The Effect of Audit Firm Size on Earnings Management: Using the CEO Compensation as Moderator

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Abstract: - This study investigates the impact of the audit firm size on earnings management by using the CEO compensation as a moderating variable. This study was conducted in service and industrial firms listed on the Amman Stock Exchange from 2015 to 2019. The results of this research were examined using a fixed-effect model, and many robustness tests were used to show that the conclusions are reliable when using different measures. The size of the audit company and the management of earnings were shown to be significantly correlated in the research. However, show how the combined effects of CEO remuneration and audit firm size have a considerably detrimental impact on the management of profitability. When making decisions on external audits and earnings management, the government, investors, and shareholders would benefit from this study. It highlights several strengths and flaws in the audit firm size and CEO compensation that aid in restricting earnings management.

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1 Introduction

The most important official reports of economic activity are financial statements, which tell stakeholders about the financial health of the firm. It seeks to deliver accurate and trustworthy information so that users may decide without consulting the earnings management (EM), [1]. The International Financial Reporting Standards (IFRS), which provide the preparers with a variety of accounting methodologies while being impartial, serve as a guide for the creation of financial reports.

The management seeks to select the most promising accounting methods that will be advantageous to them while compiling financial statements. They will thus use EM to demonstrate the successful outcome of their financial conditions and company activities, [2]. By manipulating numerous strategies, which are permitted when generating financial statements to accomplish the pre-set aims, and either raising or lowering earnings that are shadowing the management, EM activity may be either legal or unlawful, [3].

Kitiwong, [4], believed that EM is essential for the company to have a say in their financial situation and create the greatest financial reports for the public. In order to satisfy analyst expectations, attract investors, and boost incentives based on performance, businesses may have little choice but to adopt EM. Thus, they represent the intended outcomes using all accessible accounting approaches, such as increasing corporate gearing, [5].

The success of the firm is misrepresented by the excessive use of EM. It diminishes the value of financial information by giving stakeholders a misleading impression of the company's true performance. It, therefore, undermines shareholder trust in financial reporting, which lowers the firm's performance and value, [6].

Previously, academics have discovered a wide range of factors that drive business EM. For instance, managers may exaggerate results to drive up stock prices during initial public offerings [7], justice offerings [8], [9], to avert disclose misplacements [10], [11], to prevent violations of the law governing debt contracts, creative profit offense, and personal gain and compensation, [12].

As many businesses have experienced bankruptcy and accounting scandals, the overuse of EM practices has led to several concerns and problems. Penn West Exploration (2012 to 2014), Tesco (2014), Toshiba (2015), Patisserie Valerie (2018), and General Electric (2018) are among the large corporations that suffered as a result of excessive usage of EM, [13]. Due to incorrect judgments made as a consequence of inflated information disclosed in the business financial statements that are vulnerable to EM practices, many investors have lost their assets. As a result, this behavior hinders the movement of capital, which has an impact on the financial market, [13].

As a result, guarantees are required to safeguard stakeholder investments, implement optimal resource utilization, cut down on accounting mistakes, and influence revenues. The external audit firm's assurance services are meant to improve the financial data's integrity and guarantee that it is free of fraud and mistakes. In addition, it's to rebuild users' faith in the sharing of financial information, [14].

In order to practice their profession, external audits must be impartial and pertinent. The Big Four accounting companies have distinguished themselves as a leader in the sector that offers substantial auditing services across the services provided by numerous audit firms, [15]. Market confidence in The Big Four's capacity to provide qualified employees in a wide range of professional services to their client has grown. They have a lot going for them that makes major organizations want to employ their services. As a result, when evaluating the effect of audit services, the big four are frequently separated from the non-big four in accounting and auditing studies, [16].

Previous studies have frequently looked at what motivates CEOs to disclose their achievement through financial reporting, including how much they are paid and given incentives, [17], [18], [19]. There are agreed-upon compensations to be provided when they attain the specified targets that are set for them to achieve. Therefore, anytime remuneration levels are high, there is a greater propensity for EM practices, and good assurance services are required to adhere to financial statement transparency, [20].

This study looks at how AFS affects EM practices at the Amman Stock Exchange (ASE) and if CEO remuneration influences this connection in a positive or negative way. Jordan is a developing nation, therefore it seems sensible that Jordanian businesses use EM extensively, [21], [22]. For Jordanian investors, foreign investors, society, and the economy, this study is important.

2 Literature Review and Proposed Hypothesis

The vast majority of the study on this topic has been agency theory-based, and it has examined audit firm size as a suitable method for resolving agency issues between directors and shareholders as well as for aligning management and investor interests, [23]. It is doubtful that the size of the audit firm will restrict the EM in the Jordanian environment, which is distinguished by limited investor protection, significant company ownership concentration, and minimal corporate controller influence, [24].

It is doubtful that the size of the audit firm will restrict the EM in the Jordanian environment, which is distinguished by limited investor protection, significant company ownership concentration, and minimal corporate controller influence, [25]. Therefore, by reducing agency issues, the quality of financial reports can be assured, and they reflect the company's reality without providing false information, [26].

Li, Park, and Bao, [27], emphasized that the EM happens when managers alter IFRS-mandated financial report preparation procedures or utilize their own judgment to benefit them. It modifies an organization's actual performance or the transactions' actuality as reported in financial statements, [28]. An example is when a firm adopts the accrual basis in its financial system because it allows for flexibility in information communication and because management may use it opportunistically to further its own interests by concealing the company's losses, [29].

Abdallah, [30], advised that managers are given the tools to monitor through a well-designed incentive structure. Additionally, employing a trustworthy external auditor, like the Big 4, can stop the management's opportunistic activities and acts. As one of the key variables in EM, the influence of audit firm size is examined in this study. There is increasing pressure on politicians, investors, and proponents of corporate governance reform to enact measures that would curb excessive opportunistic behavior in corporate management.

2.1 Audit Firm Size and Earnings Management

When it comes to the accounting and auditing services offered, audit companies are categorized based on their size. The Big 4, who are comprised of Ernst & Young, Deloitte and Touche, KPMG, and Price Waterhouse Coopers, were shown to perform well in the prior survey. Investors have faith in the accuracy and fairness of financial accounts because of their capacity to uphold a high level of independence and integrity while providing a variety of services to customers, [31].

Due to the significant clientele they serve, any flaw in the Big 4 audit firms' work will have a detrimental impact. Therefore, they will suffer severe losses. The audit quality of the non-Big 4 audit firms is occasionally subpar because they are more susceptible to reputational risks and litigation-related concerns, [32].

Previous research on the association between AFS and EM produced a variety of findings. Orazalin & Akhmetzhanov [6] and Al-Haddad & Whittington, [33] found no proof that AFS can discourage EM. Similarly, Habbash & Alghamdi [34], Abid, Shaique, & Anwar ul Haq [35], Almarayeh et al. [22] and Ching et al. [36] observe an insignificant role between AFS and EM. However, a negative and significant relation between AFS and EM was discovered by Nguyen et al. [37], Selahudin, Fauzan, & Ahmad [38] and Lin & Hwang [39]. Opposite, Alimoradi & Faraj [40] and Al-Rassas & Kamardin [41] existed a negative but insignificant relationship between AFS and EM. Yet, Alves [42], Persakis & Iatridis [43] and Musa & Saidu [44] indicated the existence of a positive significance between AFS and EM. According to the previous studies, this research tests the following hypothesis:

*H*₁: *There is a significant relationship between audit firm size and EM practices.*

2.2 CEO Compensation and Earnings Management

If CEO compensation is based on earnings, it may be detrimental to organizations since it pushes managers to EM. Accordingly, Bergstresser & Philippon, [17], raised the possibility that managers would get pay based on performance despite not delivering services worthy of the award. It is because managers have total authority over both clarity and remuneration. Consequently, it would be wise to look at the relationship between CEO pay and EM.

Managers must take steps to display a favorable picture of the firm while creating financial reports in order for EM to occur in the organization. Financial reporting, which has a direct impact on managers' own wealth, becomes a place to misrepresent, [45]. Managers may boost and magnify their incentives by using the EM. As a result, in contrast to experts' predictions, it also had an influence on the company's operations, [17].

CEO Since companies that employ remuneration do better than those that don't, Cheng & Warfield [50], have issued a warning regarding CEO, compensation. They found that the businesses with unethical CEO compensation have larger discretionary accruals. Previous research on the relationship between CEO salary as reflected by (CEO) and EM produced a variety of findings. a positive relationship between CEO and EM was discovered by Park [46]; Almadi and Lazic [47]; Li and Kuo [18]; Ye [48]. However, Hassen [49]; Cheng and Warfield, [50], document a negative relevance between CEO and EM. However, Armstrong, Jagolinzer & Larcker [51] failed to provide any evidence between CEO pay and falsification of accounting reports. The organizations where CEOs have higher levels of incentives showed no indication of accounting manipulation reports, on the other hand.

To stop directors from taking advantage of their favorable position in order to boost their pay. To oversee the practice of EM, the shareholders may employ a respected external auditor, such as a significant audit firm. The link between these factors is anticipated to be moderated by the CEO salary. The purpose of this study is to examine the following hypothesis in light of prior studies:

H2: The CEO compensation moderates relationship between audit firm size and EM practices.

3 Research Methodology

The study investigates the relationship between AFS and CEO compensation as a moderator variable on EM. All corporates listed on the ASE were included in the study's population between 2015 and 2019. The financial sectors are omitted due to different features used in reporting [52], as they prepare their financial statements according to different norms and accounting standards, [53].

All service and industrial businesses listed on the ASE from 2015 to 2019 are included in the sample. The sample consists of 81 businesses, of which 43 are service-related and 38 are industrial. 405 balanced panel data observations in total were collected. The ASE website's business financial records were used to calculate the research variables. (http://www.ase.com.jo).

3.1 Measurement of Variables

Based on Mcnichols & Wilson, [54], this study employs discretionary accruals to measure EM (dependent variable). This study employed the same equation as [30], [6], and [22] to quantify discretionary accruals (DA) as a proxy for EM using the Kothari, Leone, and Wasley [55] model:

$$DAi,t = TACi,t - NDAi,t$$
 (1)

The NDA stands for non-discretionary accruals, where the TAC is for total accruals. Using the following equation, the total accruals TAC was first determined:

$$TAC_{i,t} = NI_{i,t} - OCF_{i,t}$$
(2)

Where $OCF_{i,t}$ stands for operating cash flows and $NI_{i,t}$ refers to net income before exceptional items. After that, non-discretionary accruals NDA must be found as follows:

$$NDA = \beta_0 + \beta_1(1/TAi,t-1) + \beta_2 (\Delta REVi,t/TAi,t-1) - \Delta RECi,t/TAi,t-1) + \beta_3(PPEi,t/TAi,t-1) + \beta_4(ROA_{i,t}/TA_{i,t-1})$$
(3)

Where I is for the company, t for the year, TA stands for total assets, REV stands for change in operating revenues, REC stands for change in net receivables, PPE stands for change in gross property, plant, and equipment, and ROA stands for return on assets. Lastly, the DA is determined by applying equation (1), total DA in equation (2) minus the non-DA in equation (3).

Our main measure for Audit firm size (*AFS*) is measured by using A dummy variable 1 if the firm is audited by a Big 4 auditor, 0 otherwise, [43]. This study also used a Log of total CEO compensation for the year to measure the CEO compensation (*CEO*) [45].

3.2 Regression Model

This study evaluated the following regression to test the study hypotheses and examined the association between AFS and CEO as a moderate with EM: $EM = \beta_0 + \beta_1 AFS + \beta_2 CEO + \beta_3 AFS^* CEO + \beta_4 LEV + \beta_5 ROA + \beta_6 FSIZE + \beta_6 MTB + \beta_7 CURRENT + \beta_8 BSIZE + e_{i,t}$ (4)

4 Result & Discussion

4.1 Descriptive Statistics

The variables' minimum, maximum, mean, and standard deviation values are included in Table 1's descriptive statistics. The mean value of earnings management as measured by DA is 0.02, which is strikingly comparable to research by Kamarudin, Mohamad Ariff, and Wan Ismail from other countries [56], The Big 4 auditors are utilized by around 48% of Jordanian businesses, according to the mean value for the AFS, which is 0.48. The CEO remuneration in Jordan is substantial, as indicated by the CEO mean of 77446JD, which demonstrates the CEO's influence over decisionmaking. The data also reveals that the average LEV value is 0.352, meaning that 35% of a company's assets are financed by debt. The typical ROA value is 0.016. The typical value of the variable FSIZE is 4.89. Knowing that there are organizations with strong performance, the highest value for CURRENT is 902.165 and the CURRENT mean is 7.69. This result also shows that current assets constitute 7.69% of total assets, which is a relatively low proportion. The MTB mean is 1.24. The BSIZE variable ranges in value from 5 to 14, with a typical value of 7.88.

The Pearson correlation analysis of the independent and dependent variables is shown in Table 2. The findings indicate that the majority of independent factors are positively correlated. According to the results, the CEO and DA have positive correlations (r = 0.143; p=0.004) and AFS has a positive association (r = 0.041; p=0.41). BSIZE and CEO had the strongest connection (r = 0.493; p=0.000) among the variables in Table 3.

variables	Minimum	Maximum	Mean	Std. Deviation
DA	-0.365	2.106	0.029	0.231
AFS	0	1	0.484	0.50
CEO	400	533335	77446	3
LEV	0.001	0.959	0.353	0.228
ROA	-0.613	0.387	0.015	0.097
FSIZE	2.602	5.727	4.889	0.493
MTB	0.117	12.41	1.239	1.252
CURRENT	0.02	902.165	7.695	59.856
BSIZE	5	14	7.879	2.344

Table 1. Descriptive statistics

4.2 Main Empirical Results

This study used fixed effect regression models to examine the hypotheses. The regression estimates for the influence of AFS and CEO as a moderator variable on EM are shown in Table 3. The findings of this study, shown in Table 3, show a strongly positive connection between AFS and EM, which rules out the Big 4's effectiveness in lowering EM. This finding contradicts the agency theory.

Probability	DA	AFS	CEO	LEV	ROA	FSIZE	MTB	CURRENT	BSIZE
DA	1								
AFS	0.041	1							
	0.41								
CEO	0.143	0.272	1						
	0.004	0							
LEV	0.035	-0.043	0.388	1					
	0.479	0.388	0						
ROA	0.185	0.16	0.283	-0.241	1				
	0.001	0.002	0	0					
FSIZE	0.095	0.057	0.317	0.144	0.099	1			
	0.056	0.248	0	0.004	0.046				
MTB	0.045	0.082	0.137	0.095	0.329	0.02	1		
	0.371	0.098	0.006	0.056	0	0.694			
CURRENT	0.035	-0.087	-0.228	-0.161	-0.018	0.003	0.061	1	
	0.478	0.08	0	0.002	0.692	0.095	0.223		
BSIZE	0.095	0.255	0.493	0.003	0.176	0.367	0.046	-0.114	1
	0.055	0	0	0.095	0.001	0	0.355	0.021	

Table 2. Correlation analysis

But it contradicts [40, [41] and is in line with [42, [43], [44]. In light of this finding, the first hypothesis is accepted, which states: *there is a significant relationship between AFS and EM*.

The CEO result in Table 3 shows a negligibly beneficial impact on EM. This outcome shows that the CEO frequently manipulates company earnings to increase remuneration. This finding conflicts with the agency theory, which claimed that if the CEO had a larger salary, he or she would be more likely to disclose critical information about the business that would help to minimize conflicts of interest, [57]. This outcome is in line with [19] and [18]. Table 3 showed that the combined effect of the CEO and the AFS was significantly and negatively related to EM. This demonstrates the significance of the joint effect in reducing EM behaviors and its crucial role as a moderator. According to this, the Big 4 audit firms and CEO compensation assist Jordanian businesses boost the legitimacy of their revenues. This outcome supports the agency theory. On the basis of the aforementioned, the second hypothesis, which states: The CEO compensation moderates relationship between audit firm size and EM practices. Additionally, the control variables LEV, MTB, and BSIZE had negligible FSIZE, relationships to EM. However, there is a significant correlation between CURRENT and ROA and EM.

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Variables	Result of regression model
AFS	1.25*** (2.67)
CEO	.524 (1.57)
CEO*AFS	173*** (-2.82)
LEV	.056 (.87)
ROA	.737*** (7.39)
FSIZE	005 (16)
MTB	003 (37)
CURRENT	.001*** (8.11)
BSIZE	.008 (0.84)
С	-3.88 (-164)
R- squared	0.316
F- Statistic	1068.3***
No. of obs	405
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Table	3	Fixed	effect	model
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*, ** and *** represent significance at p<0.10, <0.05 and <0.01, respectively.

	A	DF	LLC		
Variables	I(0)	I(1)	I(0)	I(1)	
DA	284.891***	388.847***	-36.354***	-52.277***	
AFS	65.513	23.212	-4.744***	-2.343***	
CEO	202.573**	279753***	-7.603***	-1096.2***	
LEV	190.454*	269.803***	-14.917***	-49.384***	
ROA	276.468***	378.379***	-92.663***	-103.655***	
FSIZE	226.87***	308.818***	-21.603***	-46.16***	
MTB	248.173***	340.572***	-14.358***	-88.533***	
CURRENT	250.032***	340.462***	-19.439***	-66.395***	
BSIZE	3.637	16.096**	-4.307***	-6.517***	

Table 4. Unit Koot Tes

*, ** and *** represent significance at p<0.10, <0.05 and <0.01, respectively.

4.3 Robustness Analysis

This study involves a number of tests to make sure the conclusions hold up to different metrics. The tests include tests for serial correlation, heteroscedasticity, and unit root. First, the enhanced Dickey-Fuller (ADF) and Levin-Lin-Chu (LLC) tests were performed in this study. To ascertain whether a time series is stationary, or whether a change in time does not result in a change in the distribution's shape, a unit-root test was undertaken. The dependent variable DA has p values less than 0.01, which indicates that the variable is stationary, according to the LLC test. Table 4 present a unit root test determines whether a variable in a panel data set is stationary or nonstationary. Further evidence that all the factors in the panel data are stationary comes from the fact that both the control and moderating variables produced the same outcome. In order to rule out biases and confirm that the regression model is significant, this study also tests the data for heteroscedasticity. In order to identify a heteroscedasticity problem in the dataset, this research applied the Modified Wald test for GroupWise heteroscedasticity in a FEM. The panel data used for this analysis's p-value (probability > chi2) was found to be more than 0.1, showing that there is no heteroscedasticity problem for DA. The outcome is shown in table 5 below.

Third, serial correlation is tested in this study. A dataset with serial correlation produces a biased model that is unsuitable for sophisticated data analysis. As a result, the Wooldridge test analysis was utilized in this study to identify the problem of

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serial correlation. Table 6 presented the Wooldridge test results. The outcome demonstrated that there was no serial association in this investigation.

Table 5. Modified Wald test

H0: $sigma(i)^2 = sigma^2$ for all i				
Chi2 $(81) = 1.3e+05$	Prob>chi2 = 0.256			
*, ** and *** represent signif	icance at p<0.10,			
<0.05 and <0.01, respectively.				

Table 6. Wooldridge test for autocorrelation				
H0: no first order autocorrelation				
F(1, 80) = 0.001	Prob > f = 0.9697			

*, ** and *** represent significance at p<0.10, <0.05 and <0.01, respectively.

5 Conclusions

The aim of this research is to investigate the effect of AFS on EM and combined influence of CEO compensation as a moderating variable in companies listed on the ASE. A panel data set from 81 industrial and service companies from 2015 to 2019 was used in the study. The study's findings showed that EM has a positive and significant impact on AFS; this suggests that the Big 4 audit firms are unable to reduce EM because of the results' increased firm size; and this suggests that major corporations are eager to report financial statement errors and provide transparent, truthful information. The findings also revealed that just a small percentage—35% of the company's assets were derived from indebtedness, indicating that managers are not actively seeking to take risks by engaging in opportunistic conduct to escape debt arrangements. Based on this, shareholders and stakeholders shouldn't rely solely on Big 4 companies to solve EM and agency issues, as well as CEO compensation when it is a somewhat variable. It can be said that corporate governance must be done fully and jointly and be under supervision to ensure its full application in order to reduce opportunistic practices and reducing agency problems. The study revealed that the joint effect of AFS and CEO compensation on EM had a significant and negative relationship; this indicates the strength of the joint effect in limiting EM.

This study used CEO compensation as a moderating variable to address a knowledge gap about earnings management in Jordan. New analyses on the prospect of restricting profits management were offered. This study's coverage of the time before and after the 2017 changes to the Corporate Governance Law is one of its contributions. This study suggests that companies should not rely just on the Big 4 to audit their data; instead, they should pay attention to the industry specialty of their auditors and be able to afford audit costs in addition to offering the CEO the proper incentives.

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