directors can be selected by the board. Therefore, the performance of firm must improve.

Corporate governance is characterized by different variables such as: board of directors, audit quality, and board independence etc. BODs play a key role to overcome the agency conflicts. From an agency viewpoint, effective monitoring is influenced by the independence of management. According to (Fama et al., 1983), Independent board of directors make boards more effective in controlling managers and implementing control on behalf of outside shareholders. Based on the theoretical support we have formulated following hypotheses;

H1: *BOD size has negative relationship with earning management.*

H2: *BOD meetings have a negative impact on earning management.*

H3: *Audit Committee size has negative impact on EM.*



Figure

2.2. Theoretical Framework (1)

Corporate Governance Mechanism and Accounting Performance

(Jensen et al., 1976) recognize that agency costs derived from divergences between equity holders and managerial owners as remaining loss which means agent utilizes several financial and non-financial benefits from the company to increase his own utility. Agency theory proposes that return should be depending performance measures and further forecasts that the performance measures should be a function of their accuracy and sensitivity to the manager's performance.

On the other hand, accounting measures can be formed and customized to capture different characteristics of a firm's settings and appear to capture both short and long-term aspects of firm's performance not sufficiently taken by either general or comparative measures of stock return. Agency costs can be minimized through the existence of large shareholders, also called block holders. They can influence the decision-making process of the firm directly and indirectly because of large stake in the firm and having significant voting rights. Based on the theoretical support we have formulated following hypotheses;

H₄: *BOD Size has a positive impact on ROA.*

H₅: *BOD meetings have a positive impact on ROA.*

H₆: *Audit committee size has a positive impact on ROA.*

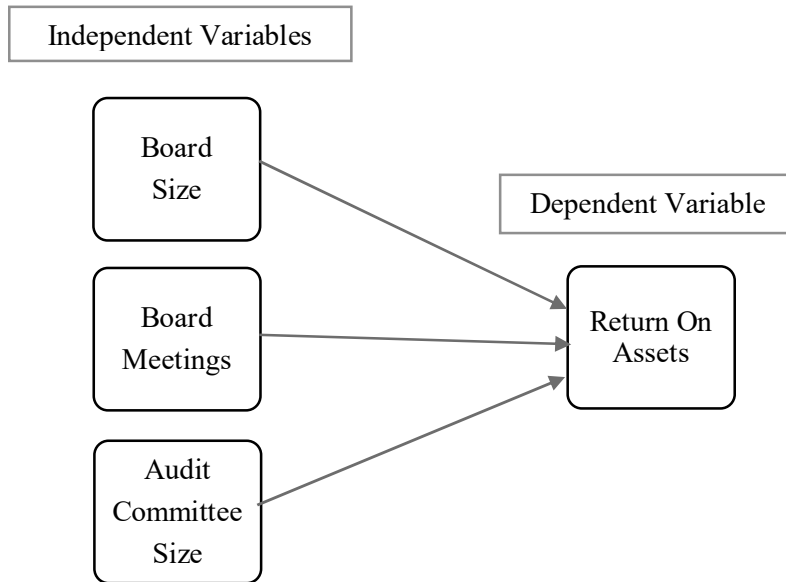


Figure 2.3. Theoretical Framework (2)

Based on the theoretical support we have formulated following hypotheses;

H₇: *BOD size has a positive impact on ROE.*

H₈: *BOD meetings have a positive impact on ROE.*

H₉: *Audit committee size has a positive impact on ROE.*

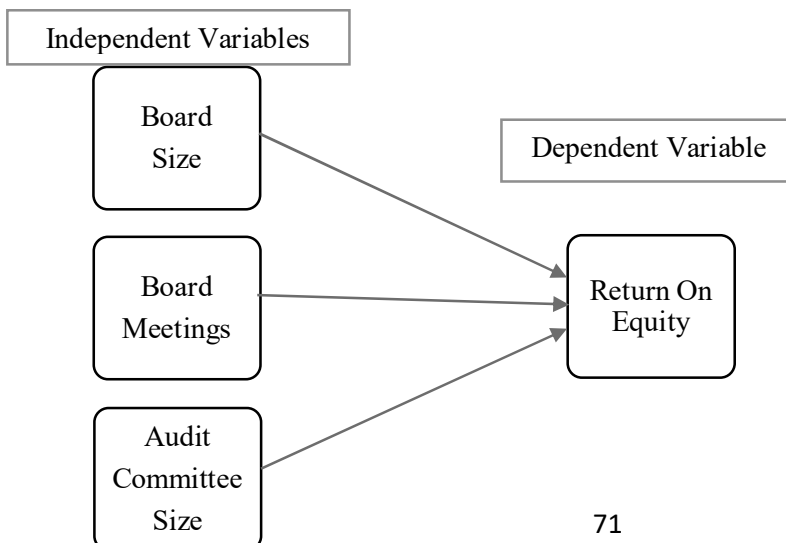


Figure 2.4. Theoretical Framework (3)

METHODOLOGY

This includes the methods which I have adopted in my research to empirically test the influence of CG mechanism on earning multiple and accounting frauds on non-financial registered firms in stock market of Pakistan. My intention was to use top 55 firms registered in non-financial segment of Pakistan stock market. on the based on their outstanding shares to test my hypotheses. But the limitations and restrictions caused by (Covid-19) forced me to limit my sample size. So, because of this I have used financial data of top 15 companies of the non-financial sector of PSX based on their outstanding shares for the period of 2013-2018.

Research Design/Philosophy:

This research can be categorized as positivistic research. Because in this research I have identified the cause-and-effect relation among CG mechanisms, earnings multiples or accounting frauds. This study will formulate the hypotheses on the basis of the effect of CG mechanisms on Earnings multiples & Accounting frauds. I have used deductive strategy in this study, because my focus is on the testing of hypotheses based on the study of quantitative data.

Data Collection:

My population is 15 non-financial sector listed firms at Pakistan Stock Exchange (PSX) based on their outstanding shares. I have downloaded the financial reports from the companies' website and also downloaded financial reports from the website of State bank Pakistan for the period of 2013-2018. I also have gathered data from the Thomson Reuters data stream.

Data Analysis:

I have used following statistical empirical techniques for the analysis of my data:

- I. Descriptive Statistics.
- II. Correlation.
- III. Regression analysis.

Research Strategy:

In this research I have used descriptive statistics, correlation matrix, GLS (both fixed and random effect model), Hausman test and then OLS. I have collected the data of CG mechanism variables from the financial reports of the companies. I have measured earnings multiple through accounting measures i.e., ROA and ROE. I have collected the data on net income, total assets and shareholders' equity from data stream to calculate the values of ROA and ROE.

I have measured Earning Management through Modified Jones model (Dechow, Sloan, & Sweeney, 1995) and I have calculated the total accruals as the difference of operating cash flows and net income of the company. And calculated the discretionary accruals by using Stata. I also used two control variables that are size and age of the corporation to control the impact of age and size of that corporation. I have calculated firm size by multiplying total number of outstanding shares with the average share price of that specific year. And I have calculated firm age by counting the years from incorporation of the company till now. I have used STATA 15 for our analysis and also used Endnote 9 for referencing.

Regression Models:

I have used following regression models in my study:

$$roa_{it} = \alpha + \beta_1 board_s_{it} + \beta_2 board_m_{it} + \beta_3 acs_{it} + \beta_4 firm_age_{it} + \varepsilon \quad (1)$$

$$roe_{it} = \alpha + \beta_1 board_s_{it} + \beta_2 board_m_{it} + \beta_3 acs_{it} + \beta_4 firm_age_{it} + \varepsilon \quad (2)$$

$$earn_m_{it} = \alpha + \beta_1 board_s_{it} + \beta_2 board_m_{it} + \beta_3 acs_{it} + \beta_4 firm_age_{it} + \varepsilon \quad (3)$$

Where, roa is return on assets; α =constant; β_1 to β_7 are coefficients of all the variables; 'i' is the cross-sectional unit and 't' is the time for all of the cross-sectional units; roe=return on equity; earn_man is the earning management; board_s is the board size; board_m is the board meetings; acs is the audit committee size; firm_age is the firm age; and ' ε ' epsilon is error term.

DATA ANALYSIS AND RESULTS

ROA and CG

Statistical Analysis

Table 4.1.1.

Variable	Obs	Mean	Std.Dev.	Min	Max
roa	90	.104	.078	-.158	.291
board_s	90	9.067	2.735	7	19
board_m	90	5.722	1.799	4	13
acs	90	4.133	1.247	3	8
firm_age	90	28.9	15.577	4	70

There are eight variables in the table and each variable has 90 observations for 6 years from 2013 to 2018 of top 15 firms from non-financial sector of PSX, so there is total 630 observations are there in our sample data for the empirical analysis. Table-1 includes the results of mean, standard deviation, minimum, maximum values and median values are given in above table. Results showed the statistical description of Roa and corporate governance mechanisms. The mean value of ROA is 10.4%. The standard deviation is 7.8%, the minimum and maximum of ROA is -15.8 % and 29.1 % respectively. This is because Pakistan is an emerging economy and there is so much uncertainty in economy. The mean value of the board size is 9.067, S.D. is 2.735. The value of minimum is 7 and the maximum is 19. This huge difference in values is because Pakistan is a developing country. The mean of board meeting is 5.722 and the standard deviation is 1.799. The minimum and maximum values are 4 and 13 respectively. And the mean value of our variable audit committee size is 4.133 and the standard deviation is 1.247, and S.D value is 0.796. The minimum and maximum values are 3 and 8 respectively. While the mean value of control variable firm age is 28.9 and its S.D value is 15.577 and the minimum value is 4 and maximum is 70.

Correlation

Table 4.1.2. Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)
(1) roa	1.000				
(2) board_s	0.107	1.000			
(3) board_m	-0.042	0.123	1.000		
(4) acs	0.036	0.320	0.022	1.000	
(5) firm_age	0.437	0.047	-0.003	0.286	1.000

The above table reflects the correlation matrix between ROA and CG variables. Correlation among the variable shows the strength of relationship exists between the variables. Strength of relationship also caused multicollinearity if the correlation matrix shows the value greater than 0.7. In our study all the table shows the values less than 0.7 it means there is no multicollinearity exists between our independent variables. The results depict that the independent variables of this study are less correlated with each other.

Regression

To find the effect of CG mechanism on ROA, firstly we have run OLS regression on our empirical model- (1), after that we run GLS to conduct panel data analysis. In GLS we have run fixed effect and random effect then after that we have run Hausman test, which identifies the appropriate method between REM and fixed effect model based on probability and chi square, if the probability value is significant at the given level of significance, then FEM is used instead of REM, we have run all commands on STATA 15.

OLS Regression

We have run OLS regression on the data of top 15 non-financial listed firms in PSX. The results R-Square in the table is 54.3% which means ROA is 54.3% explained by the variables other than those which are not used in this study. Board size shows p-value of 0.780 which shows the insignificance. Whereas board meeting shows the p-value of 0.016 at 95% level of significance which shows the significance. Audit committee shows insignificance because its p-value is 0.274. Whereas, firm age shows significance because its p-value is 0.022.

roa	Coef.	St.Err.	t- value	p-value	[95% Conf Interval]	Sig
board_s	-0.001	0.003	-0.28	0.780	-0.008 0.006	
board_m	0.008	0.003	2.41	0.016	0.002 0.015	**
acs	-0.005	0.005	-1.10	0.274	-0.015 0.004	
firm_age	0.002	0.001	2.29	0.022	0.000 0.003	**
Constant	0.025	0.057	0.44	0.659	-0.087 0.138	
Mean dependent var	0.104		SD dependent var	0.078		
r-squared	0.543		Number of obs	90.000		
Chi-square	.		Prob > chi2	.		

R-squared within 0.252 R-squared between 0.666

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4.1.3. OLS

GLS Fixed Effect

After OLS we have run FEM. R-Square is 58.9% which means 58.9% change in ROA is described by explanatory variables that we have taken in our study. And p-value of board size is 0.161 which showed it has insignificant impact on ROA. P-value of board meetings is 0.041 which depict that it has significant impact on ROA. ACS has insignificantly affected the return on assets due to its p-value of 0.832. And firm age has significantly affected the ROA because its p-value is 0.000.

Table 4.1.4. Generalized least square (Fixed Effect)

Roa	Coef.	St.Err.	t- value	p- value	[95% Conf	Interval]	Sig
board_s	-0.004	0.003	-1.42	0.161	-0.009	0.002	
board_m	0.007	0.003	2.07	0.041	0.000	0.013	**
acs	0.001	0.005	0.21	0.832	-0.009	0.011	
firm_age	0.002	0.000	5.27	0.000	0.001	0.003	**
Constant	0.016	0.048	0.34	0.735	-0.079	0.112	
Mean dependent var		0.104	SD dependent var		0.078		
R-squared		0.589	Number of obs		90.000		
F-test		16.755	Prob > F		0.000		
Akaike crit. (AIC)		-270.893	Bayesian crit. (BIC)		-253.394		

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

GLS Random

After GLS fixed effect we have run GLS random effect. In REM the value of R-Square is 30.9% which means 30.9% change in ROA is explained by the variables that we have taken as independent in this study. The outcomes of the REM showed that p-value of board size is 0.954 which showed it has

insignificant impact on ROA. P-value of board meetings is 0.004 which depict that it has significant impact on ROA. ROA has insignificantly affected by ACS because its p-value is 0.188. And ROA has insignificantly affected by firm age because its p-values is 0.153

Table 4.1.5 GLS Random

roa	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
board_s	0.000	0.005	-0.06	0.954	-0.010	0.009	
board_m	0.011	0.004	3.00	0.004	0.004	0.018	***
acs	-0.007	0.005	-1.33	0.188	-0.017	0.003	
firm_age	-0.004	0.003	-1.44	0.153	-0.009	0.001	
Constant	0.153	0.094	1.62	0.109	-0.035	0.340	
Mean dependent var	0.104			SD dependent var	0.078		
R-squared	0.309			Number of obs	90.000		
F-test	4.343			Prob > F	0.000		
Akaike crit. (AIC)	-341.727			Bayesian crit. (BIC)	-324.228		

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Hausman Test

Hausman test is used to find that which method is more appropriate between FEM and REM. The decision is made on the basis of chi-square value of the Hausman test. The most important value in the Hausman test is probability > chi² value. If this value will be less than 0.05, it means it is significant and the fixed-effect GLS method results are more appropriate for further analysis. If the value of the Hausman probability > chi² value comes greater than 0.05, it means it is insignificant and the random effect GLS method is more appropriate to conclude the regression analysis.

Table 4.1.6. Hausman Statistics

	Coef.
Chi-square test value	7.023
P-value	.319

Prob>chi2=0.319

ROE & CG

Statistical Analysis

The table shows the descriptive analysis of Roe and corporate governance mechanisms. The mean value of ROE is 0.13. The standard deviation is 0.549, the minimum and maximum of ROE is -4.027 and 0.77 respectively. The value of mean of the board size is 9.067, Standard deviation is 2.375 with the minimum and maximum value of 7 and 19 respectively. The mean of board meeting is 5.722 and the standard deviation is 1.799. The minimum and maximum values are 4 and 13 respectively and the mean value of our variable audit committee size is 4.133 and the standard deviation is 1.247. And the minimum and maximum values are 3 and 8 respectively. While the mean value of control variable firm age is 28.9 and its S.D value is 15.577 and the minimum value is 4 and maximum is 70.

Table 4.2.1.

Variable	Obs	Mean	Std.Dev.	Min	Max
roe	90	.13	.549	-4.027	.77
board_s	90	9.067	2.735	7	19
board_m	90	5.722	1.799	4	13
acs	90	4.133	1.247	3	8
firm_age	90	28.9	15.577	4	70

Correlation

The table presents the correlation matrix between ROE and CG variables. The correlation among the variable shows the strength of relationship exists between the variables. Strength of relationship between explanatory variables results. The results of correlation matrix show that the independent variables of this study have less correlated with each other.

Variables	(1)	(2)	(3)	(4)	(5)
(1) roe	1.000				
(2) board_s	0.229	1.000			
(3) board_m	0.104	0.123	1.000		

(4) acs	0.052	0.320	0.022	1.000	
(5) firm_age	0.117	0.047	-0.003	0.286	1.000

Table 4.2.2. Matrix of correlations

GLS Fixed

Effect Model

After correlation matrix we have run FEM. In FEM the value of R-Square is 2.6% which means 2.6% change in ROE is described by the variables that we have used in current study. Other results showed that p-value of board size is 0.584 which showed it has insignificantly affected the ROE. P-value of board meetings is 0.343 is more than the threshold value of 0.05, it means that it has insignificantly affected on ROE. ROE has insignificantly affected by ACS, because its p-value is 0.595. And firm age has insignificantly affected the ROE because its p-value is 0.874.

Table 4.2.3. Regression results

Roe	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
board_s	0.031	0.056	0.55	0.584	-0.081 0.143	
board_m	0.041	0.043	0.95	0.343	-0.044 0.126	
Acs	-0.032	0.060	-0.54	0.595	-0.153 0.088	
firm_age	-0.005	0.030	-0.16	0.874	-0.065 0.055	
Constant	-0.251	1.091	-0.23	0.818	-2.429 1.926	
Mean dependent var	0.130		SD dependent var	0.549		
R-squared	0.026		Number of obs	90.000		
F-test	0.262		Prob > F	0.999		
Akaike crit. (AIC)	101.397		Bayesian crit. (BIC)	121.395		

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

GLS Random Effect Model:

After running fixed effect, we have run REM. In REM the R-Square is 19.6% it means 19.6% change in ROE is explained by the variables that we have used in the present study. The other results showed that p-value of board size is 0.433 showed it has insignificantly affected the ROE. P-value of board meetings is 0.195 which depict that it has insignificantly affected the ROE. ACS has insignificantly affected the ROE because it has p-value of 0.749. And firm age has insignificantly affected the ROE because the p-values of firm age is 0.371.

Table 4.2.4. Regression results

roe	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
board_s	0.026	0.033	0.79	0.433	-0.038 0.090	
board_m	0.046	0.035	1.30	0.195	-0.023 0.115	
acs	-0.017	0.052	-0.32	0.749	-0.118 0.085	
firm_age	0.006	0.006	0.90	0.371	-0.007 0.018	
Constant	-0.676	0.550	-1.23	0.219	-1.754 0.401	
Mean dependent var	0.130		SD dependent var	0.549		
Overall r-squared	0.196		Number of obs	90.000		
Chi-square	8.139		Prob > chi2	0.321		
R-squared within	0.015		R-squared between	0.425		

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Hausman Test.

After FEM and REM, we have run Hausman test to check that which model of them is better. In this analysis the probability value of chi-square is more than 0.05 it means it is insignificant so random effect is better than fixed effect.

Table 4.2.5. Hausman Statistics

	Coef.
Chi-square test value	6.437
P-value	.376
Prob>chi2 =	0.3760

OLS Regression

Table 4.2.6. Linear regression

Roe	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
board_s	0.011	0.026	0.43	0.670	-0.041	0.064	
board_m	0.065	0.032	2.01	0.047	0.001	0.128	**
acs	0.017	0.049	0.34	0.736	-0.081	0.114	
firm_age	0.007	0.004	1.72	0.089	-0.001	0.016	*
Constant	-0.846	0.469	-1.80	0.075	-1.778	0.086	*
Mean dependent var	0.130		SD dependent var		0.549		
R-squared	0.213		Number of obs		90.000		
F-test	3.163		Prob > F		0.005		
Akaike crit. (AIC)	141.032		Bayesian crit. (BIC)		161.030		

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

After FEM and REM, we have used OLS regression on our data. The results R-Square in the table is 21.3% which means variables of the study explained ROE by 21.3%. Board size shows p-value of 0.670 which shows the insignificant impact; board meeting shows the p-value of 0.047 at 95% confidence which shows the significance. Audit committee size shows insignificance because its p-value is 0.736. Audit committee meetings and shows insignificance because its p-values is 0.397 and 0.846. But managerial ownership has insignificant impact because it has p-value of 0.050; firm age shows insignificance because its p-values is 0.089. With the p-value of 0.009 firm size has a significantly affected the ROE because its p-value is less than 0.05.

Descriptive Analysis

EM & CG.

Table 4.3.1.

Variable	Obs	Mean	Std.Dev.	Min	Max
earn_man	90	-.119	.108	-.469	.468
board_s	90	9.067	2.735	7	19
board_m	90	5.722	1.799	4	13
acs	90	4.133	1.247	3	8
firm_size	90	28.9	15.577	4	70

In the table EM is dependent and other variables are independent and firm age and size are control variables. The table shows the descriptive analysis of Earning management and corporate governance mechanisms. The mean of EM is -.119. Its S. D is 0.108, the minimum and maximum of ROE is -.469 and 0.468. The mean of the board size is 9.067, Standard deviation is 2.375 with the minimum and maximum value of 7 and 19 respectively. The mean of board meeting is 5.722 and the standard deviation is 1.799. The minimum and maximum are 4 and 13 respectively. And the mean value of our variable audit committee size is 4.133 and the standard deviation is 1.247. And the minimum and maximum values are 3 and 8 respectively. The mean value of control variable firm age is 28.9 and its S.D value is 15.577 and the minimum value is 4 and maximum is 70.

Correlation

In current study the table shows the values less than 0.7 it means there is no multicollinearity exists between our independent variables. Our results of correlation matrix depict that the independent variables of this study have less correlated with each other and there is no multicollinearity exists.

Table 4.3.2. Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)
(1) earn_man	1.000				
(2) board_s	0.079	1.000			
(3) board_m	0.034	0.115	1.000		
(4) acs	-0.083	0.339	0.039	1.000	
(5) firm_size	-0.172	0.371	-0.229	-0.017	1.000

GLS Fixed Effect

In FEM the value of R-Square is 17.8% which means 17.8% change in EM because of the variables that we have used in the current research. P-value of board size is 0.978 which showed it has insignificantly affected the EM. P-value of board meetings is 0.550 it means that it has insignificant impact on EM. ACS has insignificantly affected the EM because its p-value is 0.505. And firm age has significant impact of EM with the p-value of 0.011.

Table 4.3.3. Regression results

earn_man	Coef.	St.Err.	t- value	p-value	[95% Conf Interval]	Sig
board_s	0.000	0.014	0.03	0.978	-0.027 0.028	
board_m	-0.006	0.011	-0.60	0.550	-0.027 0.015	
acs	-0.010	0.015	-0.67	0.505	-0.040 0.020	
firm_age	-0.020	0.007	-2.62	0.011	-0.035 -0.005	**
Constant	0.650	0.270	2.41	0.019	0.112 1.188	**
Mean dependent var	-0.119		SD dependent var	0.108		
R-squared	0.178		Number of obs	89.000		
F-test	2.072		Prob > F	0.013		
Akaike crit. (AIC)	-150.855		Bayesian crit. (BIC)	-133.434		

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Random Effect GLS

In random effect model of GLS the R-Square is 9 % it means 9%. Further results showed that p-value of board size is 0.042 showed it has significant impact on EM. P-value of board meetings is 0.653 so it has insignificant on EM. The p-value of size of audit committee is 0.226 shows that it has insignificant impact on EM. Whereas the age of firm has significant impact on EM because p-value is 0.021.

Table 4.3.4. Regression results

earn_man	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]	Sig
board_s	0.011	0.006	2.03	0.042	0.000 0.022	**
board_m	-0.003	0.007	-0.45	0.653	-0.016 0.010	

acs	-0.013	0.010	-1.21	0.226	-0.033	0.008
firm_age	-0.001	0.001	-0.71	0.475	-0.002	0.001
Constant	-0.024	0.100	-0.24	0.809	-0.220	0.172

Mean dependent var	-0.119	SD dependent var	0.108
Overall r-squared	0.090	Number of obs	89.000
Chi-square	.	Prob > chi2	.
R-squared within	0.086	R-squared between	0.639

Hausman Test.

The probability value of chi-square is greater than 0.05 it means that it is insignificant so random effect is better than fixed effect.

Table 4.3.5. Hausman Analysis

	Coef.
Chi-square test value	7.678
P-value	.263

Prob>chi2 = 0.2626

OLS Regression

After run FEM and REM, we have also run Ordinary least square regression in our data. The results R-Square in the table is 9%. Board size has p-value of 0.046 which shows the significant impact; board meeting shows the p-value of 0.654 at 95% confidence which shows the insignificance. ACS shows insignificance because its p-value is 0.229. firm age shows insignificance because its p-values is 0.477;

Table 4.3.6. OLS

earn_man	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
board_s	0.011	0.006	2.03	0.046	0.000	0.023	**

board_m	-0.003	0.007	-0.45	0.654	-0.017	0.011
Acs	-0.013	0.010	-1.21	0.229	-0.033	0.008
firm_age	-0.001	0.001	-0.71	0.477	-0.002	0.001
Constant	-0.024	0.100	-0.24	0.810	-0.223	0.175

Mean dependent var	-0.119	SD dependent var	0.108
R-squared	0.090	Number of obs	89.000
F-test	1.151	Prob > F	0.340
Akaike crit. (AIC)	-138.340	Bayesian crit. (BIC)	-120.919

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

FINDINGS AND CONCLUSIONS

Discussion

I have developed 9 hypotheses for our independent variable Corporate Governance Mechanisms which I have measured through board size, audit committee size and board meetings. I have used FEM and REM methods of GLS and OLS results. In my empirical model 1 according to the results of fixed effect model the ROA has significantly affected by meetings of board. And all remaining variables board have insignificantly effected ROA because their p-value are greater than 0.05.

According to OLS the outcomes shows that meetings of board has significantly affected the ROE with the p-values of 0.047 and 0.049 respectively. Whereas, ROE has insignificantly affected by size of audit committee. In my empirical model 3 the findings of random effect model show that the board size has significant effect on EM whereas all other variables have affected EM insignificantly. I also have one control variable that is firm age to control the effect of firm age in my sample data analysis of non-financial listed firms in PSX.

Conclusion

I have conducted this research to explore the causal relationship among CG mechanism, earnings multiples and accounting frauds. For this purpose, I have taken the data of listed non-financial firms in PSX for 2013-2018. My intention was to examine the financials of the top 64 companies based on their outstanding shares. But due to data limitations and closure of university research labs due to COVID-19 pandemic. Such situation forced me to limit to the top 15 firms of PSX. I have used the Thomson Reuters Data Stream for the collection of data. And for some variables I have extracted the data from financial reports. I have used GLS fixed-effect method, Random effect model and OLS for my data analysis. Our results show that board meetings has significantly affected the ROA. And board meetings effected the ROE significantly. But only board size has significant impact on Earning management. I suggest to future researchers to extend the no of years and there are many other factors for this research which I haven't used in this study.

Recommendations and Suggestions

In the present research I objective was to find the effect of corporate governance mechanism on earnings multiples and accounting frauds. To fulfill my goal, I want to conduct analysis on top 55 firms that are being listed in non-financial sector of PSX based on their outstanding shares. But because of the

time and data limitations due to the Covid-19 pandemic situation, I have limited to only top 15 firms. I recommend to future researchers that they can extend the no. of firms and no. of years for their analysis. I also recommend that there are many other variables that I haven't considered in this research such as future researchers can also take Tobin's Q as the accounting measure for earnings multiples. The upcoming researchers can also do the research on specific sectors. Future researchers can also use the managerial ownership, institutional ownership and foreign ownership as the proxies of CG mechanism.

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