"The mediating effect of accrual earnings management on the relationship between ownership structure and firm value: Evidence from Jordan"

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# THE MEDIATING EFFECT OF ACCRUAL EARNINGS MANAGEMENT ON THE RELATIONSHIP BETWEEN OWNERSHIP STRUCTURE AND FIRM VALUE: EVIDENCE FROM JORDAN

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## Abstract

Firm value is considered a primary and essential driver for investors when making investment decisions, so they are interested in the quality of the financial data in companies' annual reports related to firm value in an attempt by the owners to improve the company's image and raise its value. Therefore, this study examined the relationship between ownership structure and firm value through the mediating role of accrual earnings management. Panel data were extracted from the financial reports of 88 non-financial companies listed on the Amman Stock Exchange for 11 years (2009–2019). The Barron and Kenny, Sobel, and other test approaches were applied to investigate the mediation effect and mediating relationships. The outcomes identified a positive impact of managerial ownership on firm value and a positive impact of foreign ownership on firm value. Also, it showed a negative impact of managerial ownership and foreign ownership on accrual earnings management, while accrual earnings management positively impacted firm value. Regarding mediating relationships, the results identified a mediating effect of accrual earnings management on the relationship between managerial ownership and firm value and a mediating effect of accrual earnings management on the relationship between foreign ownership and firm value. However, accrual earnings management does not mediate the relationship between family ownership and firm value. This shows the importance of reducing accrual earnings management through the identities of investors (managerial and foreign), which helps increase control and improve the value of a company.

| **Keywords** | managerial ownership, foreign ownership, family ownership, agency problem, non-financial companies |
|---|---|
| **JEL Classification** | N25, G32 |

## INTRODUCTION

The global economic environment is characterized by continuous and rapid change with regard to the number and operational scope of companies, local and foreign investments, and the general expansion and contraction of economic activities. At the level of the local economy, some companies suffered from poor financial performance, and interest increased in studying the reasons affecting the value of companies. Following numerous high-profile corporate governance scandals, many researchers have focused on ownership structure issues in relation to principals and agents (Varcholova & Beslerova, 2013). Intensive research is continually directed toward exploring all aspects of investments and the separation between ownership and management, whereby ownership plays a vital role in controlling management

activities (Gyampah et al., 2019; Jensen & Meckling, 1976). The ownership structure, foreign and managerial, is regarded as one of the most essential tools of corporate governance related to organizational performance worldwide and affecting opportunistic behavior (Alabdullah, 2018). According to Douma et al. (2006), a company's ownership structure affects its performance for several reasons. First, the different concentrations of identities and resources available among investors define their incentives, level of authority, and capacity to oversee managers (by individuals, governments, corporations, banks, and mutual funds). Second, since owners have different objectives, they affect the company's performance differently. The voting and distribution of shares, along with the shareholders' identities, determine the ownership structure (Nyaguthii et al., 2018). According to Varcholova and Beslerova (2013), the ownership structure is considered an important tool for a company's efficiency and has been posited to affect corporate performance for many years. Investors and those involved in corporate finance now find the connections between the different components of ownership structures and financial performance enthralling.

# 1. LITERATURE REVIEW AND HYPOTHESES

Literature has shown the importance of the ownership structure in influencing firm value and the need to address this issue in emerging economies such as Jordan (Nyaguthii et al., 2018; Alabdullah, 2018; Zraiq & Fadzil, 2018).

In this field, mixed results have been related to the connection between ownership structure and the value of companies (Adamu & Haruna, 2020; James et al., 2021). This can partly be attributed to differences and inconsistencies in the methods used and the interpretation of results in different studies (Al-Matari et al., 2019; Alqirem et al., 2020; Quddoos et al., 2020).

Unlike these previous studies, this study attempts to insert a mediator variable to explain the relationship between the ownership structure and firm value (FV) in the Amman Stock Exchange. To select the most relevant mediator variable for this study, a comprehensive literature review was undertaken, based on which accrual earnings management (AEM) was chosen as a mediator variable. This was selected as it has been used as a mediator variable in studies that dealt with finance and FV topics, which found that AEM mediates many relationships (Afifa et al., 2021; Quddoos et al., 2020; Queiri et al., 2021). Thus, this study takes up the call to address this research gap.

Thus, the current study is considered unique in this field by investigating the mediation effect of accrual earnings management on the relationship between ownership structure and firm value, especially with regard to managerial ownership and family ownership, in addition to applying three methods of mediation tests to ensure the validity of the relationships, as it is considered one of the few studies that apply three methods in the same study.

## 1.1. Accrual earnings management

AEM strategies are important factors that contribute to a change in FV, where managers engage in laurcca earnings management practices to satisfy stakeholder expectations regarding a company's financial performance (Kumari & Pattanayak, 2017). They engage in AEM practice to fulfill the forecast profit margins, corresponding to the sector profitability line (Ding et al., 2018). Managers engage in AEM strategies to give a good perception to stakeholders by maximizing the company's performance and try to affect stakeholders' perceptions, whereby stakeholders rely on financial reports as the primary evaluation to judge a company's performance.

Managers use discretionary accruals to change their earnings. Lee et al. (2006) provided evidence for the importance of AEM which was calculated by Jones' model on firm performance. Similarly, due to the influence of signals, Gunny (2010) discovered a link between AEM and financial performance. Also, according to Tang and Chang (2015), financial firm performance is positively affected by AEM strategies. Companies with poor organizational structures provide managers with incentives and opportunities to engage in AEM, which

lowers FV. This indicates that managers in well-run businesses do not misuse their discretion to extort the interests of other stakeholders (Tang & Chang, 2015). Gottardo and Moisello (2019) examine the impact of AEM on industrial Italian companies, and it affected them negatively and significantly. In addition, Shan (2014) reported that AEM had a negative impact on FV. Bushman and Smith (2001) stated that financial data affect an economy's future performance. Moreover, there is a clear correlation between AEM and FV, but a negative correlation exists between AEM and FV (Mahdavi et al., 2012). Firms benefit from AEM approaches in a short period of time. Tang and Chang (2015) noted that managers practice earnings manipulation, which has a negative effect on TQ, indicating that using AEM negatively affects future performance.

## 1.2. Ownership and agency problem

Agency theory underpins the theoretical connection between ownership structure and FV, which was pioneered by Jensen and Meckling (1976). They showed that separating ownership and management, as typical in public firms, creates an inherent conflict of interest among the parties, i.e., the owners (principals) and managers (agents). There are various types of ownership in companies, and investors typically rely on a board of directors to oversee managers and ensure they are acting in the interests of principals; conventional corporate governance seeks to maintain and regulate the ownership structure and supervise management actions to mitigate agency conflicts and maximize principals' value (i.e., company value and profitability) (Colpan & Yoshikawa, 2012). In addition to the fundamental agency problem, intra-principal agency conflicts of interest can arise between certain cliques or individual principals and others, when one group attempts to control the company's management and activities (Yeh, 2019).

## 1.3. Managerial ownership

Conflicts of interest can appear in companies due to the division between management and ownership, whereby managers might tend to make decisions that are beneficial to their own interests while potentially harming the company's value. To solve this problem, Jensen and Meking (1976)

indicated the importance of giving managers shares as incentives to reduce behavioral problems among managers to make them bear the consequences of their decisions, by aligning their financial interests with those of the principals. MANOW improves managers' decisions, whether administrative or investment, as these decisions affect their own wealth; therefore, they are required to improve their performance and reduce conflicts to achieve consensus among stakeholders to raise the company's value (AlShouha et al., 2021).

When managers own firm stock, they will make the decisions that lead to maximizing FV (Alabdullah, 2018; Al-Matari et al., 2019; James et al., 2021). Vu et al. (2018) mentioned that the ownership of managers in the company, especially the CEO, positively affects the financial performance. In the same context, Nyaguthii et al. (2018) indicated that employee ownership improves the FV. Therefore, companies should carefully consider MANOW because it helps decrease agency issues and improve FV (AlShouha et al., 2021).

Giving managers shares in a company as incentives encourages them to improve company performance and compliance with accounting standards (Jensen & Meckling, 1976). Previous literature has shown the importance of managerial ownership in aligning interests and restricting AEM (Ratnawati & Abdul-Hamid, 2015). A decrease in accrual earnings management because of MANOW will lead to reduced information asymmetry, this will minimize agency costs while growing the firm value (Fama, 1980). Consequently, reducing asymmetry information helps to grow the confidence of investors in the company, improves its image and increases the confidence in the management, which leads to a higher evaluation of the company in the financial market and thus will reflect positively on firm value. Therefore, it can be said that in companies with high managerial ownership, managers will work for investors' interests because they own shares in the company, thus reducing opportunistic behavior and presenting high-quality financial reports without AEM to ensure that the company's image is not distorted in the capital market. This reduces information asymmetry and agency costs and increases firm value.

## 1.4. Foreign ownership

Foreign investors can reduce the agency problem when they have a large number of shares in the company and are the controlling shareholder. James et al. (2021) pointed out the importance of foreign-owned firms where their performance is greater than locally owned. This can be explained by the monitoring system and mechanisms for foreign investors on manager behavior, and they give them incentives based on performance to avoid behaviors that undermine the company and value. Additionally, foreign-owned businesses offer cutting-edge technology and managerial techniques that lower high costs, improve efficiency, and increase FV. Nyaguthii et al. (2018) reported that FOROW improves FV.

Empirical studies found that FOROW increases FV because foreigners are conducive to the enforcement of strong corporate governance, which strengthens and improves oversight (Hintoshova & Kubikova, 2016). Foreign investment also helps a company to control the management, make decisions and provide foreign expertise (particularly in developing countries), which in turn enhances and develops the company's financial performance (Al-Matari et al., 2019). Therefore, foreign investors are expected to improve their investment because they participate to improve monitoring mechanisms that reduce asymmetry information along with agency conflicts. Kao et al. (2019) found that foreign investors positively affected financial performance in Taiwan.

Literature shows that foreign investors need highly transparent and reliable reports to prevent insider expropriation (Ben-Nasr et al., 2015). They exert pressure on management to mitigate accrual earnings management policies, reduce information asymmetries, and get trustworthy financial records (Jiang & Kim, 2004). In this context, in the case of a decrease in the AEM resulting from an increase in foreign ownership, the asymmetry of information will be reduced. This helps lower agency costs, which positively affects a company's value (Jensen, 1976). Gottardo and Moisello (2019) noted that companies with lower levels of AEM have a better chance of raising their value and improving their image in the capital market.

## 1.5. Family ownership

There are many arguments related to the role of members of the same family as controlling shareholders. In general, shareholders of the same family play an important role in mitigating agency conflicts. This concept (alignment) relies on the notion that there is no conflict of interest among dominating members of the family and other investors since their priorities are in line, which decreases the risk of expropriation (Chrisman et al., 2004). The idea of alignment increases motivation for higher information quality because of the important correlation between the risk of expropriation and information quality (DeFond & Zhang, 2014).

In another context, FAMOW can increase the risk of harm to minority shareholders through the abuse of power (entrenchment). With high FAMOW, members of a controlling family (typically the founding family of a company that subsequently came to be publicly traded) often occupy executive positions, raising the possibility of obtaining specific benefits and thus expropriating the wealth of other owners (Fan & Wong, 2002). In the same context, anxiety may increase as a result of the administration's work for the interests of the dominant family while harming the interests of others. This conflict (principal-principal) reflects the importance of high information quality to protect the investment of other owners by minimizing the agency problem.

Family reputation is an important issue to consider. As Anderson and Reeb (2003) mentioned, family reputation motivates them to preserve the value of the company, as they have concerns about it. This argument is very appropriate in most Arab countries, especially in Jordan, because of its important impact on the local society, since Jordanian society is based on clan systems and extended networks of personal relations, in which the family's reputation is very important. The success of companies identified with a family is a source of prestige, and their failure is a source of shame (Alhababsah, 2019). In Jordan, family members in companies are known in the community, so they try to preserve their social status, which imposes on them an obligation to preserve the family's reputation and avoid abuse of power to gain spe-

cial benefits more than other shareholders. Thus, this obligation motivates family members to increase their monitoring efforts to avoid negative consequences (reputational damage) for providing fraudulent data. Where family ownership is an essential factor that affects the goodness of information, as family members demand high-quality information by reducing cumulative profit management practices to preserve their interests (DeFond & Zhang, 2014). This, in turn, leads to reducing agency conflicts, which increases firm value.

This study aims to investigate the potential mediating effect of accrual earnings management on the relationship between ownership structure and firm value for the nonfinancial companies listed on the Amman Stock Exchange. To achieve that, three hypotheses were formulated:

H1:    *Accrual earnings management mediates the relationship between managerial ownership and firm value.*

H2:    *Accrual earnings management mediates the relationship between foreign ownership and firm value.*

H3:    *Accrual earnings management mediates the relationship between family ownership and firm value.*

# 2. METHODOLOGY

## 2.1. Sample and data collection

This investigation was applied to 88 non-financial companies (industrial and service sector) listed on the ASE from 2009 to 2019. The financial sector was excluded from the study sample because it has

different regulations. The data were collected from the annual reports published on the ASE website of the study sample during the study period.

## 2.2. Study variables

Firm value was calculated using Tobin's Q which is the market-based measure, it differs from the current performance measures (accounting-based measures), which do not take into account future performance prospects (Dalton et al., 2003). The current study calculated Tobin's Q by the sum of the equity market value and the total debt book value divided by the total assets book value (Queiri et alю., 2021).

The study employed managerial ownership, family ownership, and foreign ownership as components of the ownership structure. Previous studies indicated its importance in affecting firm value (Villalonga, 2019; Alhababsah, 2019).

Accrual earnings management has been measured using several approaches in previous studies. However, as a result of continuous work, the performance matched model proposed by Kothari et al. (2005) has received great attention from researchers. The model arguably has advantages compared to previous models proposed by Healy (1985), DeAngelo (1986), Jones (1991), and Dechow et al. (1995).

The control variable has been included in the regression model of this study to insulate the effect of other factors that have an impact on firm performance – debt ratio, current ratio, cash flow from financing activities, firm size, firm age, firm growth, and industrial, while previous studies indicated its effect on firm value (Rashid et al., 2016; Ni et al., 2019; Alqirem et al., 2020; Mehmood et al., 2019).

**Table 1.** Study variables

| Variable | Acronym | Definition | Relevant study |
|---|---|---|---|
| Managerial ownership | MANOW | $\dfrac{Shares\ held\ by\ top\ management}{Total\ shares}$ | Villalonga (2019) |
| Foreign ownership | FAMOW | $\dfrac{Shares\ owned\ by\ families}{Total\ shares}$ | Alhababsah (2019) |
| Family ownership | FOROW | $\dfrac{Shares\ held\ by\ foreign\ investors}{Total\ shares}$ | Alhababsah (2019) |
| Accrual earnings management | AEM | *Performance Matched Model* | Dakhlallh et al. (2020) |
| Tobin's Q | TQ | $\dfrac{Equity\ market\ value\ +\ debt}{Total\ assets}$ | Queiri et al. (2021) |

**Table 1 (cont.).** Study variables

| Variable | Acronym | Definition | Relevant study |
|---|---|---|---|
| debt | DEBT | $\dfrac{Debt}{Equity}$ | Rashid et al. (2016) |
| Current ratio | CURT | *Current assets over current liabilities* | Rashid et al. (2016) |
| Cash flow from financing activities | CASHF | $\dfrac{Cash\ inflows\ from\ financing}{Long-term\ debt\ +\ equity}$ | Ni et al. (2019) |
| Firm size | SIZ | *LOG of the total assets* | Alqirem et al. (2020) |
| Firm age | AGE | *Firm age* | Mehmood et al. (2019) |
| Firm growth | GROWTH | $\dfrac{Assets_n - assets_{n-1}}{Total\ assets}$ | Mehmood et al. (2019) |
| Industrial | INDUS | *Dummy variable* | |

## 2.3. Mediating analysis

A mediator variable was employed to explain the connection between the explanatory variable and the predictor variable through the mediator. First, the mediation investigations can be explained as the overlapping impacts caused by the mediating variable in the regression analysis. Therefore, in the current study, mediation analyses were employed to investigate the mediating impact of AEM on the relationship between OS and FV. Various methods were employed in this study, including the Baron and Kenny (1986), Sobel, and Modern mediation effect tests (Zhao et al., 2010). Braun and Kenny's approach is based on chains of relationships, as shown in Table 2.

The Sobel test (i.e., indirect effect) requires calculating the coefficient for the mediated impact. Coefficients β2β4 are multiplied to accomplish

this. The standard error ($Se\beta_2\beta_4$) is further divided by the coefficient of the mediated impact. This output is compared with the standard normal distribution as follows (Sobel, 1982):
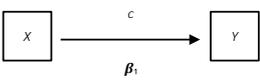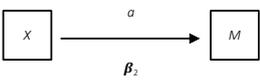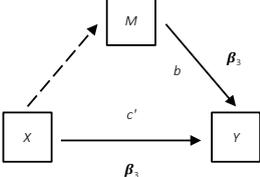
$$Z\beta_2\beta_4 = \frac{\beta_2\beta_4}{Se\beta_2\beta_4}, \tag{1}$$

$$Se\beta_2\beta_4 = \sqrt{\left(\beta_2 \cdot Se\beta_4\right) + \left(\beta_4 \cdot Se\beta_2\right)}. \tag{2}$$

The current study employed the mediation effect using the Modern mediation effect testing (Zhao et al., 2010), to make sure the robustness of the findings from Barron and Kenny's method and Sobel test. Table 3 presents the steps of the Modern mediation test (Zhao et al., 2010):

As shown in Table 3, the importance of the result of the first two regressions is essential and is determined by the significance of the indirect

**Table 2.** Chains of relationships

| Steps | Analysis | Equitation | Paths and coefficient |
|---|---|---|---|
| 1 | *Y* is correlated with *X* to test the effect of path *c* | $Y = \beta + \beta_1 X + \varepsilon$ |  |
| 2 | *M* is correlated with *X* to test the effect of path *a* | $M = \beta + \beta_2 X + \varepsilon$ |  |
| 3 | *Y* is correlated with *X* and *M* to test the effect of path *b* and *c'* | $Y = \beta + \beta_3 X + \beta_4 M + \varepsilon$ |  |
| 4 | Compare the coefficient of *X* in step 3 in path *c'* with the coefficient of the same variable in step 1 in path *c*, where $\beta_3$ should be smaller than $\beta_1$ (in absolute value). | | |

*Note:* Y = DV, X = IV, M = MED, a = Intercept, = Error.

**Table 3.** Modern mediation effect testing

| Steps | Analysis | Equation | Paths and coefficients |
|---|---|---|---|
| 1 | $M$ is correlated with $X$ to test the effect of path $a$ | $M = \alpha + \beta_1 X + \varepsilon$ | $X \xrightarrow{\;\;a\;\;} M$   $\beta_1$ |
| 2 | $Y$ is correlated with $M$ to test the effect of path $b$ | $Y = \alpha + \beta_2 X + \varepsilon$ | $M \xrightarrow{\;\;b\;\;} Y$   $\beta_2$ |
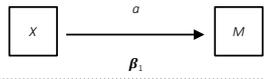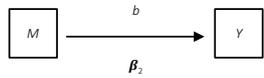
effect. If neither of these regressions is significant, then the mediation effect will not be either. Step two includes the placement of the mediation size. This is done by testing the indirect effect ($a \times b$) regarding its strength. The coefficient of path $a$ is multiplied by the coefficient of path $b$, as construed in the formula proposed by Nitzl et al. (2016):

$$Indirect\ effect(a \cdot b) = total\ effect(c)$$
$$-direct\ effect(c'), \qquad (3)$$

The VAF value is then calculated, which is employed in the computation of the indirect-to-total effect ratio, as demonstrated by Nitzl et al. (2016), whereby the VAF is also employed for the determination of the extent to which the process of mediation describes the dependent variables variance. The formula is as follows:

$$VAF \;=\; \frac{a \cdot b}{a \cdot b \;+\; c'}, \qquad (4)$$

As presented by Hair et al. (2021), if $0 < VAF < 20$, there was no mediation; if $20 < VAF < 80$, there was partial mediation; and if $80 < VAF$, there was full mediation. The results shown in Table 4 indicate that AEM mediates the relationship between MANOW and FV; and between FOROW and FV; these two results are similar in the three estimations, strengthening the importance of these relationships. At the same time, the results show no mediating effect of AEM on the relationship between FAMOW and FV.

## 2.4. Study models

To perform mediation tests and ensure the accuracy of the findings, the researchers applied Barron and Kenny, Sobel, and Modern ways of testing the mediation effect (Zhao et al., 2010). To verify the conditions of mediation tests, this study applied OLS and 2SLS methods. The following three equations show the study models that were employed to fulfill the study objectives:

$$
\begin{aligned}
TQ_{it} = {} & \beta_0 + \beta_1 MANOW_{it} + \beta_2 FOROW_{it} \\
& + \beta_3 FAMOW_{it} + \beta_4 DEBT_{it} + \beta_5 CURT_{it} \\
& + \beta_6 CASH_{it} + \beta_7 GROTH_{it} + \beta_8 AGE_{it} \\
& + \beta_9 SIZ_{it} + \beta_{10} INDUS_{it} + u_{it},
\end{aligned}
\qquad (5)
$$

$$
\begin{aligned}
AEM_{it} = {} & \beta_0 + \beta_1 MANOW_{it} + \beta_2 FOROW_{it} \\
& + \beta_3 FAMOW_{it} + \beta_4 DEBT_{it} + \beta_5 CURT_{it} \\
& + \beta_6 CASH_{it} + \beta_7 GROTH_{it} + \beta_8 AGE_{it} \\
& + \beta_9 SIZ + \beta_{10} INDUS_{it} + u_{it},
\end{aligned}
\qquad (6)
$$

$$
\begin{aligned}
TQ_{it} = {} & \beta_0 + \beta_1 MANOW_{it} + \beta_2 FOROW_{it} \\
& + \beta_3 FAMOW_{it} + \beta_4 DEBT_{it} + \beta_5 CURT_{it} \\
& + \beta_6 CASH_{it} + \beta_7 GROTH_{it} + \beta_8 AGE_{it} \\
& + \beta_9 SIZ + \beta_{10} INDUS_{it} + \beta_{11} AEM_{it} + u_{it}.
\end{aligned}
\qquad (7)
$$

## 3. RESULTS

### 3.1. Descriptive analysis

Table 4 presents the descriptive analysis. The results indicate that FAMOW is the prevailing form among the studied ASE-listed Jordanian companies, accounting for almost half (48%) of the studied firms 'ownership structures, reflecting that Jordanian investment is highly based on family investment. This signals an area requiring more detailed research attention. The average proportion of Jordanian firms with FOROW was 13%, while MANOW was the lowest at 0.02%, indicating that the owners of companies and boards of directors need to provide incentives to company managers in the form of free shares, to motivate them to work more for the principals' interests.

**Table 4.** Descriptive analysis

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| TQ | 967 | 1.12 | 0.54 | 0.1 | 3.3 |
| MANOW | 967 | 0.02 | 0.06 | 0.00 | 0.37 |
| FOROW | 967 | 0.13 | 0.22 | 0.00 | 0.99 |
| FAMOW | 967 | 0.48 | 0.3 | 0.00 | 0.99 |
| DEBT | 967 | 0.75 | 0.75 | 0.04 | 2.54 |
| CURT | 967 | 1.98 | 1.53 | 0.32 | 5.87 |
| AEM | 967 | 0.019 | 0.55 | −2.02 | 0.35 |
| SIZ | 967 | 7.52 | 0.58 | 5.67 | 9.25 |

**Table 5.** Correlation matrix

| | TQ | MANOW | FOROW | FAMOW | AEM | DEBT | CURT | SIZ | BIG4 |
|---|---|---|---|---|---|---|---|---|---|
| TQ | 1.00 | | | | | | | | |
| MANOW | 0.43 | 1.00 | | | | | | | |
| FOROW | 0.36 | 0.20 | 1.00 | | | | | | |
| FAMOW | 0.07 | −0.05 | −0.09 | 1.00 | | | | | |
| AEM | −0.88 | −0.45 | −0.32 | 0.08 | 1.00 | | | | |
| DEBT | −0.32 | −0.10 | −0.25 | 0.09 | 0.26 | 1.00 | | | |
| CURT | 0.23 | 0.06 | 0.14 | −0.05 | −0.19 | −0.46 | 1.00 | | |
| SIZ | 0.03 | 0.04 | −0.042 | 0.042 | 0.03 | 0.04 | −0.020 | 1.00 | |
| BIG4 | 0.08 | −0.04 | −0.040 | −0.03 | 0.06 | −0.03 | −0.05 | 0.33 | 1.00 |

## 3.2. Correlation matrix

Table 5 displays the correlation matrix among study variables, whereby the values should be less than 0.8 to ensure no multicollinearity problem among the variables (Yoshikawa & Phan, 2003). As can be seen in Table 5, all values were less than 0.8.

## 3.3. Multiple regression analysis

To achieve the study objectives (examine the mediating effect of accrual earnings management on the relationship between ownership structure and firm value), this study employed multiple regression analysis to verify the mediating test steps. Diagnostic analyses were performed, as it was discovered that the models suffered from the heteroscedasticity problem (using the modified Wald test). As a solution, a robust standard error was used (Alhababsah, 2019). At the same time, Hausman test results showed that FEM seemed more appropriate than REM. In addition, 2SLS was applied to verify the robustness of the extracted outcomes and to overcome the homogeneity problem in the models.

The results of the relationships between study variables obtained in preparation for the mediation test are shown in Table 6. Therefore, the results of FEM with robust standard error indicated crucial explan-

atory power for the relations in the study models. In the first model, which is related to the relationship between ownership structure and firm value, the ownership structure components explained 29% of the changes in firm value. The findings related to the relationship between MANOW and FV indicate that the coefficient estimate of MANOW level has a positive and significant effect on FV (Coef 0.17, t-Statistic 2.6**), which means MANOW has a positive effect on FV of non-financial listed firms in the ASE. Where every one-unit change (increase or decrease) in an MANOW keeping other things that remain constant has a consequential change of 0.17 on the FV in the same direction (increase or decrease). For FOROW and FV, the coefficient estimate of FOROW level has a positive and significant impact on FV (Coef 0.25, t-Statistic 2.29**), which means FOROW has a positive effect on FV of non-financial listed firms in the ASE. Where every one-unit change (increase or decrease) in an FOROW keeping other things that remain constant, has a consequential change of 0.25 on the FV in the same direction (increase or decrease). While FAMOW did not affect FV. In the second model, which is related to the relationship between ownership structure and accrual earnings management, the ownership structure components explain 19% of the changes in accrual earnings management. The findings related to the relationship between MANOW and AEM indicate that the coefficient estimate of MANOW level

**Table 6.** Regressions results

| Variables | FEM with robust standard error | | | | | | Two-stage least squares model (2SLS) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MODELS | | | | | | MODELS | | | | | |
| | 1 | | 2 | | 3 | | 1 | | 2 | | 3 | |
| | Coef. | t- Sta | Coef. | t- Sta | Coef. | t- Sta | Coef. | t- Sta | Coef. | t-Sta | Coef. | t- Sta |
| MANOW | 0.17 | 2.6** | −0.16 | −2.2** | 0.08 | 2.26** | 0.72 | 3.2*** | −0.8 | −5.1*** | 0.01 | 0.22 |
| FOROW | 0.25 | 2.29** | −0.17 | −2.0** | 0.16 | 2.07** | −0.38 | −1.9** | 0.48 | 2.1** | 0.01 | 0.15 |
| FAMOW | −0.003 | −0.18 | 0.02 | 1.16 | 0.01 | 0.56 | −0.03 | −1.05 | 0.47 | 1.38 | 0.01 | 0.36 |
| AEM | – | – | – | – | – | −6.8*** | – | – | – | – | −0.8 | −5.9*** |
| DEBT | −0.17 | −2.3** | 0.12 | 1.18 | 0.10 | −2.2** | −0.09 | −3.6*** | 0.6 | 2.3** | −0.4 | −3.1*** |
| CURT | 0.11 | 3.1*** | −0.11 | −3.1*** | 0.05 | 2.4** | 0.02 | 1.77* | −0.01 | −1.27 | 0.01 | 1.3 |
| SIZ | 0.03 | 1.24 | −0.05 | −1.8* | 0.01 | 0.33 | 0.01 | 0.08 | −0.002 | −0.08 | −0.001 | −0.02 |
| BIG4 | 0.03 | 1.08 | 0.01 | 0.43 | 0.04 | 2.2*** | 0.04 | 1.33 | −0.02 | −0.70 | 0.02 | 1.4 |
| _CONS | 0.69 | 2.1** | 0.54 | 2.15** | 1.0 | 4.1*** | 1.11 | 3.9*** | 0.03 | 0.15 | 1.1 | 5.1*** |
| R sq | 0.29 | | 0.19 | | 0.56 | | 0.16 | | 0.12 | | 0.62 | |
| Prob (F-statistic) | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| obs | 968 | | 968 | | 968 | | 880 | | 880 | | 880 | |

has a negative and significant effect on AEM (Coef −0.16, t-Statistic 2.2**), which means MANOW has a negative effect on AEM of non-financial listed firms in the ASE. Where every one-unit change (increase or decrease) in an MANOW keeping other things that remain constant, has a consequential change of 0.16 on the FV in the opposite direction (increase or decrease). For FOROW and AEM, the coefficient estimates of FOROW level positively and differs significantly from AEM (Coef −0.17, t-Statistic 2.0**); that means FOROW has a negative effect on AEM of non-financial listed firms in the ASE. Where every one-unit change (increase or decrease) in an FOROW keeping other things that remain constant, has a consequential change of 0.17 on the AEM in the opposite direction (increase or decrease). While FAMOW did not affect AEM. In the third model, the findings showed the relationship between AEM and FV. This indicates that the coefficient estimate of AEM level has a negative and significant effect on FV (Coef −0.5, t-Statistic 6.8**), which means AEM has a negative effect on FV of non-financial listed firms in the ASE. Where every one-unit change (increase or decrease) in an AEM keeping other things that remain constant, has a consequential change of 0.5 on the FV in the opposite direction (increase or decrease).

## 3.4. Mediating test

To conduct the mediation tests, the steps that were previously explained should be applied. Table 7 shows a summary of the results of the hypothesis testing. The first hypothesis regarding the medi-

ating effect of AEM on the relationship between MANOW and FV, the Barron and Kenny method, achieved its conditions. There was a significant relationship between MANOW and FV, a significant relationship between MANOW and AEM, a significant relationship between AEM and FV and the $|\beta_1| > |\beta_3|$. Therefore, according to Barron and Kenny's method, AEM mediates the relationship between MANOW and FV. Sobel test shows a significant sign (2.06**). Therefore, AEM mediates the relationship between MANOW and FV, lastly, according to the Modern way, there was a mediating effect of AEM on the relationship between MANOW and FV, where the VIF value is 0.52381. The second hypothesis regarding the mediating effect of AEM on the relationship between FOROW and FV, Barron and Kenny's method achieved its conditions. There was a significant relationship between FOROW and FV, a significant relationship between FOROW and AEM, a significant relationship between AEM and FV and the $|\beta_1| > |\beta_3|$. Therefore, according to Barron and Kenny's method, AEM mediates the relationship between FOROW and FV. Sobel test shows a significant sign (1.79**) Therefore, AEM mediates the relationship between FOROW and FV, lastly according to the Modern way, there was a mediating effect of AEM on the relationship between MANOW and FV, where the VIF value is 0.36. The third hypothesis regarding the mediating effect of AEM on the relationship between FAMOW and FV, the results did not achieve the mediation methods conditions. Therefore, AEM did not mediate the relationship between FAMOW and FV.

**Table 7.** Relationship mediation results

| Relationship | Barron and Kenny, and the testing of the mediation | | | | Sobel Test | Modern way (VIF) |
|---|---|---|---|---|---|---|
| | Conditions | | | | | |
| | X → Y | X → M | M → Y | Comparing the coefficient | | |
| MANOW → AEM →FV | 0.17*** | −0.16** | −0.55*** | $\|\beta_1\| > \|\beta_3\|$ | 2.06** | 0.52381 |
| FOROW → AEM → FV | 0.25*** | −0.17** | −0.55*** | $\|\beta_1\| > \|\beta_3\|$ | 1.97** | 0.368836 |
| FAMOW → AEM → FV | −0.003 | 0.02 | −0.55*** | $\|\beta_1\| < \|\beta_3\|$ | – | – |

# 4. DISCUSSION

The results show that MANOW has a positive effect on FV. This finding backs up previous research conducted in developing countries. Alabdullah (2018) found that MANOW and financial performance have a positive relationship in Jordan for non-financial companies. These outputs are also harmonious with agency theory, in that giving the manager the opportunity to have shares in the company will decrease the agency problem, because they will be motivated to make value-increasing investment decisions. Furthermore, Coles et al. (2008) affirmed that stock options or MANOW lead managers to make risky policy decisions and invest more. FOROW positively affects FV, backing up previous research conducted in developing countries. In Jordan. Loay et al. (2018) pointed out that FOROW positively affected the value of Jordanian banks listed on the ASE. Various studies found this effect in other contexts, supporting the belief that foreign investors provide more managerial and control skills (Hintoshova & Kubikova, 2016; Kao et al., 2019). Foreign-owned firms may get special advantages that local firms do not have (e.g., fiscal privileges as part of government initiatives to attract FDI). Furthermore, foreign investment also helps companies by exerting control over management, contributing to decision making, and providing foreign expertise that, in turn, can improve and develop FV (Al-Matari et al., 2019). The results show that FAMOW does not significantly affect FV. It was found that MANOW negatively affects AEM, supporting previous studies (Alzoubi, 2019; Ratnawati & Abdul-Hamid, 2015). This is consistent with the opinion that managers who own large shares in companies add value. MANOW

harmonizes manager and owner interests, thus providing more interest to improve earnings quality. FOROW negatively affects AEM. This result is in line with the outcomes of previous studies, which found that foreigners exert greater pressure on management to reduce information asymmetry, to obtain high-quality, more trustworthy, and transparent financial reports, in order to avoid losing their investments (Ben-Nasr et al., 2015; Jiang & Kim, 2004). Thus, foreign investment curbs opportunistic behavior by managers. The evidence shows that a large FOROW puts more pressure on management to reduce asymmetry information and produce high-quality financial reports with less AEM (Jiang & Kim, 2004). The output indicates that FAMOW does not significantly affect AEM. Furthermore, this finding supports previous studies in affirming that the primary motivator for engaging in EM practices is to provide positive signs regarding firm performance and earnings, as posited by Shan (2014) and reaffirmed by more recent works (Gottardo & Moisello, 2019; Kothari et al., 2016). However, financial statements affect the future performance of companies and negatively affect future revenues (Dakhlallh et al., 2020). It may be one of the most important objectives of managers to get involved in AEM practices to improve the financial reports at the current time, but this will negatively affect the FV. Therefore, it can be said that Jordanian companies are negatively affected by AEM practices. This may be due to managers engaging in AEM practices to achieve their personal interests, negatively affecting firms' future value.

In the context of mediation results, AEM mediates the relationship between MANOW and FV. Such outputs are consistent with agency theory,

whereby MANOW plays a significant role in reducing conflicts among principals and clients, motivating managers to behave as shareholders, and enhancing the FV and reliability of its reports by limiting unethical issues like AEM (Jensen & Meckling, 1976). Allowing managers to own shares in the company decreases the agency problem because they will be motivated to make value-increasing investment decisions (James et al., 2021). Managers will be more concerned with gaining the confidence of investors when they themselves have a capital stake in the firm. Consequently, they will be keen to provide guarantees that the financial reports presented comply with accounting regulations and principles to reflect the company's economic performance (Koren et al., 2014). Thus, companies with higher MANOW have lower AEM practices. In this context, reducing AEM practice helps to reduce information asymmetry, thus reducing agency costs and raising the FV (Jensen & Meckling, 1976).

Regarding the mediating effect of AEM on the relationship between FOROW and FV. Foreign investors are generally more innovative in management practice than local investors in developing countries (Young et al., 2008). Consequently, they can reduce the administrative tricks used by managers and other personnel and increase the quality of the information provided for monitoring and decision-making. Foreign investors have a great influence on governance because they have greater oversight power compared to local investors (Young et al., 2008). Thus, through FOROW, administrative ruses can be reduced, and the quality of information increased, thus preventing opportunistic behavior and reducing AEM practice (Alkilani et al., 2019). Thus, foreign investors are associated with more scrutiny and monitoring, which helps reduce asymmetric information and agency costs. FOROW may enhance the monitoring effectiveness of management behavior in companies to reduce AEM practice and minimize information asymmetry, positively affecting FV.

## CONCLUSION

The study examined the mediating effect of accrual earnings management on the relationship between ownership structure and firm value. According to empirical results, accrual earnings management mediates the relationship between managerial ownership and firm value. It also mediates the relationship between foreign ownership and firm value. Meanwhile, accrual earnings management does not mediate the relationship between family ownership and firm value.

Investors' identities (managerial and foreign) are an important factor influencing firm value due to the administrative and control capabilities of the different identities of investors that contribute to limiting opportunistic behavior by managers. This may be achieved by reducing accrual earnings management strategies that mislead investors in financial markets and destroy the firm value. Therefore, the important role of investor identities and accrual earnings management in maintaining and improving the firm value becomes clear.

This study provides evidence for policymakers to look out for monitoring the commitment to accounting standards and accrual earnings management for its role in affecting firm value, in addition to presenting an illustration of the connection between ownership structure and firm value by employing accrual earnings management as a mediating variable (as conceptualized in agency theory). This study is considered one of the few to deal with this issue in this way in Jordan. In addition, it used the measure of managerial ownership by calculating the shares held by managers who are not among the major investors or from the boards of directors in companies.

The researchers recommend future studies to investigate the reasons that lead managers to engage in accrual earnings management, apply this study to financial companies, and use other ownership structure components, such as ownership of the board of directors or of managers who occupy positions on the board of directors.

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