





## THE MEDIATING EFFECTS OF KEY AUDIT MATTERS ON THE RELATIONSHIP BETWEEN AUDIT QUALITY AND EARNINGS MANAGEMENT: EVIDENCE FROM JORDAN

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### ABSTRACT

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The relationship between audit quality and earnings management has not been tested with consideration of key audit matters as a mediating variable. This study examined whether audit quality (AQ) decreases earnings management (EM) in shareholding corporations through improving key audit matters (KAMs) in Jordan's emerging environment. A regression analysis was carried out on a sample that included financial reports and auditor reports of 105 industrial and service shareholdings companies listed on the Amman Stock Exchange (ASE) from 2017 to 2019. The study found a negative relationship between audit quality and earnings management. The results showed that audit quality increases key audit matters, which, in turn, decreases earnings management. Also, the study confirmed the mediating effect of KAMs between audit quality and earnings management. The study confirms the importance of key audit matters to provide more relevant and useful information for the users of financial reports and provides important indications to the regulatory authorities and standards bodies that key audit matters should be given more attention regarding the way that they are presented and disclosed.

**Contribution/Originality:** The paper's primary contribution is finding that key audit matters - as a mediating variable - affect the relationship between audit quality and earnings management, which was tested in an emerging environment in Jordan.

## 1. INTRODUCTION

In recent years, the news of the financial failures of huge corporations has gained significant attention in the financial community, and the financial collapses were partly due to the failure of these corporations to disclose their financial position in a timely manner.

Since management is primarily responsible for disclosures in corporations, the responsibility of the auditors is to verify the appropriateness and provide reasonable assurance regarding the disclosures.

Moreover, auditors failed to provide early warnings for the financial crises that occurred, and the traditional disclosures in the auditors' report are no longer enough to meet the previously increasing information needs for stakeholders. Therefore, professional authorities have made amendments to the auditors' reports in order to increase disclosures so that the quality of the audit process and audit reports will be enhanced (Li, 2020).

Information asymmetry and conflicts of interest between the board of directors, auditors, investors, creditors, and other stakeholders increased the expectations gap between these parties. Investors and other stakeholders found themselves unable to easily extract relevant information that is relevant to various economic decisions. (Velte & Issa, 2019). In addition, the impact of management's estimations in recognizing and measuring financial statements items on investor decisions (Alzoubi, 2016). Key audit matters may reduce the expectations gap by reducing the reasonableness gap among stakeholders to better understand of the scope and limitations of the external audit process and by reducing the performance gap by linking ineffective performance and standards (Velte, 2018).

The recent changes in the auditors' reports aimed to provide proper information to the users of the reports. The most important of these changes are to the key audit matters (KAMs), which rely heavily on the professional judgment of the auditor to disclose the most critical matters subject to the risks in auditing financial statements, to reduce the gap in expectations from the old auditors' reports, and to increase the informative contents (Li, 2020). These changes also aimed to improve the understanding of the audited financial statements and the role of the auditor and his responsibility regarding the audited statements (Gold, Heilmann, Pott, & Rematzki, 2020; Tušek & Ježovita, 2018).

Key audit matters may lead the management of corporations to be more focused on the quality of operations and procedures, and thus key audit matters not only improve the transparency of information for stakeholders, but also improve the management's behavior in presenting reports, which, in turn, leads to an improvement in the quality of reports and reduces earnings management (Anna, Heilmann, Pott, & Rematzki, 2018; Cassell, Myers, & Seidel, 2015).

Audit quality has been an urgent matter that has been addressed in plenty of studies on earnings management in developed countries (Lin & Hwang, 2010). This study deals with this relationship in Jordan, as a developing country, which is characterized by weak investor protection, the small size of shareholdings corporations, the concentration of ownership, and the influence of personal relationships in choosing auditors (Abdullatif, 2016; Abdullatif & Al-Rahahleh, 2020).

This paper provides practical evidence from a developing country that has its cultural, social, and economic aspects, and it examines the relationship between the key audit matters and earnings management directly. Finally, it will provide important information to the regulatory legislative authorities and researchers regarding the importance of disclosing key audit matters in auditors' reports.

The rest of this study is set out as follows: the second section briefly introduces the environment of the auditing profession and disclosure of key audit matters in reports of auditors in Jordan; the third section comprises the literature review of relevant studies and the hypotheses developed; the fourth section explains the practical framework of the study, which includes the study sample, data resources, and how the variables of the study are measured; the fifth section discusses the results; and the final section contains the conclusions, recommendations, and ideas for future research.

### *1.1. Institutional Setting and Real Activities of Key Audit Matters (KAMS)*

The audit profession in Jordan has witnessed rapid development, and the number of auditing firms has increased to more than 300 firms, most of them small. They are controlled by Jordanian laws that comply with the international standards of accounting and auditing that are adopted in Jordan (Abdullatif & Al-Rahahleh, 2020). The Jordanian Association of Certified Public Accountants was established in 1987 as a special body to represent, regulate and supervise the auditing sector and grant licenses to practice the profession in Jordan (Al-Sukker, Ross, Abdel-Qader, & Al-Akra, 2018).

### *1.2. Reporting Key Audit Matters in Jordan*

After the implementation of the ISA 701 in 2016, amendments were added directly to the audit reports for audited financial statements in Jordan in 2017, which are naturally related to the end of 2016 reports. The disclosure of key audit matters in the auditors' reports was higher in the Big Four audit firms compared to other audit firms. In general, there was an increase in the number of key audit matters in 2018 compared to 2017, most of the key audit matters were related to asset evaluation issues, and the average number of key audit matters was about 2.18 for the group of the Big Four firms, 1.42 for the non-Big Four. Furthermore, a relationship between the number of audit matters that are disclosed and the audit quality was suggested (Abdullatif & Al-Rahahleh, 2020).

## **2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT**

Several studies have dealt with key audit matters (KAMs) as one of the most important changes that occurred to auditors' reports in terms of their impact on the transparency of the reports, and the effect of KAMs on the behavior of the auditors, investors, and stakeholders. KAMs came to enhance the informative value of the auditors' reports, improve communication with the users of the reports, and direct them to the main issues in auditing the financial statements by narrowing the information gap between the users' desire for information and what is available through the entity's disclosures and the audit reports (Altawalbeh & Alhajaya, 2019; Sirois, Bédard, & Bera, 2018).

On the other hand, the focus has been on the quality of audit reports due to its importance in creating confidence in the financial statements and ensuring that they comply with the international accounting standards to provide appropriate information and fair representation. Adopting an audit-based risk model focuses more on the validity of the data published rather than the accuracy of analyzing and interpreting the information provided to users (Maroun, 2018; Segal, 2017).

Earnings management is one of the main topics addressed by researchers and users to examine the impact of the management's ability to influence the financial information contained in the financial statements. Therefore, this study came to focus on the relationship of disclosure in the auditor's report represented by key audit matters, audit quality, and earnings management while considering key audit matters as a mediating variable on this relationship.

### *2.1. Key Audit Matters and Audit Quality*

The main changes in the auditors' reports (KAMs) aimed to increase the transparency of the auditor report to allow users to gain more insight into audit issues (Maroun, 2018; Segal, 2017).

Audit quality is usually related to the auditor's ability to find material errors in the financial statements. It is also concerned with the auditor's willingness to disclose an unbiased report based on the outcome of the audit process. Many studies have indicated that disclosure of key audit matters (KAMs) improves perceived value and data reliability only when the disclosures are made by the Big Four audit firms. On the other hand, they also found that listing KAMs draws investors' attention to new and broader information, which may distract them from the core information in the audit report (Marques, Pereira, Aquino, & Freitag, 2021; Moroney, Phang, & Xiao, 2021; Shakhathreh, Alsmadi, & Alkhataybeh, 2020).

The disclosure of key audit matters (KAMs) in the auditors' reports may cause difficulties for non-professional investors in processing the disclosed information, thus KAM's have no additional communicative value (Köhler, Ratzinger-Sakel, & Theis, 2020). A positive relationship was highlighted between the numbers of KAMs with ethical risks and the auditor's obligation to disclose more procedures. Evidence places more responsibility on the auditors by expanding the scope of the audit and increasing the effort resulting from the expansion of disclosure of key audit matters (KAMs), which improves the audit process and the quality of the audit report (Lin, Hsu, Chou, Chao, & Li, 2020). In addition, Santos, Guerra, Marques, & Maria Junior (2020) found that large audit firms are more informed regarding main audit concerns than smaller audit firms.

Based on the above inconclusive results of earlier studies, we can put forward the following hypothesis regarding the relationship between the key audit matters and audit quality:

*H1: There is a significant relationship between audit quality and key audit matters.*

### *2.2. Key Audit Matters and Earnings Management*

Voluntary disclosure and earnings management are not simultaneously determined or linked. Analytical models suggest that information asymmetry decreases with a higher level of voluntary disclosure of information. As a result, the volume of trade and the liquidity of the stock market increases, which may reduce the cost of capital (Consoni, Colauto, & Lima, 2017).

Gold et al. (2020) showed that managers' tendency to make aggressive financial reporting decisions was reduced in the presence of KAMs (compared to the absence of KAMs). Pinello, Puschaver, & Volkan (2020) stated that critical accounting estimates affect the critical audit matters made by the auditors. Tušek & Ježovita (2018) found an improvement in the informative value contained in the reports. They also found a positive and significant association between the number of KAMS and accruals and discretionary revenues, while a negative and significant association was found between the number of KAMS and earnings management proxy by operations through discretionary expenses.

Voluntary disclosure aims to increase the quality of disclosure and the quality of reports submitted to the stakeholders, but the management may use them to mislead users of the reports about the real performance. It was also found that there is a relationship between voluntary disclosure and earnings management (Karajeh, Ibrahim, & Lode, 2015; Shbeilat, 2018).

Based on the above, the relationship between disclosures (including key audit matters) and earnings management can be developed. The following hypothesis can be formulated as follows:

*H2: There is a significant relationship between key audit matters and earnings management.*

### *2.3. Audit Quality and Earnings Management*

Earnings management indicates the motivation of management to use estimation and operating decisions to meet expected levels of profits. To reduce this problem, the external audit plays a control role to ensure the quality of financial statements, reduce agency costs arising from opportunistic behavior of managers, reduce asymmetric information between corporations and stakeholders, and help the flow of useful information into the capital market. Vital auditor roles should be conducted through a deep understanding of businesses, with adequate skills, experience, and sufficient time to implement high-quality audit practices (Velte & Issa, 2019; Yasser & Soliman, 2018).

Previous studies on audit quality and earnings management do not agree on the impact of audit quality, whether it is measured by firm size, audit fees, the auditor's tenure, the auditor's specialization, or the auditor's reputation. Nawaiseh (2016) indicated a negative relationship between discretionary accrual and the size of the auditing firm. A negative relationship with the independence, audit fees and specialization of the auditor and earnings management were also proven (Almarayeh, Aibar-Guzmán, & Abdullatif, 2020; Sharf & Abu-Nassar, 2021; Wasan & Mulchandani, 2020).

Jordan, Clark, & Hames (2010) and Almarayeh et al. (2020) showed that higher audit quality does not mean higher earnings quality, and there was no relationship between earnings management and the audit firm being one of the Big four. But others such as Lopes (2018) told that the level of earnings management is significantly lower among companies contracting one of the Big Four audit firms compared to companies using a non-Big Four audit firm. Hegazy, Al Sabagh, & Hamdy (2015) concluded that a specialized auditor is associated with less earnings management than a non-specialist auditor, and there is a relationship between earnings management and the auditor's specialization. yes

Sumiadji, Grahita, & Edi (2019) indicated a positive effect between the tenure of the auditor and earnings management. Auditor tenure has a significant relationship with earnings management and minimizes earnings manipulation (Ibrahim, Mansor, & Ahmad, 2020; Putra & FitoMela, 2019; Yasser & Soliman, 2018).

Based on the above issues and the inconclusive results of previous studies, this study examines the mediating effects of key audit matters on the relationship between audit quality and earnings management in an emerging environment such as Jordan's. The following hypotheses can be formulated:

*H3: There is a significant relationship between audit quality and earnings management.*

*H4: There is a significant relationship between audit quality and earnings management considering key audit matters as a mediating variable.*

### 3. RESEARCH METHODOLOGY

#### 3.1. Population and Sample

The study examines all industrial and service companies listed on the Amman Stock Exchange (ASE) for the period from 2017 to 2019. The industrial and service sectors were chosen because of their importance to the Jordanian economy, as they account for more than a quarter of the national economy (Almarayeh et al., 2020).

The total number of companies listed on the ASE in 2019 was 132. However, for this study, data for 27 of these companies were deleted due to their unavailability of annual reports, or due to insufficient financial data. Thus, the final dataset contains 315 firm-year observations of companies listed on the Amman Stock Exchange that span from 2017 to 2019, and the observations were surveyed from the annual reports of the sampled corporations. This research carried out hypothesis testing mainly using multiple linear regression analysis to execute the research model and establish the relationship between the independent and dependent variables.

#### 3.2. Variables Measures and Research Model

This study used descriptive and quantitative methods to collect data and analyze the annual reports of the industrial corporations listed on the ASE during the period from 2017 to 2019, and gathers the relevant data about the study variables, key audit matters (KAMs), audit quality (AQ) and earnings management (EM). The study used key audit matters as a mediating variable for the relationship between audit quality and earnings management. In addition, the study used four control variables: company size, degree of financial leverage, degree of liquidity, and profitability.

##### 3.2.1. Earnings Management (EM)

Earnings management is employed by a corporation's management to amend financial reports and make amendments or updates for contractual returns based on the accounting data to improve the performance of the facility or to mislead the users of the financial reports (Nawaiseh, 2016).

Usually, earnings management is measured by discretionary accruals, as earnings management is derived from applying the accrual basis. Accruals include a wide range of earnings management techniques available for managers when preparing financial statements. The dependent variable in this study is earnings management, and discretionary accruals were applied as a proxy for earnings management (Islam, Ali, & Ahmad, 2011). The Modified Jones model is the most powerful of the existing models for estimating discretionary accruals (Islam et al., 2011; Nia & Sarchah, 2014). Based on the above argument, we will use the Modified Jones model to measure discretionary accruals, which can be estimated as follows:

$$\text{Total accruals: } TAC_{it} = NI_{it} - CFO_{it} \quad (1)$$

Where:

$TAC_{it}$  = total accruals for company  $i$  in year  $t$ .

$NI_{it}$  = net income before extraordinary items for company  $i$  in year  $t$ .

$CFO_{it}$  = operating cash flows for company  $i$  in year  $t$ .

$$TAC_{it}/A_{it-1} = \alpha_1(1/A_{it-1}) + \alpha_2(\Delta REV_{it} - \Delta REC_{it})/A_{it-1} + \alpha_3(PPE_{it}/A_{it-1}) + \varepsilon \quad (2)$$

Where:

$TAC_{it}$  = total accruals for company  $i$  in year  $t$ .

$A_{it-1}$  = lagged total asset for company  $i$  in year  $t-1$ .

$\Delta REV_{it}$  = change in operating revenues for company  $i$  in year  $t$ .

$\Delta REC_{it}$  = change in net receivables for company  $i$  in year  $t$ .

$PPE_{it}$  = gross property, plant, and equipment for company  $i$  in year  $t$ .

$\alpha_1$ -  $\alpha_3$  = regression parameters.

$\varepsilon_{it}$  = error term of company  $i$  in period  $t$ .

Non-discretionary accruals are measured as follows:

$$NDAC_{it}/A_{it-1} = \alpha_1(1/A_{it-1}) + \alpha_2(\Delta REV_{it} - \Delta REC_{it}) + \alpha_3 PPE_{it} + \varepsilon \quad (3)$$

Where:

$NDAC_{it}$  = non-discretionary accruals for company  $i$  in year  $t$ .

$A_{it-1}$  = lagged total asset for company  $i$ .

$\Delta REV_{it}$  = change in net revenue of company  $i$  between periods  $t-1$  and  $t$ .

$\Delta REC_{it}$  = change in net accounts receivable for company  $i$  between periods  $t-1$  and  $t$ .

$PPE_{it}$  = gross property, plant, and equipment for company  $i$  in year  $t$ .

$\alpha_1$ -  $\alpha_3$  = regression parameters.

$\varepsilon_{it}$  = error term of company  $i$  in period  $t$ .

Discretionary accruals are measured as follows:

$$DAC_{it} = TAC_{it} - NDAC_{it} \quad (4)$$

Where:

$DAC_{it}$  = discretionary accruals for company  $i$  in year  $t$ .

$TAC_{it}$  = total accruals for company  $i$  in year  $t$ .

$NDAC_{it}$  = non-discretionary accruals for company  $i$  in year  $t$ .

All variables are deflated by beginning total assets (i.e.,  $A_{t-1}$ )

### 3.2.2. Audit Quality (AQ)

In many studies, audit quality is measured by the size of the audit firm, with the argument that the Big Four auditors have greater audit quality compared to non-Big four auditors. This is because the Big Four audit firms possess greater staff quality, knowledge, technical experience, capacity, and reputation compared to smaller audit firms. Affes & Smii (2016), Houqe (2015) and Memis & Cetenak, (2012) documented a negative and significant relationship between audit quality being measured by a measurement proxy of a Big Four auditor and discretionary accruals, and they showed that the level of earnings management is significantly lower for companies that use the Big Four firms compared to those that use non-Big Four firms.

Studies such as Houqe (2015) and Wasan & Mulchandani (2020) concluded that companies that hire high-quality auditors in proxy with auditor size (Big Four) have a negative influence on earnings management (discretionary accruals), which means that being audited by one of the Big Four auditors makes the earnings quality higher.

Finally, Ammar, Shaique, & Anwar ul Haq (2018) concluded that there is no significant difference between the discretionary accruals of firms audited by the Big Four and non-Big Four auditors. We measured this variable by using a dummy variable of 1 if the company is audited by a Big Four audit firm and 0 otherwise.



### 3.2.3. Key Audit Matters (KAMs)

To investigate KAM reporting, the study focused on the key audit matters paragraph in the auditor reports, which is included in the annual reports of the sampled companies. To measure the level of KAMs used in the study, a content analysis was carried out with a checklist used to count the number of issues and words included in KAMs to quantify the level of KAM reporting in corporate annual reports (Suttipun, 2020).

A distinction was made between corporations that did not disclose any audit issues with the number 0, and 1 for the corporations that did, and the number of disclosures the auditor showed in his report was indicated by the number of issues and the number of words included in these KAMs.

### 3.3. Control Variables

Consistent with prior literature, factors other than KAMs and audit quality may also contribute to earnings management. Therefore, the study used four control variables which were also used in many previous studies: the size of the firm (*logsiz*) measured by the natural logarithm of total assets; firm's profitability (ROA) measured by net income divided by total assets; a company's leverage (LEV) measured by the total liabilities over the total assets; and the company's liquidity (CR) which is calculated as the ratio of current assets over current liabilities. (Khuong, Liem, & Minh, 2020).

#### 3.3.1. Company Size (*logsiz*)

The relationship between firm size and earnings management remains ambiguous. Previous studies indicated a significant relation which found that larger firms use accounting manipulation more than other firms. Larger firms generally have more complex internal control systems than small firms, which reduces the likelihood of earnings management (Purnama & Nurdiniah, 2019; Sharf & Abu-Nassar, 2021).

#### 3.3.2. Company Financial Leverage (LEV)

The debt of a company also has an ambiguous effect on earnings management. Highly indebted firms may be less able to practice earnings management because they are under the scrutiny of lenders, and levered companies have more incentive to engage in earnings management activities (Chandra & Wimelda, 2018; Veronica, 2015).

#### 3.3.3. Company profitability (ROA)

The ratio of return on assets is usually used as proxy of accounting performance (Purnama & Nurdiniah, 2019). Alzoubi (2016) found that the quality of earnings management is lower in companies with higher ROA, and document a negative association between ROA and discretionary accruals, while Lopes (2018) found that discretionary accruals are significantly and positively correlated with firm performance.

**Table-1.** Measurement of variables.

KAMs	KAM reporting (number of issues) ISSUE: content analysis by checklist.
KAMs	KAM reporting (number of words) WORD: content analysis by word counting.
SIZ	Firm size, defined as the log of total assets.
ROA	Return on assets defined as net income/average total assets (corporate profitability).
AQ	Audit quality (a dummy variable of 1 if the company is audited by a Big Four audit firm and 0 otherwise).
CR	Company liquidity, measured by current ratio defined as current assets/current liabilities.
LEV	Leverage, defined as long-term debt/total assets.
EM	Measured by discretionary accruals (DACit) according to the Modified Jones model.

3.3.4. Company Liquidity (CR)

Moghaddam & Abbaspour (2017) and Gombola, Ho, & Huang (2016) showed that financial and liquidity leverage has a significant positive effect on the earnings management of banks, therefore increasing the degree of financial leverage, increasing liquidity, and increasing the possibility of discretionary accruals and earnings management being used in banks.

Table 1 indicates the measurement of the variables used in this study.

3.4. Research Model

To test the research hypotheses, which examine the relationship between audit quality and earnings management, we use the mediating effect of key audit matters. Figure 1 shows the regression model, with the equation below.

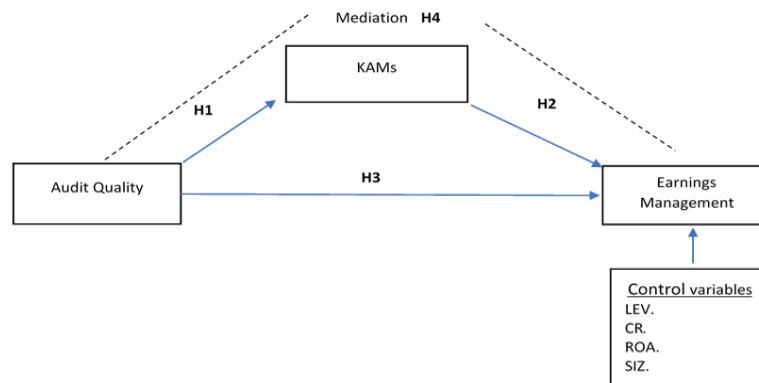


Figure-1. Research model.

$$DAC_{it} = \alpha_0 + \alpha_1 KAM_{sit} + \alpha_2 BIG_{4it} + \alpha_3 (KAM_{sit} \times BIG_{4it}) + \alpha_4 LEV_{it} + \alpha_5 ROE_{it} + \alpha_6 CR_{it} + \alpha_7 SIZ_{it} + \epsilon$$

Where: DAC is discretionary accruals (EM = earnings management).

4. EMPIRICAL RESULTS AND DISCUSSION

To test whether KAMs have a mediating effect among Jordanian companies is significantly associated with the variables identified (earnings management, audit quality and control variables); a Pearson correlation analysis was performed, along with a regression analysis, process analysis, and path analysis.

A descriptive analysis was used to investigate the level of KAMs disclosed in auditors' reports and other research variables in the annual reports of the sampled companies. Multiple regression was used to examine the relationship between KAMs and earnings management, audit quality, and the four control variables. A process analysis and path analysis were used to examine the mediating effect of KAMs on the relationship between audit quality and earnings management.

Table 2 indicates the frequency of the 315 observations of the sampled companies for type of industry and audit firms.

Table-2. Demographic characteristics of the sampled companies.

		Frequency	Percent	Valid Percent	Cumulative Percent
Type of Industry	Industrial co.	156	49.5	49.5	49.5
	Service co.	159	50.5	50.5	100.0
	Total Obs.	315	100.0	100.0	
Audit Firm	Big four	135	42.9	42.9	100.0
	Non-Big four	180	57.1	57.1	57.1
	Total Obs.	315	100.0	100.0	



Table 2 shows that service companies represent 50.5%, while industrial companies represent 49.5% of the sample. Also, 42.9% of corporations in the sample were audited by big audit firms and 57.1% were audited by smaller audit firms.

In Table 3, we investigated KAMs in term of the number of issues included in auditors' reports during the period from 2017 to 2019.

**Table-3.** KAMs disclosures in number of issues.

		Frequency	Percent	Valid Percent	Cumulative Percent
KAMs disclosures in term of number of issues	0.0	36	11.4	11.4	11.4
	1.0	102	32.4	32.4	43.8
	2.0	117	37.1	37.1	81.0
	3.0	48	15.2	15.2	96.2
	4.0	6	1.9	1.9	98.1
	5.0	6	1.9	1.9	100.0
	Total	315	100.0	100.0	

Table 3 shows that only 11.4% of the corporations did not include any KAMs in their audit reports, and the remaining corporations (88.6%) have included KAMs in their audit reports. We can also show that corporations have KAMs that include two issues in their disclosures.

**Table-4.** Descriptive statistics.

	Minimum	Maximum	Mean	Std. Deviation
Profitability (ROA)	-0.665	0.387	-0.012	0.119
Leverage Ratio	0.003	1.904	0.430	0.323
Liquidity (CR)	0.021	353.399	4.767	24.793
Log Size	5.505	9.158	7.438	0.731
KAMs in Words	0	864	218	168
EM	0.001	0.854	0.083	0.082

Descriptive statistics in Table 4 show that the mean of the number of words included in KAMs disclosures was 218 with a standard deviation of 168, and the mean of earnings management was 0.083 with a standard deviation of 0.082 for corporations in the study sample, and these results are similar to previous studies (e.g., Al-Sraheen & Alkhatib, 2016).

#### 4.1. Hypothesis Testing and Regression Analysis

A Pearson correlation was used to test the hypotheses at the  $\alpha \leq 0.05$  significance level.

**Table-5.** Significance levels of hypotheses.

Hypothesis	R value	R <sup>2</sup> value	P-Value
H <sub>1</sub>	0.757	0.573	0.00
H <sub>2</sub>	0.796	0.634	0.00
H <sub>3</sub>	0.604	0.365	0.00

Table 5 shows that there is a positive (strong) correlation between key audit matters and audit quality demonstrated by the R-value ( $R = 0.757$ ), which is more than 0.5 (Cohen, 1988). Also, the contribution of the key audit matters variable to audit quality is estimated at 57.3% ( $R^2 = 0.573$ ), and the remaining percentage is due to other factors. Also, the P-value is less than (0.05). Therefore, we accept the first hypothesis, which states that there is a significant relationship between key audit matters and audit quality.

The results of testing the second hypothesis (see Table 5) show that there is a positive (strong) correlation between audit quality and earnings management demonstrated by the **R**-value ( $R = 0.796$ ), which is more than 0.5 (Cohen, 1988). Also, the contribution of the audit quality variable to earnings management is estimated at 63.4% ( $R^2 = 0.634$ ), and the remaining percentage is due to other factors. Also, the P-value is less than 0.05. Therefore, we accept the second hypothesis, which states that there is a significant relationship between audit quality and earnings management.

The results show there is a significant relationship between key audit matters and earnings management, as the P-value is less than 0.05. Also, there is a positive (strong) correlation between key audit matters and earnings management demonstrated by the **R**-value ( $R = 0.604$ ), which is more than 0.5 (Cohen, 1988). Also, the contribution of the key audit matters variable to earnings management is estimated at 36.5% ( $R^2 = 0.365$ ), and the remaining percentage is due to other factors.

**H4:** *There is a significant relationship between key audit matters and earnings management considering audit quality as a mediating variable.*

To test this hypothesis, the researcher used the path analysis (AMOS 23V Programming) to ensure that the audit quality will mediate the relationship between key audit matters and earnings management. Table 6 shows the results of the goodness of fit test.

**Table-6.** Indicators of goodness of fit for the study model

Chi Square $\chi^2$ Calculated	Chi Square $\chi^2$ Table	DF	Sig	NFI	CFI	GFI	RAMSEA
332.968	9.915	3	0.000	0.998	1.000	0.981	0.053

Note:

**GFI:** Goodness of fit index

**NFI:** The Bentler–Bonett normed fit index

**CFI:** The comparative fit index

**RMSEA:** Root Mean Square Error of Approximation.

All the indications of goodness-of-fit (GOF) indices show an adequate fit. The calculated chi-squared was 321.968 at level  $\alpha \leq 0.05$ , which is greater than the chi-squared value in the table of 9.915. In addition, the root mean square error of approximation (RMSEA) is 0.053, which is less than 0.080 (Hair, Black, Babin, Anderson, & Tatham, 2006), which indicates the model is fit. Also, the goodness of fit index (GFI) must have a proximity value of 1, and as we can see from the table, the  $GFI = 0.981$  and approximately equals 1. The comparative fit index (CFI) equals 1.000, which is more than 0.9 (Hair et al., 2006). At the same time, the NFI equals 0.998, which is more than 0.9 (Hair et al., 2006).

To examine if the audit quality mediates the relationship between key audit matters and earnings management, the researcher used a path analysis test (see Table 7), which observed direct, indirect, and total impacts.

**Table-7.** Direct, indirect, and total impacts from the path analysis.

Variable	Direct Effect		Indirect Effect		Total Effect	
	Key Audit Matters	Audit Matters	Key Audit Matters	Earnings Management	Key Audit Matters	Audit Matters
Audit Matters	0.975	0.000	0.000	0.000	0.975	0.000
Earnings Management	0.275	0.537	0.524	0.000	0.799	0.537

Based on Table 7, only one indirect effect appears (0.524) and belongs to the key audit matters' indirect impact on earnings management. This result increases the total impact that key audit matters have on earnings management (0.799).

In addition, the indirect impact on earnings management is greater than the direct impact, therefore, the researcher accepted the fourth hypothesis, that there is a significant relationship between key audit matters and earnings management considering audit quality as a mediating variable.

## 5. CONCLUSIONS AND RECOMMENDATIONS

1. There is a strong correlation between audit quality and earnings management. It is inferred that improving audit quality will positively affect earnings management and it's found that audit quality will contribute to 63% of earnings management.
2. There is a strong correlation between key audit matters and audit quality, inferred when improving and developing key audit matters. It was found that 57% of the audit quality investigation is due to key audit matters and audit quality.
3. There is a strong correlation between key audit matters and earnings management, inferred when improving and developing key audit matters, and this will be reflected positively and have a strong impact on earnings management. It was found that 36.5% of earnings management is due to key audit matters and audit quality.
4. Audit quality acts as an intermediary between key audit matters and earnings management. It works to improve and strengthen the influential relationship between the two.

Considering the study's results, we put forward the following recommendations:

1. Conducting more research on audit quality, KAMs, and other components in auditors' reports and their effects on management practices, or on the users of audit reports, is recommended, along with further investigation of the importance of other paragraphs in the audit reports from the auditors' points of view regarding the effect of audit report improvements on audit quality.
2. Regulators and setters of standards should enforce mandatory audit report improvements to enhance audit quality and thus reduce earnings management. Our findings are useful for standards setters and auditors by highlighting the importance of KAMs and how best to implement KAMs in audit reports to ensure a clear understanding of financial statements.
3. There are limited studies on the effect of audit quality on earnings management considering KAMs, other paragraphs in audit reports. It's important to examine KAMs and other enhancement disclosures on the reactions of corporations' management and other users of audit reports and audited financial statements. This study suggests that future research might be needed to identify scope, content, complexity, and the value of KAMs on the improvement of the level of readability and understanding of audit reports.

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## REFERENCES

- Abdullatif, M. (2016). Auditing fair value estimates in developing countries: The case of Jordan. *Asian Journal of Business and Accounting*, 9(2), 101-140.
- Abdullatif, M., & Al-Rahahleh, A. S. (2020). Applying a new audit regulation: Reporting key audit matters in Jordan. *International Journal of Auditing*, 24(2), 268-291. Available at: <https://doi.org/10.1111/ijau.12192>.
- Affes, H., & Smii, T. (2016). The impact of the audit quality on that of the earnings management: Case study in Tunisia. *Journal of Accounting & Marketing*, 5(3), 1000178. Available at: <https://doi.org/10.4172/2168-9601.1000178>.
- Al-Sraheen, D., & Alkhatib, K. (2016). Proposing a model for limiting earning management practices: The case of Jordanian listed firms. *Corporate Board: Role, Duties and Composition*, 12(3), 81-84. Available at: <https://doi.org/10.22495/cbv12i3art9>.

- Al-Sukker, A., Ross, D., Abdel-Qader, W., & Al-Akra, M. (2018). External auditor reliance on the work of the internal audit function in Jordanian listed companies. *International Journal of Auditing*, 22(2), 317-328. Available at: <https://doi.org/10.1111/ijau.12122>.
- Almarayeh, T. S., Aibar-Guzmán, B., & Abdullatif, M. (2020). Does audit quality influence earnings management in emerging markets? *Revista de Contabilidad-Spanish Accounting Review*, 23(1), 64-74.
- Altawalbeh, M., & Alhajaya, M. (2019). The investors reaction to the disclosure of key audit matters: Empirical evidence from Jordan. *International Business Research*, 12(3), 50-57. Available at: <https://doi.org/10.5539/ibr.v12n3p50>.
- Alzoubi, E. (2016). Audit quality and earnings management: evidence from Jordan. *Journal of Applied Accounting Research*, 17(2), 170-189.
- Ammar, A., Shaique, M., & Anwar ul Haq, M. (2018). Do big four auditors always provide higher audit quality? Evidence from Pakistan. *International Journal of Financial Studies*, ISSN 2227-7072, MDPI, Basel, 6(2), 1-22. Available at: <http://dx.doi.org/10.3390/ijfs6020058>.
- Anna, G., Heilmann, M., Pott, C., & Rematzki, J. (2018). Do key audit matters impact financial reporting behavior? *International Journal of Auditing*, 24(2), 232-244.
- Cassell, C. A., Myers, L. A., & Seidel, T. A. (2015). Disclosure transparency about activity in valuation allowance and reserve accounts and accruals-based earnings management. *Accounting, Organizations and Society*, 46, 23-38. Available at: <https://doi.org/10.1016/j.aos.2015.03.004>.
- Chandra, A., & Wimelda, L. (2018). Opportunistic behavior, external monitoring mechanisms, corporate governance, and earnings management. *Corporate Governance, and Earnings Management (March 11, 2018)*. *Acc. Fin. Review*, 3(1), 44-52.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. New York: Routledge Academic.
- Consoni, S., Colauto, R. D., & Lima, G. A. S. F. D. (2017). *Voluntary disclosure and earnings management: Evidence from the Brazilian capital market*. Paper presented at the The American Accounting Association Annual Meeting, Chicago, IL, United States of America.
- Gold, A., Heilmann, M., Pott, C., & Rematzki, J. (2020). Do key audit matters impact financial reporting behavior? *International Journal of Auditing*, 24(2), 232-244. Available at: <https://doi.org/10.1111/ijau.12190>.
- Gombola, M. J., Ho, A. Y.-F., & Huang, C.-C. (2016). The effect of leverage and liquidity on earnings and capital management: Evidence from US commercial banks. *International Review of Economics & Finance*, 43, 35-58. Available at: <https://doi.org/10.1016/j.iref.2015.10.030>.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis (Vol. 6)*. Upper Saddle River, NJ: Pearson Prentice Hall.
- Hegazy, M. A., Al Sabagh, A., & Hamdy, R. (2015). The effect of audit firm specialization on earnings management and quality of audit work. *Journal of Accounting and Finance*, 15(4), 143-164.
- Houqe, M.N. (2015). Measuring earnings quality: Evidence from New Zealand. *Journal of Corporate Board: Roles, Duties & Composition*, 7(1), 24-32.
- Ibrahim, G., Mansor, N., & Ahmad, A. U. (2020). The mediating effect of internal audit committee on the relationship between firms financial audits and real earnings management. *International Journal of Scientific & Technology Research*, 9(04), 816-822.
- Islam, A., Ali, R., & Ahmad, Z. (2011). Is modified Jones the model of effective in detecting earnings management? Evidence from a developing economy. *International Journal of Economics and Finance*, 3(2), 116-125. Available at: <https://doi.org/10.5539/ijef.v3n2p116>.
- Jordan, C. E., Clark, S. J., & Hames, C. C. (2010). The impact of audit quality on earnings management to achieve user reference points in EPS. *Journal of Applied Business Research (JABR)*, 26(1), 19-30. Available at: <https://doi.org/10.19030/jabr.v26i1.273>.

- Karajeh, A. I., Ibrahim, M. Y. B., & Lode, N. A. B. (2015). *Impact of voluntary disclosure on earnings management in Malaysian companies: A proposed analysis*. Paper presented at the In 2015 International Symposium on Technology Management and Emerging Technologies (ISTMET). IEEE.
- Khuong, N. V., Liem, N. T., & Minh, M. T. H. (2020). Earnings management and cash holdings: Evidence from energy firms in Vietnam. *Journal of International Studies*, 13(1), 247-261. Available at: <https://doi.org/10.14254/2071-8330.2020/13-1/16>.
- Köhler, A., Ratzinger-Sakel, N., & Theis, J. (2020). The effects of key audit matters on the auditor's report's communicative value: Experimental evidence from investment professionals and non-professional investors. *Accounting in Europe*, 17(2), 105-128. Available at: <https://doi.org/10.1080/17449480.2020.1726420>.
- Li, H. (2020). A study of key audit matters disclosure. *Modern Economy*, 11(2), 399-406. Available at: <https://doi.org/10.4236/me.2020.112030>.
- Lin, J. W., & Hwang, M. I. (2010). Audit quality, corporate governance, and earnings management: A meta-analysis. *International Journal of Auditing*, 14(1), 57-77. Available at: <https://doi.org/10.1111/j.1099-1123.2009.00403.x>.
- Lin, C., Hsu, S., Chou, P.-L., Chao, Y.-Y., & Li, C.-W. (2020). The effects of directors' and officers' liability insurance on key auditing matters. *Emerging Markets Finance and Trade*, 56(5), 977-1002.
- Lopes, A.P. (2018). Audit quality and earnings management: Evidence from Portugal. *Athens Journal of Business & Economics*, 4(2), 179-192.
- Maroun, W. (2018). Modifying assurance practices to meet the needs of integrated reporting: The case for "interpretive assurance". *Accounting, Auditing & Accountability Journal*, 31(2), 400-427. Available at: <https://doi.org/10.1108/aaaj-10-2016-2732>.
- Marques, V. A., Pereira, L. N., Aquino, I. F. d., & Freitag, V. d. C. (2021). Has it become more readable? Empirical evidence of key matters in independent audit reports. *Accounting & Finance Magazine*, 32(87), 444-460. Available at: <https://doi.org/10.1590/1808-057x202112990>.
- Memis, M. U., & Cetenak, E. H. (2012). Earnings management, audit quality and legal environment: An international comparison. *International Journal of Economics and Financial Issues*, 2(4), 460-469.
- Moghaddam, A., & Abbaspour, N. (2017). The effect of leverage and liquidity ratios on earnings management and capital of banks listed on the Tehran Stock Exchange. *International Review of Management and Marketing*, 7(4), 99-107.
- Moroney, R., Phang, S.-Y., & Xiao, X. (2021). When do investors value key audit matters? *European Accounting Review*, 30(1), 63-82. Available at: <https://doi.org/10.1080/09638180.2020.1733040>.
- Nawaiseh, M. E. (2016). Impact of external audit quality on earnings management by banking firms: Evidence from Jordan. *British Journal of Applied Science & Technology*, 12(2), 1-14. Available at: <https://doi.org/10.9734/bjast/2016/19796>.
- Nia, & Sarchah. (2014). Comparison of linear accruals models to assess their ability to predict earnings management. *Journal of Applied Environmental and Biological Sciences*, 4(10), 200-210.
- Pinello, A., Puschaver, L., & Volkan, A. (2020). The relationship between critical accounting estimates and critical audit matters. *Accounting & Taxation*, 12(1), 23-33.
- Purnama, I., & Nurdiniah, D. (2019). Profitability, firm size, and earnings management: The moderating effect of managerial ownership. *Advances in Economics, Business and Management Research*, 73, 41-46.
- Putra, A., & FitoMela, N. (2019). Audit quality and earnings management: Informative and opportunist perspective. *International Journal of Scientific & Technology Research*, 8(09), 1918-1822.
- Santos, K., Guerra, R., Marques, V., & Maria Junior, E. (2020). Do critical audit matters matter? An analysis of their association with Earnings management. *Journal of Education and Research in Accounting*, 14(1), 55-77.
- Segal, M. (2017). ISA 701: Key Audit Matters—An exploration of the rationale and possible unintended consequences in a South African. *Journal of Economic and Financial Sciences*, 10(2), 376-391. Available at: <https://doi.org/10.4102/jef.v10i2.22>.
- Shakhatreh, M. Z., Alsmadi, S. A., & Alkhataybeh, A. (2020). The effect of audit fees on disclosure quality in Jordan. *Cogent Business & Management*, 7(1), 1771076. Available at: <https://doi.org/10.1080/23311975.2020.1771076>.

- Sharf, & Abu-Nassar. (2021). The effect of audit quality and auditor's opinion on earnings management: Evidence from Jordan. *Jordan Journal of Business Administration*, 17(2), 236- 253.
- Shbeilat, M. K. (2018). The need for audit trinity report to reinforce financial reporting integrity. *Accounting and Finance Research*, 7(4), 184-194. Available at: <https://doi.org/10.5430/afr.v7n4p184>.
- Sirois, L.-P., Bédard, J., & Bera, P. (2018). The informational value of key audit matters in the auditor's report: Evidence from an eye-tracking study. *Accounting Horizons*, 32(2), 141-162. Available at: <https://doi.org/10.2308/acch-52047>.
- Sumiadji, Grahita, C., & Edi, S. (2019). Effect of audit quality on earnings quality: Evidence from Indonesia stock exchange. *International Journal of Financial Research*, 10(1), 86-97. Available at: <https://doi.org/10.5430/ijfr.v10n1p86>.
- Suttipun, M. (2020). Factors influencing key audit matters reporting in Thailand. *Asian Journal of Accounting Perspectives*, 13(1), 26-39. Available at: <https://doi.org/10.14254/2071-8330.2020/13-1/16>.
- Tušek, B., & Ježovita, A. (2018). The key audit matters as an element of the independent auditor's report—A booster to the corporate governance. *Intereulaweast*, 5(2), 242-276. Available at: <https://doi.org/10.22598/iele.2018.5.2.9>.
- Velte, P. (2018). Does gender diversity in the audit committee influence key audit matters' readability in the audit report? UK evidence. *Corporate social responsibility and environmental management*, 25(5), 748-755. Available at: <https://doi.org/10.1002/csr.1491>.
- Velte, P., & Issa, J. (2019). The impact of key audit matter (KAM) disclosure in audit reports on stakeholders' reactions: A literature review. *Problems and Perspectives in Management*, 17(3), 323-341. Available at: [https://doi.org/10.21511/ppm.17\(3\).2019.26](https://doi.org/10.21511/ppm.17(3).2019.26).
- Veronica, A. (2015). The influence of leverage and its size on the earnings management. *Research Journal of Finance and Accounting*, 6(8), 159-167.
- Wasan, P., & Mulchandani, K. (2020). Corporate governance factors as predictors of earnings management. *Journal of General Management*, 45(2), 71-92. Available at: <https://doi.org/10.1177/0306307019872304>.
- Yasser, S., & Soliman, M. (2018). The effect of audit quality on earnings management in developing countries: The case of Egypt. *International Research Journal of Applied Finance*, 9(4), 216-231.

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