

MANAGERIAL OWNERSHIP AND EXECUTIVE COMPENSATIONS: INTERACTION AND IMPACT ON EARNINGS MANAGEMENT PRACTICES IN AN EMERGING ECONOMY

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Abstract

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The study aimed to examine the relationship between executive compensations and earnings management. Also, it investigates whether managerial ownership influences that relation for the non-financial firms listed in Amman Stock Exchange (ASE) during the period 2010–2019. The study provides evidence that firms with a higher level of executive compensations are associated with a low level of earnings management practices. Results also show that the mitigating role of executive compensations is moderated in firms with managerial ownership, and executive compensations level in firms with managerial ownership is unlikely to be effective. In an attempt to maximize the personal interest, managers with sufficient ownership managed earnings in an opportunistic way to exploit the minority interest through taking advantage of the compensations contracts loopholes.

Keywords: Earnings Management, Discretionary Accruals, Executive Compensations, Managerial Ownership, Amman Stock Exchange

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1. INTRODUCTION

The level of earnings quality becomes doubtful when managers have financial and economic incentives to manage earnings aggressively. This ability arises from accounting practices and treatments that provide extensive powers of discretion to managers in reporting earnings, particularly about accrual (Healy & Wahlen, 1999; Rahman, Moniruzzaman, & Sharif, 2013). This judgment might be exploited to generate features to influence the decision-making of financial statement users (Ronen & Yaari, 2008; Beneish, Capkun, & Fridson, 2013). Moreover, the separation between ownership and control

provides managers with additional advantages for greater control compared with external information users. Such advantages encourage managers to control earnings opportunistically by exploiting the flexibility of accounting principles and treatments following their interests (Krishnan, Raman, Yang, & Yu, 2011; Habib, Bhuiyan, & Islam, 2013). Earnings management leads to distortion of the real financial performance of a company and creates different visions of reality. These visions influence the expectations of financial statement users by making the future financial performance of a company excessively optimistic (Krishnan et al., 2011; Li, 2019; Ghazalat, 2020).

The escalating seriousness of earnings management logically stems from the uncomplicated functions that accounting earnings could play for a wide range of users (Ronen & Yaari, 2008). This condition guided several researchers to adopt positive accounting theory to explain the current state of accounting and the present behavior of accountants (Scott, 2009). The situation also describes the effects of these issues on the people and the optimal exploitation of resources (Jensen & Meckling, 1976).

Principally, the conflict of interest between shareholders and managers can be resolved through several corporate governance mechanisms, thus minimizing the level of earnings management (Jensen & Meckling, 1976; Fama & Jensen, 1983; Vafeas, 2005). However, transparency of executive compensations is one of the most critical issues of corporate governance to resolve agency problems (Sakawa, Moriyama, & Watanabel, 2012; Yusuf & Abubakar, 2017).

Executive compensation can be defined as a payment earned by the executive officer of a company. Often as a hodgepodge of salaries, operational bonuses, shares, and/or stock call options in the company stock (Murphy, 1999; Bebchuk & Grinstein, 2005), paying expenses like insurance or perks. Thus, it indicates the remunerations and benefits in all forms accrued to the higher management of a company, especially the board of directors as well as the CEO.

In detail, executive compensations consist of various components, including a basic salary, bonus, grant of shares, stock options, severance pay, pensions, and perquisites. Though the last three are camouflaged in the majority of contracts of executive compensations whereby the previous literature did not cover these components extensively (Kuhnen & Zwiebel, 2008; Bebchuk & Fried, 2009). It is worth mentioning that the other benefits, including employee wages, benefits, and pension, must be organized in an ideal form in order to be compatible with the government regulations, taxation laws, rewards of performance, and the requirements of the organization and the executives (Angeles, 2018; Matovic, Pavlovic, & Rodic, 2020).

According to Chen, Hsu, and Chen (2014), agency theory postulates that if principals (owners) find difficulties to observe or monitor agents' (managers) behaviors, they have to pay a higher ratio of variable compensations to total compensations, otherwise a higher percentage of fixed salaries. Moreover, Wang and Xiao (2011) pointed out that cash compensation has been perceived to align with the interests of owners and managers. Thus, firms can minimize opportunistic managerial behaviors by maximizing the sensitivity of executive compensations to investment (Tsao, Lin, & Chen, 2015; Ghazalat, Islam, & Noor, 2017a).

According to Grossman and Hart (1986) and Hart (2001), incentives were created via compensation contracts as these contracts may not always be optimal. Over time, the incentives of managers would misalign with optimal levels whereby the managers become entrenched where initially firms attempted to contract optimally with their managers. Thus, investment opportunities and equity-based compensation may appear when a firm is growing rapidly, and this situation predisposes

managers to undertake riskier projects (Sun & Hovey, 2013; Xue, Fan, & Dong, 2020). By doing so, managers and shareholders will enjoy an increase in their personal gain since this situation leads to an increase in the prices of short-term stocks.

However, agency conflict is likely to arise between inside and outside shareholders in firms with insider control but without holding substantial equity, while outside shareholders are also dispersed to use their control rights (Berle & Means, as cited in Ayyagari, Gopalan, & Yerramilli, 2011, p. 2). Therefore, the nature of agency conflict can shift from a traditional to a central agency problem as a result of the controller shareholders' engagement in management; thus, the majority expropriates the minority (Manzaneque, Merino, & Priego, 2016; Ghazalat, 2020). Internal control can be assumed to affect the executive compensation level, in which controlling shareholders collectively have the ability and motivation to reduce the costs of agency contracts (Jiang, Habib, & Smallman, 2009). In fact, managers could accept a low level of compensation if they enjoy a high level of job stability, such as when the company has managerial control (Amoako-Adu, Baulkaran, & Smith, 2011). However, the opposite may occur due to the attempt of controlling shareholders to expropriate the minority interest through compensations (Crocchi, Gonenc, & Ozkan, 2012; Ghazalat et al., 2017a).

According to the above discussion, markets in developing countries commonly have dissimilar institutional settings and pay particular attention to corporate governance rehabilitation, ownership structures, and executive compensation incentives. The relationship between executive pay and earnings management practices can prospectively differ from what has been noted in developed countries. As such, limited empirical evidence exists on developing countries, especially in Arabian countries where obtaining sufficient frequency data is difficult because of the circumstances that have prevailed in the region in the last two decades. Thus, this work contributes to the increased comprehensive knowledge on the relationship between executive compensation and earnings management in a relatively stable environment, such as Jordan, compared with other neighbouring countries. Moreover, this study reinforces the idea that the optimal method to ensure the reliability of accounting information is by utilizing executive compensation as one of the corporate governance mechanisms (Shiyyab, Girardone, & Zakaria, 2013). From the perspective of agency theory, executive compensation ensures the harmonization of the interests of executive managers and shareholders. This work also considered managerial ownership differently compared with previous studies by investigating its interaction effect (moderator variable) in the relationship between executive compensation and earnings management.

Abed, Suwaidan, and Slimani (2014) found that the results of CEO executive compensations in Jordanian firms are consistent with various guidelines for developing corporate governance that was issued in 2009. Moreover, they noted that the executives in the new companies were better more compensated than older companies, which can be explained by attracting competent and experienced managers to guarantee its continuance.

The rest of the paper is organized as follows. Section 2 comprises an explanation for literature and hypotheses development within the outline of the theoretical background. Section 3 describes the research methodology. Also, it discusses the models and the variables measurement approach. Section 4 and Section 5 present the research results and the discussion of these results. Finally, Section 6 concludes the paper.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Executive compensations and earnings management

Corporations argue that they need to pay well to attract and motivate qualified people. Some argue that the amount paid is the most important element, whereas others say that the most important consideration is the manner of paying (Jensen & Murphy, 1990). In fact, the agency relationship is defined as “a contract under which one or more persons (principal) engage another person (agent) to perform some service on their behalf, which involves delegating some decision making authority to the agent” (Jensen & Meckling, 1976, p. 5). Furthermore, Jensen and Meckling (1976) identified the conflict of interests between managers and owners and how a company attempts to overcome conflicts where the agency theory attempts to curb the agency cost by minimizing this conflict.

Executive compensation can be considered as one of the tools that are used to reduce agency costs. This compensation is the amount paid to the managers as a reward for their commitment to the company policies and their success in achieving the company’s goals. These payments could be in cash, such as salaries and bonuses, stock options, or both. Thus, executive compensation can be considered as the essence of the agency theory (Dechow & Sloan, 1991; Sun, 2012; Sun & Hovey, 2013; Yusuf & Abubakar, 2017; Li & Thibodeau, 2019; Elseoud, Ebrahim, Mili, & Yassin, 2020).

However, the separation of ownership from the management function causes conflicts of interest between managers and owners because they have different concerns (Jensen & Meckling, 1976). Owners are interested in maximizing the value of the firm, whereas managers are interested in enhancing their own well-being (maximizing wealth and minimizing efforts). Thus, managers may not manage the firm optimally to maximize its value, and they might reject profitable investments because such investments require more effort and dedication at work (Hassen, 2014; Hassen, El Ouakdi, & Omri, 2015; Ghazalat et al., 2017a; Angeles, 2018; Ferri, Zheng, & Zou, 2018).

Generally, executive compensation causes managers to manipulate earnings, especially if compensations are connected with company performance. This means that when the value of payment depends on the performance value of the company, the optimal objective of the executive compensation will be shifted. Grossman and Hart (1986) and Hart (2001) denote that incentives created through the compensation contract lead managers to administer earnings because the contract may not always be optimal. In other words, contracts are

optimal, but over time, they become otherwise (Sun & Hovey, 2013; Ferri et al., 2018).

Healy (1985) argued that managers administer accruals downward to increase future performance, thereby increasing the opportunity of receiving future bonuses. The results regarding the influence of executive compensation on the earnings of the management are conflicting. Moreover, limited studies and mixed results were obtained. However, Gaver, Gaver, and Austin (1995) extend the study undertaken by Healy (1985) by applying the Jones model (Jones, 1991) and the industrial index model to examine the association between discretionary accruals and bonus bounds. Based on a sample of 102 firms from 1980 to 1990, they found that when earnings before discretionary accruals decrease below the lower bound, managers select income-increasing discretionary accruals. In addition, Baker, Collins, and Reitenga (2003) investigated whether stock options as a compensations structure are associated with the opportunistic use of discretionary accruals in reported earnings. They found a negative association between stock options and discretionary accruals, especially when a firm makes a public declaration of its earnings earlier than the date of the award. In other words, to decrease the exercises price of options, firms might engage in earnings management in a downward manner to minimize the reported earnings before the date of options’ award. This becomes clear when companies award a large proportion of options to compensate executives instead of compensating them through other forms of remuneration.

Based on a sample of 1,500 U.S. firms from 1992 to 1999, Shrieves and Gao (2002) examined how the components of compensation, “salary, bonuses, restricted stock options, long term incentive plans” influence earnings management practices through using the modified version of Jones model. They found that the amount of bonuses and stock options and the incentive intensity of stock options are positively associated with earnings management, whereas salaries are negatively related to earnings management. Furthermore, Cheng and Warfield (2005) used a sample of all firms from the Standard & Poor’s ExecuComp database from 1993 to 2000 to examine the relationship between stock-based compensation and stock ownership and earnings management. They found that managers are more likely to sell shares in subsequent periods, especially after earnings announcements, when they have substantial stock ownership or options. Moreover, managers with high levels of equity incentives are more probable to manage earnings. However, managers with consistently high levels of equity incentives are less likely to manage earnings. Also, Cheng, Warfield, and Ye (2011) through using the discretionary loan loss provision as a proxy for earnings management in all listed banks in ExecuComp during the period from 1994 to 2005. They pointed out that managers in banks are more likely to manipulate earnings when earnings are engaged with equity incentives but only if capital ratios are equal or around the minimum regulatory requirement.

Bergstresser and Philippon (2006) investigated the CEOs’ incentives to use discretionary accruals to manipulate earnings. They found a positive association between earnings management and

CEOs' compensations, especially when CEOs' compensation is tied with the value of stock and options holding. In addition, they recommended that stock and options holding produce strong motivation for CEOs to manipulate earnings. Likewise, McAnally, Srivastava, and Weaver (2008) used quarterly data for 1,633 firms and annual data for 2,704 firms from 1992 to 2005 to examine whether stock-option grants explain missed earnings targets and earnings management practices. They found that the larger firms and firms that have more valuable subsequent grants have more incentives to miss earnings targets. Further, they found that the possibility of missing earnings targets increases with stock option grants, especially for firms that manage their earnings. Conversely, a study conducted by Shuto (2007) applied the modified Jones model by using cash flow value as a measurement of discretionary accruals to investigate the relationship between earnings management practices and executive compensations in Japanese firms. They find that CEOs are more likely to practice earning management "income decreasing discretionary accruals" when they do not receive bonuses. Also, he noted that the association between executive compensation and earnings management varies depending on the company circumstances. Dibia and Onwuchekwa (2014) claim the CEO could manipulate income if their compensations as a share in order to explain the positive relationship between CEO share and earnings management practice.

On the contrary, Sun and Hovey (2013), using 3,326 Australian Securities Exchange listed firms in DataStream with 31,312 observations for the period of 2000 to 2006, examine the relationship between executive compensation and earnings management. They find that fixed executive compensation negatively significant association with earnings management and expected at-risk compensation to have a positive significant association with earnings management (either way upward earning management).

Using a sample of 25 non-financial listed companies in the Nigerian Stock Exchange for 2008-2010, Hassan and Ahmed (2012) investigated the interaction between corporate governance and firm performance on the one hand, and earnings management on the other. In other words, they tried to investigate the interaction between corporate governance the corporate financial performance when performance is stripped from the elements of discretionary accruals, where they claimed that the performance measure should be stripped of the impact of discretionary accruals in order to get the actual influence of corporate governance. They highlighted that executive compensation does not stimulate managers to manipulate earnings. Hassen (2014) used the absolute value of abnormal accruals by applying the modified Jones model (Dechow, Sloan, & Sweeney, 1995) to measure earning management for all French companies listed on the SBF 120, excluding the financial institution. His findings refer to a negative association between executive compensation and earning management.

Some previous studies examined fixed compensations, such as salaries, and elastic compensations, such as stock option compensation, separately. A consensus was reached mainly on the behavior of the management where a fixed

compensation does not cause managers to manipulate income. Conversely, elastic compensation leads to income manipulation, either downward or upward earnings. However, the results of previous studies for the role of executive compensations vary between positive and negative direction or do not stimulate managers to manipulate earnings.

Overall, based on the theoretical view and empirical developments, it can be suggested that executive compensation acts as an incentive for managers to minimize opportunistic behaviors. Especially, the executive compensations in Jordan are consistent with various guidelines for developing corporate governance code (Abed, Al-Attar, & Suwaidan, 2014). According to agency theory, high pay is a decent treatment; furthermore, a high compensation level is a recommended solution for owners who face difficulties in observing and monitoring their managers (Chen et al., 2014). Thus, firms can minimize the opportunistic managerial behaviors by maximizing the sensitivity of executive compensations to investment, for example (Tsao et al., 2015). All of these conditions can exist for the market with a central agency problem.

Following Hassen (2014), Basu, Hwang, Mitsudome, and Weintrop (2007), this study aims to measure executive compensation as a sum of all compensations paid to executives in year N , including fixed salaries, annual bonuses, stock options, and fringe benefits, fees, severance pay, and underwriting insurance, because compensation is disclosed as a total sum by the Jordanian firms. The natural logarithm is used for the distribution of executive compensation to reduce dispersion.

H1: There is a significant relationship exists between total executive compensation and earnings management.

2.2. Impact of managerial ownership on the association between executive compensations and earnings management

Solving the traditional agency problem through managerial ownership could cause a shift to the central agency problem. Managers could take over the company, which reflects negatively on the interest of the minority shareholders because they are powerless to monitor the behavior of the managers (Ayyagari et al., 2011; Ghazalat, Islam, & Noor, 2017b; Duarte & Leal, 2021). Therefore, managers involved in firm ownership are not beyond the scope of doubt as long as the controller's chance to exploit the interests of minority shareholders when they are inside the firm is more than earlier. The compatibility between managers and shareholders by this way could be shifted after a while to be aggressive where managers could exploit the advantages of control and equity to maximize their wealth. Thus, managerial ownership is not a suitable solution for agency conflict in developing countries; moreover, the agency problem could exist either traditionally or centrally if regulations are vague (Yunos, Smith, Ismail, & Ahmad, 2011). This perspective can explain the positive relationship between managerial ownership and earnings management in some studies.

The debate on the role of managerial ownership in terms of costs has intensified. The managerial power approach suggests that ownership

concentration results in the reduction of executive compensation. The optimal goal of the controlling shareholders of the firm is to minimize the cost of agency problems (Shleifer & Vishny, 1997). However, managers with large equity could expropriate minority wealth through compensation. Thus, if the controlling shareholder is the manager, then the agency cost would be minimized by 1) disabling the role of the board to reduce the monitoring cost caused by external directors or 2) from the compensation contracts to minimize the bounding costs but in a faked manner by creating loopholes in the contract so that the managers could take advantage of these loopholes to exploit the minority interest (Crocì et al., 2012; Hassen et al., 2015). Wright and Kroll (2002), Jiang et al. (2009), and Lee and Chen (2011) found that managerial ownership is positively associated with executive compensation.

Therefore, the fluctuation in results can be interpreted where some researchers like Warfield, Wild, and Wild (1995), Klein (2002), Saleh, Iskandar, and Rahmat (2005), Alves (2012), Huang, Wang, and Zhou (2013) argued that the level of managerial ownership is negatively associated with earnings management. Additionally, Gul, Chen, and Tsui (2003) noted that managerial ownership has negatively affected the positive association between earnings management and audit fees while this impact becomes weaker for a firm with high accounting-based management compensations. By contrast, Darrrough, Pourjalali, and Saudagaran (1998), Koh (2003), Hsu and Koh (2005), Teshima and Shuto (2008), Sarkar, Sarkar, and Sen (2008), Al-Fayoumi, Abuzayed, and Alexander (2010), Mitani (2010) proved that firms with high managerial ownership are correlated with greater earnings management. On the other hand, Gabrielsen, Gramlich, and Plenborg (2002), Peasnell, Pope, and Young (2000), Sánchez-Ballesta and García-Meca (2007) documented an insignificant relationship among the variables.

According to the preceding discussion, this study attempts to investigate the effect of managerial ownership, which acts as a moderator variable in the relationship between executive compensations and earnings management. Following Hassen et al. (2015), this study determines

Model 1

$$TAC_{it}/A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \alpha_2[(\Delta Rev_{it} - \Delta Rec_{it})/A_{it-1}] + \alpha_3(PPE_{it}/A_{it-1}) + \alpha_4ROA_{it-1} + \varepsilon_{it} \quad (2)$$

where,

TAC_{it} = total accruals for a firm (i) in a year (t).

A_{it-1} = total assets for the firm (i) at in the year ($t-1$).

α_0 = intercept.

ΔRev_{it} = change in revenue for the firm (i) in the year (t).

ΔRec_{it} = change in account receivables for the firm (i) in the year (t).

Model 2

$$NDAC_{it}/A_{it-1} = \bar{\alpha}_1(1/A_{it-1}) + \bar{\alpha}_2[(\Delta Rev_{it} - \Delta Rec_{it})/A_{it-1}] + \bar{\alpha}_3(PPE_{it}/A_{it-1}) + \bar{\alpha}_4ROA_{it-1} \quad (3)$$

where,

$NDAC_{it}$ = non-discretionary accruals for the firm (i) in the year (t).

$\bar{\alpha}_1, \bar{\alpha}_2, \bar{\alpha}_3, \bar{\alpha}_4$ = estimated parameters from equation (2).

managerial ownership as the proportion of total executive officers' shares divided by the total number of shares outstanding.

H2: The relationship between total executive compensations and earnings management is moderated in firms with managerial ownership control.

3. RESEARCH METHODOLOGY

3.1. Sample and data collection

This study used the panel data analysis techniques methods. However, this study is limited to investigating the role of executive compensations on the earnings management practices for the non-financial firms listed in Amman Stock Exchange (ASE). Data was collected for the firms listed in the industrial and services sectors over the period from 2010 to 2019. The number of non-financial firms listed in ASE at the end of 2019 was 89 firms in the first market. Anyway, the sample of this study is balanced since all firms with missing data are omitted from the study sample. The final sample was composed of 83 firms for ten years, thus, 830 observations were included in the estimation model.

3.2. Dependent variable proxy

This study used discretionary accruals as a proxy of earnings management by applying Kothari, Leone, and Wasley's (2005) model. Total accruals are computed by using the cash flow approach as follows:

$$TAC_{it} = NI_{it} - CFO_{it} \quad (1)$$

where,

NI_{it} = net income for a firm (i) in a year (t).

CFO_{it} = operating cash flow for a firm (i) in a year (t).

In regards to the non-discretionary accruals, we use the across-sectional technique of Kothari et al.'s (2005) model to compute the parameters regressions that used in the non-discretionary accruals model for each industry in each year as:

PPE_{it} = total property, plant, and equipment for the firm (i) in the year (t).

ROA_{it} = rate of return on assets for the firm (i) at the end of the year ($t-1$).

$\alpha_1, \alpha_2, \alpha_3$ = estimated parameters.

ε_{it} = error term.

Using the estimate parameters in Model 2 to compute the non-discretionary accruals for each firm in each year as:

Finally, discretionary accruals can be defined as:

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

Following prior studies, the absolute value of discretionary accruals is used as a proxy of earnings management after compute its value.

3.3. Regression model

The aim of this study is to examine the association between executive compensations and earnings management practices in non-financial Jordanian firms. This association had been evaluated after controlling for the effect of some relevant variables. Consist with prior studies, prevention of duality is considered an opportunity to minimize the CEO's power, which may lead to management recklessness and may provide the board more effectiveness in monitoring management (Jensen, 1993). In fact, a CEO who holds a position on the board possesses excessive power that could lead him to manipulate income. This separation of functions is harmonious with agency theory where it is recommended that the chairman should be independent, whereas duplication in positions held between the board and executive management will increase the ambitious plans of the CEO to manipulate income (Abdul Rahman & Haneem Mohamed Ali, 2006; Ghazalat, Islam, Noor, & Abu Haija, 2017c). Thus, CEO duality (*CEO'D*) is controlled by using a dummy variable that takes the value of "0" if the firms separated the CEO and chairman responsibilities from each other and "1" otherwise. Furthermore, the impact of firm size

(*FSize*) is controlled by using the natural logarithm of the firm total assets (Koh, 2003). The evidence for the firms with a high level of debt is varied between some researchers claim that the firms are less likely to practice earnings management when the level of debt is high (Abed et al., 2012). While, some others claim that the high level of debt becomes an incentive for the firms to managed earnings (Bartov, Gul, & Tsui, 2000). Thus, the impact of the financial leverage (*F.Le*) controlled in this study as a ratio computed by dividing the total liabilities by the total assets. Because of the role that the external auditor could play in mitigating the opportunistic behaviors the type of audit firm (*T.AuF*) is controlled also as a dummy variable take a value of one if the external auditor for the firm is one of the Big 4 audit companies (Sukeecheep, Yarram, & Al Farooque, 2013). In addition, we include the impact of firm performance to be controlled by using the cash flow from operation (*CFO*) as an indication of the firm performance. Finally, this study controls the sector type (*S.T*) as a dummy variable taking a value of one if the firm is listed under the industrial sector and zero if it is listed under the service sector.

The following model illustrates the association between earnings management and total executive compensations within the existence of the control variables:

$$EM_{it} = \beta_0 + \beta_1 ExCO_{it} + \beta_2 CEO'D_{it} + \beta_3 FSize_{it} + \beta_4 F.Le_{it} + \beta_5 T.AuF_{it} + \beta_6 CFO_{it} + \beta_7 S.T_{it} + \varepsilon_{it} \quad (5)$$

where,

EM_{it} = the absolute value of discretionary accruals as a proxy of earnings management for the firm (*i*) in the year (*t*).

ExCO_{it} = total executive compensations for the firm (*i*) in the year (*t*).

CEO'D_{it} = CEO duality for the firm (*i*) in the year (*t*).

FSize_{it} = firm size for the firm (*i*) in the year (*t*).

F.Le_{it} = financial leverage for the firm (*i*) in the year (*t*).

T.AuF = audit firm for the firm (*i*) in the year (*t*).

CFO_{it} = cash flow from operation for the firm (*i*) in the year (*t*).

S.T_{it} = sector type for the firm (*i*) in the year (*t*).

Table 1. A summary of measurement of the variables

Variables	Symbol	Measurement
Dependent variables		
Earnings management	<i>EM</i>	Obtained using Kothari et al.'s (2005) model by adopting the absolute value of the discretionary accruals.
Independent variables		
Executive compensations	<i>ExCO</i>	A percentage of directors with financial expertise to the board size.
Control variables		
CEO duality	<i>CEO'D</i>	A dummy variable that takes the value of "0" if the firms separated the CEO and chairman responsibilities from each other and "1" otherwise.
Firm size	<i>FSize</i>	The natural logarithm (LN) for the company's total assets.
Financial leverage	<i>F.Le</i>	Total liabilities divided by total assets.
Audit firm	<i>T.AuF</i>	A dummy variable takes a value of "1" if the company is audited by one of the Big 4, otherwise "0".
Cash flow from operations	<i>CFO</i>	A percentage of cash flow from operations to total assets
Sector type	<i>S.T</i>	A dummy variable takes a value of "1" if the company under observation is listed under the industrial sector, otherwise "0".
Moderator variable		
Managerial ownership	<i>M_Ow</i>	The proportion of total executive officers' shares is divided by the total number of shares outstanding.

Furthermore, the impact of managerial ownership on the association between executive compensations and earnings management is

evaluated by involving an interaction term (*x*y*) between the executive compensations (*ExCO*) and managerial ownership (*M_Ow*).

$$EM_{it} = \beta_0 + \beta_1 ExCO_{it} + \beta_2 CEO'D_{it} + \beta_3 FSize_{it} + \beta_4 F.Le_{it} + \beta_5 T.AuF_{it} + \beta_6 CFO_{it} + \beta_7 S.T_{it} + M_Ow_{it} + (ExCO * M_Ow_{it}) + \varepsilon_{it} \quad (6)$$

where, *M_Ow_{it}* = the managerial ownership for the firm (*i*) in the year (*t*).

4. RESULTS

4.1. Descriptive statistics

The results of the descriptive statistics for the study variables are provided in Table 2. The absolute value of the discretionary accruals was ranged between 0.0001 and 1.423 since the average was 0.118. This, result consistent with the result of prior studies in Jordan such as Abed et al. (2012) whose found absolute value of discretionary accruals was ranged between 0.0001 and 2.158 with 0.133 on average. As well, the average natural logarithm of the executive compensation value is 12.13, which implies that

Jordanian firms pay approximately 186,654 JD on average for their executives; the maximum is 14.508 and the minimum is 7.487. This outcome indicates some improvement in the executive compensations of Jordanian listed firms. For example, 10.92 was reported for the industrial firms from 2005 to 2010 (Abed et al., 2014). The difference between the executive compensation means in the present study and that reported by Abed et al. (2014) may be due to the differences in the sample size and period or the inflation that affects the market, which requires increasing the compensations for the executives to keep up with the markets.

Table 2. Descriptive statistics

Variable symbol	Obs.	Mean	Median	Std. Dev.	Minimum	Maximum
Continuous variables						
EM	830	0.1180571	0.0706803	0.1360086	0.0001029	1.422814
ExCO	830	12.13701	12.22873	1.126541	7.48717	14.50831
FSize	830	16.9455	16.91328	1.430832	13.06016	21.31029
F.Le	830	0.350982	0.305089	0.2577153	0	2.27528
CFO	830	0.04649	0.0463276	0.1605956	-2.170709	0.5991343
Categorical variables						
CEO'D	Obs.		0		1	
CEO'D	830		457 (55.06%)		373 (44.9%)	
T.AuF	830		534 (64.34%)		296 (35.66%)	
S.T	830		440 (53.01%)		390 (46.98%)	

Notes: EM_{it} = the absolute value of discretionary accruals as a proxy of earnings management; $ExCO_{it}$ = executive compensations; $FSize_{it}$ = firm size; $F.Le_{it}$ = financial leverage; $T.AuF$ = audit firm; CFO_{it} = cash flow from operation; $S.T_{it}$ = sector type; M_OW_{it} = managerial ownership.

In regards to the control variables, CEO duality, Table 2 indicates that 44.9% (373 firm observations) of the Jordanian firms listed in the industrial and service sectors have dual leadership, i.e., the CEO and the chairman are the same person. Therefore, approximately half of Jordanian listed firms do not comply with the Jordanian corporate code that requires separating the roles of the CEO and the chairman. This finding is consistent with the prior result in Jordan, in which Abed et al. (2014) reported that 62% of industrial firms do not separate the two roles. However, this result is considered huge compared with that noted in other countries. For instance, Muchoki (2013) reported that the average CEO duality in NSE was 18.23%, whereas Nugroho and Eko (2012) obtained 11.7% in Indonesia. The natural logarithm of total assets for

the firms listed in ASE was ranged between 21.31 and 13.06 with 16.94 on average. The financial leverage ratio indicated that there are some firms that completely depend on the liabilities since the financial leverage was 35.09% on average and ranged between 227.5% and zero. On the other hand, 35.66% of the firms listed in ASE have been audited their financial statements by one of the Big 4 audit firms. Since 46.98% of the study sample represents firms listed in the industrial sector. Finally, the mean of the cash flow from operations ratio was 4.65% and ranged between 59.9% as a maximum value and -217.1%. The huge negative value of the CFO is due to the losses from operations reported by firms. Finally, 47.37% of the firms in the study sample are listed in the services sector and 52.63% are listed in the industrial sector.

Table 3. Pearson correlation coefficients

Variable symbol	EM	ExCO	CEO'D	FSize	F.Le	T.AuF	CFO	S.T	M_Ow	ExCO*M_Ow
EM	1.000									
ExCO	-0.343	1.000								
CEO'D	0.421	-0.355	1.000							
FSize	-0.155	0.476	-0.215	1.000						
F.Le	-0.112	0.179	-0.195	0.257	1.000					
T.AuF	-0.256	0.354	-0.336	0.388	0.071	1.000				
CFO	-0.054	0.077	0.041	0.185	-0.001	0.019	1.000			
S.T	-0.092	0.046	-0.022	-0.180	0.045	-0.138	0.021	1.000		
M_Ow	0.278	-0.388	0.504	-0.233	-0.249	-0.255	0.019	-0.085	1.000	
ExCO*M_Ow	-0.031	0.327	-0.150	0.175	0.119	0.093	-0.018	-0.010	-0.644	1.000

Table 4. The variance inflation factor and tolerance

Variable symbol	Model 1		Model 2	
	VIF	TOL	VIF	TOL
ExCO	1.48	0.674858	1.59	0.627158
CEO'D	1.25	0.799332	1.59	0.628981
FSize	1.58	0.632774	1.58	0.632421
F.Le	1.11	0.899101	1.14	0.878167
T.AuF	1.33	0.751364	1.35	0.742091
CFO	1.05	0.951696	1.05	0.949677
S.T	1.08	0.922040	1.11	0.904057
M_Ow	-	-	2.55	0.391863
ExCO*M_Ow	-	-	1.94	0.515180
Mean VIF	1.17			

Meanwhile, this study used two indicators to check the multicollinearity problem. The first one is the Pearson correlation coefficients, which indicate the existence of the multicollinearity problem when the correlation coefficient is more than 0.8 between two variables (Gujarati, 2004). The second one is the variance inflation factor (VIF) and tolerance factor (1/VIF) as an additional step confirming with panel data assumptions. The multicollinearity problem exists when the value of the VIF is higher than 10 and the value of the tolerance factor (TOL) is lower than 10 percent (Gujarati, 2004; Baltagi, Mátyás, & Sevestre, 2008). However, in Table 3, the result of the Pearson correlation indicates there are no correlations exceeding 0.8 between any of the study variables. In return, in Table 4, the VIF for all variables is lower than 10 and higher than 10% for the TOL. Therefore, the multicollinearity problem does not exist in the study sample.

4.2. Multivariate analysis

This study goes through two stages to determine the appropriate regression model for the study. The first stage makes a comparison between the fixed effect regression model (*fe*) and the random-effect regression model (*re*) through using the Hausman test. The second stage used if the random effect is appropriate more than the fixed effect by making a comparison between the random-effect regression model (*re*) and the pooled OLS through using the Breusch-Pagan Lagrange multiplier (LM) test (Dougherty, 2007; Gujarati & Porter, 2009). However, each Hausman test and LM test indicate that the random effect is the most appropriate to be used in this study for the first model and the second model. Since the Hausman test results are higher than the significant level at 0.05 and the results of the LM test are significant at 0.05, thus this study used the random-effect GLS regression to analyses data.

Table 5. Hausman and Breusch-Pagan LM tests for the models of the study

Model	Hausman test (Chi ² statistic)	Breusch-Pagan LM test (Chi ² statistic)	Decision
Model 1	10.49	124.26***	Random effect
Model 2	11.34	109.31***	Random effect

Notes: Significant level ***, ** = *p*-value < 1%, 5%.

In regards to the heteroscedasticity and the autocorrelation problem, this study used the modified Wald test for groupwise heteroscedasticity (MWT) and the Wooldridge test (WT) for autocorrelation. These results, in Table 5, indicate that the regression model in this study suffered from the heteroscedasticity problem while the autocorrelation problem does not exist. Therefore, in order to avoid a heteroscedasticity problem, the correcting robust standard error estimates method for the random-effect GLS regression was used (Hoechle, 2007).

Table 6. The heteroscedasticity and autocorrelation tests

Model	Modified Wald test (Chi ² value)	Wooldridge test (F-value)	The exists problem
Model 1	2.7e ^{+0.07***}	0.035**	Heteroscedasticity
Model 2	7.3e ^{+0.06***}	0.002**	Heteroscedasticity

Notes: Significant level ***, ** = *p*-value < 1%, 5%.

5. DISCUSSION OF THE RESULTS

5.1. Executive compensations and earnings management

We conduct the robust random random-effect GLS regression to evaluate the relationship between the executive compensations (*ExCO*) and earnings management proxy (*EM*) within the existence of the control variables (equation (5)). Table 7 presents the regression result for Model 1. The model as a whole is fit and significant at 0.01 (Wald Chi² = 90.18***). While the explanatory power of the model was 23.53% (overall R² = 0.2353) which indicates that 23.53% of the variation on the dependent variable is explained by the independent and control variables used in the model. The consistent term (*_Cons*) of this model is positive and significant at *p*-value < 0.01.

Consistent with the study expectations, *ExCO* has a significant negative relationship with the *EM*. Managers with high compensations are less likely to manipulate earnings. Table 7 presents that Z = -2.03 and *p*-value = 0.042 for this relationship. Thus, *EM* practices are reduced when the *ExCO* level increases. Executive compensations in Jordanian firms work as incentives for managers to minimize opportunistic behavior. These results are compatible with the findings of Abed et al. (2014), who pointed out that the executive compensations in Jordan are consistent with various guidelines to develop the corporate governance code. Moreover, agency theory postulates that if principals (owners) encounter difficulties in observing or monitoring the agents' (managers') behavior, the former have to pay a higher ratio of variable compensation to the total compensation; otherwise, the principals have to pay a higher percentage of fixed salaries (Chen et al., 2014; Ghazalat, 2020). These results show that executive compensations in Jordanian listed firms are considered as a means to reduce agency costs. Therefore, we can suggest that the managers manipulate earnings when they do not receive optimal bonuses in general cases.

These results are generally consistent with the study expectations and can be attributed to the nature of compensations paid to the executives. Executive compensations in Jordanian firms are disclosed as the total sum and are predominantly paid in cash. Moreover, the compensations in Jordanian listed firms are commonly not tied to shares and/or stock options values, whereas earnings are not engaged in equity incentives. This explanation is clear based on the compensation strategy declared by Jordanian listed companies in the company strategy section of their annual reports. Most Jordanian firms attempt to avoid engaging the managers in the property based on their efforts. In particular, they do not pay their managers with stocks, options, or any equity incentive as compensation as in most cases.

Looking at the control variables, CEO duality (*CEO'D*) presents a significant positive relationship between the existence of CEO duality and discretionary accruals ($Z = 5.72$; p -value = 0.000). This scenario implies that *EM* practices will increase when the same person occupies both the chairman and the CEO positions. By contrast, when the firm separates these positions, the chairman of the board will play a more significant monitoring role compared with the situation in other Jordanian listed firms that do not separate these positions. This result is consistent with the agency theory perspective, which argues that the holding of two senior positions (CEO duality) by the same person can impair the firm. This case induces this person to apply different strategies to advance his personal interests (Jensen & Meckling, 1976). Therefore, the current study argues that the separation between the chairman and CEO positions is necessary to avoid abuse and exploitation of these positions to increase personal wealth. However, the Jordanian corporate governance code and the Jordanian corporate law stipulated that CEO and chairman positions must be separated. However, many firms did not implement this condition because they pay low penalties for such encroachments. This result confirms that opportunistic behaviors are inherent in managerial positions because managers exploit their power to maximize their interests or maintain their jobs and increase their power by falsely enhancing the company's financial position.

However, firm size (*FSize*) presents an insignificant relationship with earnings management practices, which indicates that firm size is not sufficient enough to be lead firms to engage with earnings management. Likewise, the financial leverage (*F.Le*) and cash flow from operation (*CFO*) both have an insignificant

relationship with earnings management practices. On the contrary, the type of audit firm (*T.AuF*) has a significant negative association with earnings management. This result indicates that firms become less likely to manage their earnings when the external auditor is one of the Big 4. Furthermore, the results refer to the significant negative relationship that exists between the sector type and the earnings management proxy. This indicates that firms in the service sector are practice earnings management more than firms in the industrial sector. In other words, the service sector in ASE practices earnings management at a higher level compared with the industrial sector.

5.2. Managerial ownership, executive compensations, and earnings management

To evaluate the effecting role of the managerial ownership on the relationship between the executive compensations (*ExCO*) and earnings management proxy (*EM*), we included an interaction variable between the executive compensations (*ExCO*) and managerial ownership (*M_Ow*) to the regression (equation (6)). Following Dawson (2014), the interaction term as a new variable suffers from a multicollinearity problem because of the interaction process that created these variables. This study used the mean-centered approach for each predictor (*Ind.V*) and moderator variables before computing the interaction to avoid this problem. However, Table 7 presents the robust random random-effect GLS regression result for Model 2. The model as a whole is fit and significant at 0.01 (Wald $\chi^2 = 120.77^{***}$). While the explanatory power of the model was 25.17%. The consistent term (*_Cons*) of this model is positive and significant at p -value < 0.01.

Table 7. The result of the robust random-effect GLS regression

Variables	Model 1			Model 2		
	Coefficient	Z(t-static)	P > Z	Coefficient	Z(t-static)	P > Z
<i>ExCO</i>	-0.0187561	-1.95	0.051	-0.0206718	-2.03	0.042
<i>CEO'D</i>	0.0858706	5.72	0.000	0.0703041	4.20	0.000
<i>FSize</i>	0.0019067	0.22	0.824	0.0021213	0.25	0.800
<i>F.Le</i>	0.0048901	0.25	0.804	0.0101852	0.49	0.626
<i>T.AuF</i>	-0.0283183	-2.59	0.010	-0.0250925	-2.40	0.017
<i>CFO</i>	-0.0600591	-1.52	0.129	-0.0561022	-1.37	0.170
<i>S.T</i>	-0.0238014	-1.86	0.062	-0.0187709	-1.51	0.131
<i>M_Ow</i>	-	-	-	0.1607517	2.58	0.010
<i>ExCO*M_Ow</i>	-	-	-	0.0776285	3.60	0.000
R ² between	0.4696			0.4951		
R ² overall	0.2353			0.2517		
Wald χ^2 (F-value)	90.18***			120.77***		

Notes: *, **, *** = p -value < 0.10, 0.05, 0.001. $ExCO_{it}$ = executive compensations; $FSize_{it}$ = firm size; $F.Le_{it}$ = financial leverage; $T.AuF$ = audit firm; CFO_{it} = cash flow from operation; $S.T_{it}$ = sector type; M_OW_{it} = managerial ownership; $ExCO*M_Ow$ = the interaction term between *ExCO* and *M_Ow*.

The interaction term is embodied by the coefficient summation of *ExCO*M_Ow* and *ExCO*. The p -value and coefficient for the interaction indicate that managerial ownership significantly and positively affects the relationship between *ExCO* and *EM* at less than 5%. Table 7 presents ($Z = 3.60$; p -value = 0.000). This result indicates that managerial ownership has a positive moderation effect on the relationship between *ExCO* and *EM*. Actually, this means that managerial ownership disables the role of executive compensation in mitigating *EM* practice and converts it to exploiting tools to maximize their own interest. Firms with a high level of managerial ownership and executive

compensation have a high level of *EM*. This result supports the idea that managerial ownership may affect the *EM* practice level by reducing or reversing the effect of executive compensation (Wright & Kroll, 2002; Lee & Chen, 2011). However, when the executive compensation is low the level of earnings management is high in firms with high managerial ownership than firms with low managerial ownership. On the other hand, firms with high executive compensations have a high level of earnings management practices when managerial ownership is high, whereas earnings management decreases in firms with low managerial ownership when the executive compensations level increases.

In short, firms with high executive compensations lead to high earnings management in firms with higher managerial ownership than firms with lower managerial ownership. These results counter with Ghazalat (2020) who presents an insignificant interaction effect for the ownership concentration on the relationship between executive compensation and aggressive discretionary accruals. This indicates that the type of ownership in the developing countries would act to be effective more than its concentration. Thus, ownership structure would interact as a moderator variable with relationships that carry a conflict of interest in the concept of agency and positive accounting theories.

On the other hand, this result supports the idea that solving the traditional agency problem through managerial ownership could result in a shift to the central agency problem. Managers could take over the company, which reflects negatively on the minority interest because minority shareholders are powerless to monitor the behavior of the managers (Ayyagari et al., 2011). On the other hand, Croci et al. (2012) and Hassen et al. (2015) argued that if the controlling shareholder were the managers, the agency cost would be minimized by disabling the board role in order to reduce the monitoring cost from outsider directors or the compensation contracts but in a faked way through creating loopholes in contracts body. Therefore, ASE listed firms with high managerial ownership more commonly suffer from the central agency problem than the traditional agency problem.

6. CONCLUSION

This study used panel data analysis methods to examine the relationship between the executive compensations and earnings management for the non-financial firms listed in ASE during the period from 2010-2019. Additionally, it investigates whether managerial ownership influences the relationship between executive compensations and earnings management.

Overall, the findings of the study provide evidence that firms with a higher level of executive compensations are associated with low levels of earnings management practices. This concludes that either a higher existence of executive compensations is liable to deter managers for engage in manipulating earnings. Thus, the quality of the financial statements of firms with high-level executive compensations is expected to be high. However, these findings provide evidence that executive compensations act as a corporate governance term in developing countries. This result is consistent with the agency theory that assumed executive compensation as an antidote for the agency problem because it is part of the essence of the agency theory (Dechow & Sloan, 1991; Sun, 2012; Sun & Hovey, 2013). Moreover, this result agrees with the argument that the positive accounting theory confirmed the position of the agency theory

that compensation contracts should be used in the firm to encourage managers to operate following the shareholder interests (Sun, 2012).

Furthermore, the mitigating role of executive compensation is reduced in firms with high managerial ownership. These findings suggest that an increase in the compensations level paid to the executive to mitigate opportunistic behaviors is unlikely to be effective in firms with managerial ownership. Managerial ownerships in Jordanian firms are preferable to control cash flow right than the voting right, thus, managers with equity prefer to focus on the indirect ways to maximize their interests, such as compensation contracts. This situation can be justified by the existence of the central agency problem.

In regards to the control variables, the results indicate that firm size, the financial leverage of the firms and the cash flow from operations are not significantly affecting the earnings management practices. However, the type of audit firms and CEO duality appear to affect earnings management practices significantly and service firms are more engaged in earnings management than the industrial firms in the ASE.

However, the results of this study are restricted to some limitations. For instance, the validity of these results counts on the discretionary accruals that are computed by using the performance-adjusted discretionary accruals model as a proxy for earnings management. The validity of these results also is counting on the appropriate estimation of the managerial ownership of the firm. On the other hand, our results are limited to computing the executive compensations as a summation of total compensations, while, this study is unable to examine the difference between the executive compensation kinds and the effect of each one such as bonuses and stock options on earnings management practices.

Regardless of the inherent limitations, the results of this study provide more understanding for the earnings management practices level in Jordan, which in turn can assist current and potential investors to determine the quality of financial statements and identify the investment situations in ASE as well as provides envisage of the executive compensation's role in the firms listed ASE. The executive compensations are the essence of agency theory and are used by the firms as a tool to encourage managers to operate following the shareholders' interests. Therefore, solving the agency conflict by harmonizing the agency theory perspective with the positive accounting theory is more appropriate in emerging markets. On the other hand, evidence shows that positive accounting theory could be shifted to be incomprehensible or unable to harmonize with agency theory with the existence of managerial control. This finding can be generalized to emerging markets such as Jordan.

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