

## Research

# Does corporate governance moderate the impact of earnings management on capital structure of the listed corporations on Palestine and Amman Bourses

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## Abstract

The purpose of this research is to investigate the moderating role of corporate governance on the relationship between earnings management and debt level in capital structure. The paper used a hypothesis-testing research approach to gather data from the annual reports of 13 industrial companies listed on Palestine Exchange and 25 Jordanian companies listed on Amman Stock Exchange from 2013 to 2020. Descriptive and inferential statistics were employed, along with correlation analysis to evaluate linear relationships between variables. The fixed and random effect regressions were utilized to develop the research model. In the case of Palestinian manufacturing firms, the results revealed that Earnings Management (EM) had a significant negative impact on debt level. According to the moderating role of Corporate Governance (CG), larger boards and the existence of female members on the board of directors causes an increase in the high-leverage impact of EM, whereas CEO duality mitigates the high-leverage impact. However, in the case of Jordanian manufacturing firms, EM showed an insignificant impact on debt level. Regarding the moderating role of CG, it was proved that the presence of female members on the board of directors increased the firm's reliance on debt financing as a result of EM practices, while institutional investors mitigate the effect of EM on debt financing, leading to a decrease in reliance on debt. The findings of this research are suitable for the regulators while formulating policies on the Corporate Governance and the Impact of Earnings Management on Capital Structure. These findings have guided the policymakers that they should enhance their focus on Palestine and Jordan companies to test Corporate Governance Moderates the Impact of Earnings Management on Capital Structure. This study is also helpful for the new researcher while investigating this area in the future.

**Keywords** Capital structure · Corporate governance · Earnings management · Palestinian exchange · Amman stock exchange

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## 1 Introduction

The external auditors of one of the big four auditing firms, KPMG, have recently faced renewed public criticism for their lack of due diligence and quality [1], reigniting interest in the field of corporate governance (CG). Such a circumstance is reminiscent of previous high-profile collapse scandals, including Enron and WorldCom, which slammed CG and sought comprehensive legislative reform [2]. CG provides a firm with control tools and mechanisms to help create a system of profit sharing, achieving efficiencies for the firm and a balanced wealth for the stakeholders [3]. However, researchers and practitioners seem to agree that excellent CG mechanisms have a key impact on the overall performance of the firm, particularly in achieving massive expansion in the business sector, meeting the firm's objectives and legal compliances and protecting the shareholders' rights. As a result, CG seems to attract more capital [4–6].

However, managers sometimes use innovative ways, known as earnings management (EM), to acquire the desired net income by covering weaknesses and polishing the firm's financial ratios. By practicing EM, they violate the matching and timing principle, which causes misstatement of earnings and misleads stakeholders about actual performance and the firm's capital structure [7].

Capital structure, as a critical area impacting the overall operating level of corporates, has been a focus in the field of finance and accounting literature [5]. Capital structure, i.e., financing decision, is concerned with the optimal mix of debt and equity. Firms with optimal debt-equity ratios can improve their performance and reduce the cost of capital and the likelihood of financial distress [8]. A firm's capital structure specifically relies on profitability, liquidity, cash flow and earnings volatility [9], which shows that the financial information reported by a firm influences its capital structure decision (CAPS). Consequently, financial statements must convey the underlying economic performance as a change, or manipulation in financial reports would make capital structure selections less appropriate [10].

However, EM practices are assumed to be more common in developing economies, but research is scarce [11]. Current research suggests that accounting scholars and financiers still consider capital structure as a puzzle. Thus, this study addresses earlier recommendations for greater corporate finance decision and EM research. Also, following to steps of [10]. Additionally, because CG, a significant mitigating element in the practice of EM, has been ignored in earlier researches, the effect of CG in the link between EM and corporate finance decision-making is still unclear. Empirical results on EM and CG contribute to the financing decisions of a firm, thereby influencing the value of the firm and the total wealth of its shareholders. This study provides significant and various contributions. First, it demonstrates the importance of CG features and EM in determining the capital structure of a sample of Palestinian and Jordanian manufacturing firms. Second, it clarifies the interactive effect of EM with CG features on the debt level in capital structure of the sample. Third, the study connects management and behavioral theories, such as agency theory, pecking order theory, trade-off theory, free cash flow (FCF) theory and signaling theory. Furthermore, finance literature depicts contradictory opinions on the relationship between EM and capital structure. This study broadens the existing debate by delving into the relationship between EM and another vital factor, i.e., CG, to endorse and support its effect on a firm's financing decisions. Finally, to the best of our knowledge, there is no concrete proof of CG and EM application on capital structure either in Palestine or Jordan. Hence, this paper is the first to simultaneously assess the relationship between these three variables in Arab countries.

So, in this study we investigate the impact of EM on capital structure, as well as the interactive effect of CG features (i.e., the size of the board of directors, board independence, gender diversity, CEO duality and institutional ownership) and EM on capital structure in a sample of 38 manufacturing firms listed on the PEX [12] and the ASE [13] from 2013 to 2020.

## 2 Literature review and hypothesis development

### 2.1 Earnings management

One of the first definitions of EM was given by Schipper [14], who mentioned EM is a deliberate attempt to influence the external financial reporting process with the goal of gaining a personal advantage. Healy and Wahlen [15] mentioned that EM occurs when managers use discretion in financial reporting and transaction structuring to change financial reports to deceive some stakeholders about their firm's true economic performance or influence the results of the contracts based on reported accounting numbers [16].

EM can be both opportunistic and beneficial [17]. However, when managers of a firm utilize EM opportunistically for their self-interest rather than the benefit of stockholders, the result is detrimental to the firm. Meanwhile, when managers exercise discretion over earnings within GAAP to protect shareholders' interests, it is regarded as ethical and advantageous. Additionally, EM is morally right and helpful in informing the public and stockholders about private information [18]. EM can be defined as a manipulation of earnings using the discretion granted by corporate laws and accounting standards and/or restructuring activities, which predict that firm value is not negatively impacted. Generally, the previous definition split EM into two types. First is "Paper EM", which depends on manipulating earnings using discretion granted by corporate laws and accounting standards that rely on accounting estimates, policies and accruals. According to Commerford et al. [19], it can also be known as "accounting EM". Accounting EM helps in comprehending accounting accruals and their impact on a firm's performance measurement [14]. The second type of EM is "Real EM", which refers to the manipulation of earnings by employing restructuring activities to positively impact a firm, such as by expanding product lines, or show a neutral impact on expected firm value, such as by accelerating the time of sales. Real EM considers the management of earnings through strategic timing of operating, financing and investing decisions. In other words, a powerful instrument for real EM practice is the timing of revenue-generating activities and reporting [20].

Many reasons encourage firms to engage in EM. They allegedly use it to smooth earnings, restrain debt covenants, increase share prices, boost management wealth, bargain with labor unions, execute management buyouts and implement bonus plans. Moreover, compensation plans and the value of executives' stock and stock options are the main incentives that EM provides [21, 22].

## 2.2 Capital structure

Capital structure can be defined as the source of financing employed by a firm to finance its assets, growth opportunities and daily operations [23]. Corporate finance still lacks a unified capital structure theory, even 50 years after [24]. Although the present theories are useful as analytical tools for analyzing the empirical results, none of them is able to fully account for the decision to choose a capital structure. Each theory can explain certain stylized facts but not others.

According to the capital structure theory, the value of a firm increases if the capital structure includes a high amount of debt due to the tax benefits afforded by the debt [24]. The authors believe that if the neutrality theory is contested, two competing theories must be considered while choosing external financing: the pecking order theory and the trade-off theory. The first theory implies that due to information asymmetry, firms are required to finance in a hierarchical order. Myers [25] clarified the theory by the existence of leadership behavior. A decreasing financial hierarchy is used when managers consider the investors' interests, which begins with using retained earnings, debt and new equity issuance, respectively. On the other hand, when managers act in their own interest, the hierarchy is altered; hence, it will first address retained earnings, followed by the issue of new equity and finally using debt to avoid its disciplinary role.

The tradeoff theory suggests that the trade-off between benefits and costs of debt determines a firm's capital structure [26]. Tax deductibility is the main benefit of using debt. Modigliani and Miller [24] demonstrated that to take advantage of tax savings on debt, firms must employ debt. However, excessive use of debt increases the agency cost [27] and the cost of bankruptcy [28]. From this perspective, it is worth noting that this theory allows for the detection of an optimal debt level from which the firm obtains the most tax benefits [10].

However, when a firm chooses internal funding (FCF) as the main source of capital, it does not regard the agency problem according to the pecking order theory. Accordingly, Jensen [29] defined FCF as surplus cash that remains after all projects have been funded with a positive net present value (NPV). The existence of surplus cash in a firm leads to a conflict between shareholders and management, reflecting that with an excess of FCF, top management may engage in wasteful and inefficient investments. In other words, in case of excess FCF, managers are more likely to invest in new initiatives, even if the NPV is negative [30]. Therefore, the FCF theory assumes that the creation of debt represents legal duties that must be paid by management, preventing executive managers from overinvesting and utilizing the financial resources of a firm.

Michaelas et al. [31] suggest that the choice of capital structure of a firm is considered a signal that shareholders send to investors. The signaling theory stresses that firms should be careful about the signals they send to the market. This implies that any significant changes in the capital structure of a firm will be interpreted by outsiders as a signal of the firm's prospective performance. Shareholders may interpret the announcement of debt financing as a good indication. A debt issuance indicates that the firm's financial prospects are so promising that management does not want additional shareholders to share its possible profits [32].

Jensen and Meckling [27] defined an agency relationship as an agreement in which one or more individuals [the principal(s)] hire another individual (the agent) to execute some job on their behalf, which includes delegating some decision-making authority to the agent. This theory assumes that managers with self-interest attitudes always seek to fulfill their goals at the expense of their firms' shareholders. The agency cost of outside equity occurs due to the conflicts between managers and shareholders since managers in large firms with diffuse ownership do not have total residual claims and cannot profit fully from their value-maximizing actions. As a result, they work less hard to manage the resources of the firms and are more inclined to transfer those resources for their own personal gain. In other words, such managers pursue their activities in a way that does not maximize shareholder wealth, which leads to them consuming more perks and investing in unrelated businesses to expand their empires, such as luxury offices, private jets and compensation. Furthermore, choosing suboptimal CAPS, such as less debt, in capital structure is also another perk enjoyed by these managers.

In accordance with the agency theory, debt financing can be utilized as a helpful governance tool to lessen the conflict of interests between managers and shareholders. In particular, debt can be used as a substitute mechanism to minimize the effect of FCF agency costs available to managers by requiring them to disgorge it to investors [29].

### 2.3 Corporate governance

CG was first proposed by the Cadbury committee. The committee believed CG to be a system for directing, controlling and managing firms by determining the role of the board of directors and shareholders. The board of directors oversees the management of their firms, whereas the shareholders' responsibility in governance is to select the directors and auditors and ensure that an effective governance framework is in place [33].

A governance system can also be defined in a broader sense as a set of complex constraints that determine granted profit by the firm in the course of relationships with stakeholders and shape the ex-post bargaining over them [34]. This definition encompasses rules for both determination of value addition by firms and their distribution among the stakeholders [35]. According to the Organization of Economic Cooperation [36], CG can be defined as a group of relationships between a firm's managers, board of directors, stakeholders and shareholders. CG also encompasses the mechanism that determines a firm's goals and provides methods for meeting those goals.

### 2.4 Earnings management and capital structure

Many intensive managers must engage in EM due to the cost of capital. Nikoomaram et al. [37] and An et al. [38] exposed a positive significant relationship between debt ratio and discretionary accruals (EM). This result is consistent with the disciplining role of debt to minimize the agency cost of FCF when combined with the assumption that a firm's EM reflects the agency conflicts of information asymmetry between managers and investors.

On the other hand, Jelinek [39] revealed a negative association between leverage and opportunistic behavior, implying that an increase in leverage leads to a decrease in managers' opportunistic behavior and EM. Additionally, Tahir et al. [7] examined various factors related to EM impacting the capital structure of Pakistani non-financial firms for a period of five years. The results revealed that EM represented by return on assets (ROA) had a negative impact on the gearing ratio. Hence, based on the aforementioned argument, the researchers assume the following:

*H1: A positive significant association exists between EM and DCAPS of the firm.*

### 2.5 The size of the board of directors

The responsibility of managing a firm's activity and making strategic decisions regarding the financial mix is dependent on the firm's board of directors. The impact of the size of the board of directors on the capital structure of a firm has been well examined in prior studies [5, 6, 40–44]. However, the empirical results for this relationship are mixed.

Wen et al. [43] and Feng et al. [5] proved a positive relationship between the size of the board of directors and capital structure. The authors suggested that a greater size of the board will follow a higher level of gearing policy. The authors also mentioned that when the number of directors increases, the limitation to arriving at a clear decision also increases, which is reflected in the efficiency of CG mechanisms, causing higher levels of financial leverage. Furthermore, Sheikh and Wang [6] revealed a significant positive relationship between the size of the board and the debt ratio. This result was supported by the theory of resource dependency, implying that when the size of the board is greater, the ability of the board to raise funds and improve the firm's value also rises.

On the other hand, the result of Abobakr and Elgiziry [40] demonstrated a negative relationship between the size of the board and capital structure, suggesting that a large number of directors can pressurize the managers to have a low level of gearing policy and improve their firm's performance. Moreover, Alabdullah et al. [41] investigated the impact of two key measurements of board features on the growth and capital structure of emerging market Jordanian non-financial firms. The results showed a negative relationship between the size of the board and the debt ratio. Also, Gupta et al. [45] find that board size, female directors, and the average number of directorships held by outside directors are inversely related to performance. Hence, based on the previous argument, the researchers assume the following hypothesis:

*H2a: size of the board of directors has a significantly positive role in moderating the relationship between EM and DCAPS of the firm.*

## 2.6 Board independence

Non-executive directors are an essential component of modern CG. A few studies have examined the relationship between the presence of non-executive directors and capital structure, although the pieces of evidence vary. Wen et al. [43] proved that the existence of non-executive directors depicted a significant negative relationship with gearing levels. A probable explanation of this finding may be that non-executive directors supervise managers more effectively, forcing managers to seek lower gearing levels to achieve superior results. Moreover, Uwuigbe [46] revealed a negative and significant relationship between board independence and debt-to-equity ratio. Also, Gupta and Mahakud [47] find that the professional financial education of the board chairman and members positively affects bank performance.

On the other hand, Alves et al. [10] mentioned that the higher the proportion of independent directors, the higher the reliance on external financing sources (debt) rather than internal sources (retained earnings). Moreover, Tarus and Ayabei [48] and Ehikioya et al. [49] found that board independence positively related to leverage. This can be supported by the agency theory, which asserts the ability of outside directors to exert pressure on and influence managers to increase debt financing to increase the firm value. Following the viewpoint of the agency theory, the researcher proposes the second hypothesis, as follows:

*H2b: non-executive directors have a significantly positive role in moderating the relationship between EM and DCAPS of the firm.*

## 2.7 Gender diversity

Women on boards of directors tend to be more independent as they operate independently of the network. According to OECD [36], a greater representation of female directors may introduce heterogeneity in values, beliefs and attitudes, broadening the range of perspectives in the process of decision-making [50]. Women on boards devote more time to observe the executive directors as they are more committed to attending board meetings and keeping better records than male directors [51]. Many researchers have explored the impact of gender diversity on firm performance [52, 53]. Other researchers have investigated the effect of women's presence on the value of a firm, including Isidro and Sobral [54], who discussed whether a firm experiences economic benefits from having more women on its board of directors following the introduction of legally binding quotas for women on corporate boards in European firms by the European Commission. The results revealed that more female representation on corporate boards of major European firms indirectly increased firm value. A portion of the indirect effect is due to greater adherence to ethical standards, which accounting-based financial performance does not consider.

Additionally, previous studies have argued that moderating risky firm decisions is related to the existence of women on a firm's board of directors because they tend to strengthen the monitoring function by considering risk averseness, which leads to decreased reliance on debt in the firm's capital structure [51]. However, Abobakr and Elgiziry [40] along with Heng et al. [55], proved that female existence on the board of directors showed an insignificant impact on CAPS. Also, Sahoo et al. [56] show that the board size, female director, Promoter CEOs, meeting frequencies, and attendance rate positively affect firm performance. As a result, the researchers developed the following hypothesis:

*H2c: female board members have a significantly positive role in moderating the relationship between EM and DCAPS of the firm.*

## 2.8 CEO duality

The impact of a CEO's dual roles on a firm's capital structure is a topic of ongoing discussion. Zaid et al. [57] stated that the CEO and chairman combination increases the risk of authority abuse, thereby leading to distorted managerial decisions. Thus, giving the same person both tasks might weaken the control process and pose a negative effect on a firm's performance, which can impact its reputation of the "ability of debt-paying" in the eyes of creditors and lending institutions. In other words, due to the high perception of the risks associated with CEO duality, professional lenders will not invest in such firms. On the other hand, given that CEOs are highly skilled and knowledgeable individuals, CEO duality may increase the firm's value. Keeping this in mind, the researcher can contend that when a firm faces a CEO duality situation, it is more likely to use an ideal level of debt in its capital structure [58]. Thus, while duality is probably beneficial for some firms, separation will be advantageous for others. Besides, Gupta et al. [59] found that CEO chairman duality, the presence of the chartered accountant (CA) director, AC chairman, and AC bear a positive relationship with bank performance.

However, Tarus and Ayabei [48], Agyei and Owusu [60], and Kyereboah and Biekpe [61] showed that CEO duality has negative effect on financing decisions, mentioning that when a CEO also serves chairman duties, it increases the agency cost and negatively impacts the willingness of creditors to lend to these firms. On the other hand, Sewpersadh [22] and Dimitropoulos [62] proved a positive correlation between CEO duality and leverage. Also, Gupta and Mahakud [63] showed a positive impact of CEO duality on performance. Based on the previous argument, the researchers assume the following hypothesis:

*H2d: CEO duality situation have a significantly positive role in moderating the relationship between EM and DCAPS of the firm.*

## 2.9 Institutional ownership

The active monitoring hypothesis states that the presence of institutional investors can reduce the managerial moral hazard issue in a firm by closely controlling and monitoring the performance of the firm [29]. The presence of institutional shareholding in a firm allows it to raise long-term financing at a lower cost. First, these institutional investors serve as a source of long-term debt. Second, they act as an effective control mechanism for the firm's strategic decisions by reducing managerial opportunism and agency costs, which leads to an increase in the confidence of investors and lenders. In other words, high institutional ownership guarantees that managers will implement corporate strategies in the best interests of the shareholders [64]. Moreover, institutional investors are perceived to be more at risk than small shareholders as they hold larger ownership stakes, which also encourages them to keep a close eye on the managers.

Kumar [65] revealed that firms with a higher proportion of foreign ownership or a smaller proportion of institutional ownership have lower debt levels. Additionally, Tayachi et al. [66] mentioned that financing choices and dividend policy for sample firms are positively impacted by institutional ownership, causing investors to decide to invest more in institutional ownership that lowers the agency cost rather than in firms with a higher percentage of managerial ownership. However, Liao et al. [67] proved that the adjustments of the capital structure toward a target of shareholders are encouraged by institutional ownership rather than the desired level of managers.

On the contrary, Puspita and Suherman [68] illustrated that institutional ownership has a significantly negative impact on the debt-to-equity ratio, as well as a negative but insignificant impact on the debt-to-assets ratio. Besides, Sahoo et al. [69] indicate a positive impact of domestic promoters, foreign promoters, and institutional shareholders on firm performance. Also, Gupta et al. [70] reveal that the largest shareholder impacts the bank's performance positively. Additionally, Gupta et al. [45] found that foreign institutional investors and foreign corporate bodies bear a positive relationship with the performance of Indian firms. Besides, Gupta and Mahakud [71] showed a higher non-government stake leads to an increase in performance. Based on the previous argument, the researchers assume the following hypothesis:

*H2e: institutional ownership has a significantly positive role in moderating the relationship between EM and DCAPS of the firm.*

## 2.10 Methodology

This study aims to examine the impact of EM on debt level in CAPS and the moderating role of CG on the relationship between EM and debt level in CAPS in a sample of Palestinian manufacturing firms and Jordanian manufacturing firms listed in the PEX and the ASE.

## 2.11 Sample and data collection

Secondary data required to measure EM, debt level in CAPS of the firm as well as CG features, were primarily collected from the annual reports of industrial sector firms listed on the PEX and the ASE websites between 2013 and 2020. In total, 304 observations were made for this study, including the data for 38 firms in a period of eight years. The necessary information used in this study was collected manually. The ASE and PEX databases were used as the primary sources of these data.

Extraction and mining manufacturing firms were excluded from this study as these firms do not exist in the Palestinian market. Financial listed firms were not included in the development of the study sample as they have unique accounting system characteristics and organizational and conceptual differences from other firms.

## 2.12 Research model

Regression modeling is used to test the two models on which the study is based. First, the effects of EM practices on debt level in CAPS were examined to meet the study objectives. Both the fixed effect model and random effect model were evaluated using the Hausman test for each regression. The interaction term between EM and CG features is incorporated into the model to analyze the interactive effect of these two factors on the choice of capital structure:

$$DCAPS = \beta_0 + \beta_1(EM)_{it} + \beta_2(CG)_{it} + \beta_3(FSIZE)_{it} + \beta_4(FAGE)_{it} + \beta_5(DIV)_{it} + \beta_6(EM_{it} * CG_{it}) + \varepsilon_t \quad (1)$$

## 2.13 Variable measurement

### 2.13.1 Dependent variable

Capital structure is the dependent variable in this study. There are two proxies for CAPS. First, in line with Okyere et al. [10], the debt-to-equity ratio is employed, which is measured by dividing total debt by total equity (DCAPS1). Second, the leverage ratio is used, following Zaid et al. [70], which is computed as the total debt of a firm divided by its total assets (DCAPS2).

### 2.13.2 Independent variables

EM is the independent variable, various methods for identifying and evaluating EM among organizations have been presented in the literature. Particularly, it has been argued that financial firms use discretionary loan loss provisions to manage their earnings. However, in the case of non-financial firm discretionary revenues, discretionary accruals are recommended. Since manufacturing firms (non-financial firms) are being investigated in this study, the method of discretionary accruals is used following to previous literature.

However, there are stages of developing discretionary accruals models. Starting with The Jones [73], cross sectional Jones model [74] and modified Jones model [75]. Then Kasznik [76] and Kothari et al. [77] further applied some modification to the previous model. In this research, the first model is the Modified Jones model, which is the most powerful model to detect EM [75].

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

The second model is performance-matched discretionary accruals, as suggested by [75]. They modified the previous Jones model to account for performance variations and added the ROAs as an additional regressor. The described model is as follows:

$$TA_{it} / A_{it-1} = \alpha_1 (1/A_{it-1}) + \alpha_2 ((\Delta REV_{-t} - \Delta REC_{it}) / A_{it-1}) + \alpha_3 (PPE_{it} / A_{it-1}) + \alpha_4 ROA + \varepsilon_{it} \quad (3)$$

where:

- TA: total accruals of the firm (net income before extraordinary items of the firm minus net operating cash flow)
- A-1: total assets of the firm (past year)

- $\Delta$  REV: change in revenues
- $\Delta$ REC: change in account receivables
- PPE: the total of property plant and equipment
- ROA: ratio of return on assets (net income divided by total assets)
- (i): the firm
- (t): the time (years)
- $\varepsilon_{it}$ : the residual, indicating the discretionary portion of total accruals and represents the EM of the firm.

### 2.13.3 Control variables

Previous studies assessed a variety of other variables that influence CAPS in firms, namely the size of the firm, firm age, profitability, tangibility, liquidity, dividend policy, growth rate and ROA. Moreover, some studies have also examined macroeconomic variables such as GDP and inflation rate. In this study, the focus was on firm-specific variables that have proven to exert a significant impact on CAPS in most studies. Hence, the size and age of the firm, as well as the dividend payout ratio, are examined as control variables. The following table clarifies the way in which each variable is measured. Table 1 presents the measurement of variables.

## 3 Regression results and model selection

This part presents the outcomes of study using statistical tests.

### 3.1 Correlation analysis

#### 3.1.1 Overall correlation analysis for Palestinian manufacturing firms

The correlation matrix for Palestinian manufacturing firms is presented in Table 2. Debt level in CAPS1 is a weak positive relation with BSIZE ( $r=0.2$ ;  $p=0.042$ ), CEOD ( $r=0.23$ ;  $p=0.02$ ), and INSOWNER ( $r=0.22$ ;  $p=0.027$ ). Similarly, Debt level in CAPS2 is a weak positive relation with BSIZE ( $r=0.25$ ;  $p=0.01$ ), CEOD ( $r=0.26$ ;  $p=0.08$ ), and INSOWNER ( $r=0.2$ ;  $p=0.043$ ). This implies that a bigger size of the board leads to a higher percentage of institutional investors, and the existence of CEO duality causes a higher level of debt financing. The other CG features, BIND and GEN, were found to be insignificantly related to both ratios of debt level in CAPS. In accordance with the second independent variable, debt level in CAPS1

**Table 1** Measurement of research variables

Variables	Measurement	Previous literature
Dependent variable		
DCAPS	1. Debt-to-equity ratio 2. Total debt to total assets	[72, 78–80]
Independent Variables		
EM	1. Performance-matched discretionary accruals (Kothari, 2005) 2. Modified Jones model (Dechow et al., 1995)	[10, 81]
Moderator variables		
Size of the board of directors	Natural logarithm of the number of boards of directors	[5, 6]
Board independence	The number of non-executive directors divided by the number of total board members	[48, 82]
Gender diversity	Percentage of female members divided by the number of total board members	[83–85]
CEO duality	The dummy variable equals 1 if the CEO is the same person as the chairman, 0 otherwise	[2, 48, 61]
Institutional ownership	Percentage of outstanding shares owned by institutional investors to total firms	[65, 67, 68]
Control variables		
Firm size	Natural logarithm of the total assets of the firm	[86, 87, 89]
Firm age	Number of years in operation	[88]
Dividend payout ratio	Dividing dividends paid to shareholders on net income	[78]



is a weak negative relation with both measurements of EM, Kothari ( $r = -0.21$ ;  $p = 0.033$ ) and Modified Jones ( $r = -0.19$ ;  $p = 0.05$ ). On the other hand, debt level in CAPS2 is non-significantly associated with both measurements of EM. Firm-specific variables, i.e., FSIZE, FAGE and DIV, were non-significantly relationship with both CAPS.

### 3.1.2 Overall correlation analysis for Jordanian manufacturing firms

The correlation coefficient matrix for all the factors is displayed in Table 3 for Jordanian manufacturing firms. DCAPS1 is a weak negative relation with BSIZE ( $r = -0.18$ ;  $p = 0.012$ ) and a weak positive relation with INSOWNER with coefficient of ( $r = 0.34$ ;  $p = 0.001$ ). The other features of CG, BIND, GEN and CEOD are found to be non-significantly related to DCAPS1. DCAPS2 is a weak negative relation with BSIZE ( $r = -0.16$ ;  $p = 0.027$ ) and CEOD ( $r = -0.17$ ;  $p = 0.017$ ) and is a weak positive relation with INSOWNER ( $r = 0.35$ ;  $p = 0.001$ ). Moreover, DCAPS1 is a weak positive relation with EM in Kothari model ( $r = 0.15$ ;  $p = 0.036$ ). DCAPS2 is also found to have a significantly positive relationship with both measurements of EM, i.e., Kothari ( $r = 0.25$ ;  $p = 0.001$ ) and Modified Jones ( $r = 0.23$ ;  $p = 0.001$ ). With respect to the control variables, DCAPS1 and DCAPS2 are positively related to FSIZE ( $r = 0.28$ ;  $p = 0.001$ ). However, DIV is negatively related to DCAPS1 ( $r = -0.34$ ;  $p = 0.001$ ) and DCAPS2 ( $r = -0.47$ ;  $p = 0.001$ ). Meanwhile, FAGE did not show any relationship to CAPS.

## 3.2 Regression results

### 3.2.1 Earnings management and capital structure in Palestine

The empirical findings for the effect of EM on the DCAPS of Palestinian manufacturing firms are shown in Table 4.

EM was discovered to be significant and negatively associated with DCAPS1, with a p-value of 0.041 using the Kothari model. This relation was also negative when EM with the Modified Jones model was used; however, the result was not significant. This suggests that EM has a negative impact on the level of debt financing adoption, which is used to proxy DCAPS. In other words, the practice of EM leads to a decrease in the use of debt financing in Palestinian non-financial firms, indicating that firms that manage their earnings use more equity to finance their business activities. This result is consistent with the study of Talebniya and Ravanshad [90]. On the other hand, Abu Alia et al. [18] indicated that Palestinian firms use EM to sway the decision and terms of debt financing from banks, which they desperately need. Furthermore, Palestinian firms rarely use external equity financing; instead, they favor using their retained earnings or bank debt. Hence, H1 is rejected.

In the case of the control variables, all three variables were found to have an insignificant association with both capital structure measures. FSIZE had a negative association with DCAPS1, with a p-value of 0.51 under the Kothari model and 0.462 under the Modified Jones model. Similarly, it depicted a p-value of 0.913 under the Kothari model and a p-value of 0.941 under the Modified Jones model regarding DCAPS2. Regardless of the significance, this means that larger

**Table 2** Correlation matrix for Palestinian manufacturing firm's sample

	BSIZE	BIND	GEN	CEOD	INSOWNER	DCAPS1	DCAPS2	FSIZE	FAGE	DIV	EM_kothari	EM_Jones
BSIZE	1											
BIND	0.06	1										
GEN	-0.23**	0.13	1									
CEOD	0.31***	-0.56***	-0.19*	1								
INSOWNER	0	0.21**	-0.27***	-0.48***	1							
DCAPS1	0.2**	0.07	0.05	0.23**	0.22**	1						
DCAPS2	0.25**	0.09	0.13	0.26***	0.2**	0.96***	1					
FSIZE	0.65***	-0.35***	-0.07	0.48***	-0.15	-0.06	0	1				
FAGE	-0.15	-0.19*	0.29***	0.14	-0.43***	-0.16	-0.18*	0.21**	1			
DIV	0.04	0.08	-0.05	-0.03	-0.13	-0.16	-0.17*	-0.06	-0.02	1		
EM_kothar	-0.05	0.23**	-0.02	-0.04	-0.14	-0.21**	-0.18*	-0.12	0.03	0.1	1	
EM_Jones	-0.08	0.35***	0.07	-0.12	-0.1	-0.19*	-0.16	-0.16	0.12	0.08	0.96***	1

\*\*\* p-value < .001; \*\* p-value < .01; \* p-value < .05

**Table 3** Correlation matrix for Jordanian manufacturing firm's sample

	BSIZE	BIND	GEN	CEOD	INSOWNER	DCAPS1	DCAPS2	FSIZE	FAGE	DIV	EM_kothari	EM_Jones
BSIZE	1											
BIND	0.18**	1										
GEN	0	-0.07	1									
CEOD	-0.11	-0.31***	0.21***	1								
INSOWNER	-0.16**	0.34***	-0.2***	-0.25***	1							
DCAPS1	-0.18**	0.07	-0.07	-0.09	0.34***	1						
DCAPS2	-0.16**	0.12	-0.07	-0.17**	0.35***	0.86***	1					
FSIZE	-0.01	-0.01	0.16**	-0.3***	0.33***	0.28***	0.28***	1				
FAGE	0.04	0.06	-0.16**	0.03	0.03	0.06	-0.05	-0.09	1			
DIV	0.2***	0.03	-0.01	-0.13*	0.07	-0.34***	-0.47***	0.07	0.09	1		
EM_kothari	-0.08	-0.05	0.08	0.14**	-0.16**	0.15**	0.25***	0.11	-0.12*	-0.37***	1	
EM_Jones	-0.03	-0.04	0.19***	0.13*	-0.2***	0.13*	0.23***	0.18**	-0.08	-0.33***	0.96***	1

\*\*\*, p-value < .001; \*\*, p-value < .01; \*, p-value < .05

**Table 4** Answering hypothesis (H1) in Palestinian manufacturing firms listed in PEX

DCAPS	Variable	EM (Kothari)																	
		Fixed effect model				Random effect model				EM (Modified Jones Model)									
		Beta	SD	p	R2/AR2	Beta	SD	p	R2/AR2	Hausman	Beta	SD	p	R2/AR2	Hausman				
DCAPS1	EM	-0.349*	0.207	0.094	0.096/-0.013	-0.401**	0.196	0.041	0.096/-0.013	0.906	-0.307	0.208	0.143	0.089/-0.02	-0.355*	0.2	0.075	0.089/-0.02	0.869
	FSize	-0.062	0.092	0.505		-0.059	0.09	0.51			-0.069	0.093	0.462		-0.067	0.092	0.462		
	FAGE	-0.005	0.003	0.114		-0.004	0.003	0.145			-0.004	0.003	0.153		-0.004	0.003	0.207		
	DIV	-0.037	0.023	0.104		-0.032	0.022	0.136			-0.038*	0.023	0.093		-0.033	0.022	0.126		
DCAPS2	EM	-0.096	0.073	0.192		-0.112	0.069	0.107		0.907	-0.071	0.073	0.332		-0.086	0.07	0.22		0.871
	FSize	0.002	0.032	0.94		0.003	0.032	0.913			0.001	0.033	0.964		0.002	0.032	0.941		
	FAGE	-0.002**	0.001	0.049		-0.002*	0.001	0.064			-0.002*	0.001	0.061		-0.002*	0.001	0.087		
	DIV	-0.014*	0.008	0.077		-0.013*	0.008	0.098			-0.015*	0.008	0.068		-0.013*	0.008	0.089		

\*\*\* p-value < .001; \*\* p-value < .01; \* p-value < .05

Palestinian manufacturing firms rely less on debt financing for their capital structure. FAGE depicts a negative association with DCAPS1, with a p-value of 0.145 under the Kothari model and 0.207 under the Modified Jones model. Likewise, it has a p-value of 0.064 under the Kothari model and a p-value of 0.087 under the Modified Jones model regarding DCAPS2. Regardless of the significance, this indicates that when a firm has spent a long time in operations, its reliance on debt financing decreases. DIV had a negative association with DCAPS1, with a p-value of 0.136 under the Kothari model and 0.126 under the Modified Jones model, while having a p-value of 0.098 under the Kothari model and p-value of 0.089 under the Modified Jones model regarding DCAPS2.

### 3.2.2 The role of corporate governance in the relationship between earnings management and capital structure in Palestine

The result of regression on the interactive impact of EM and CG on DCAPS on Palestinian manufacturing firms are presented in Table 5.

CG features proved a direct impact on debt financing on a sample of Palestinian manufacturing firms. It further proved to moderate the relationship between EM and DCAPS (debt financing). First, the finding implies that the interaction of EM and BSIZE transforms the negative effect of EM on DCAPS from the previous analysis into a positive one. Specifically, it suggests that in the presence of a larger board size, the negative impact of EM on debt financing is reshaped positively. To illustrate this point, the p-value of the interaction between EM and BSIZE was found to be less than 0.001 under the Kothari model and the Modified Jones model with DCAPS1 and DCAPS2. This indicates that larger boards in Palestinian manufacturing firms are more engaged in accounting manipulation practices as their existence is considered a threat to managers' control [91]. Additionally, managers get more opportunities to manage earnings as the size of the board increases due to the pressure put on the managers by larger boards to accomplish certain performance levels and optimal capital structures. This result could be attributed to the fact that firms with a larger board possess a diverse range of knowledge, abilities and ideas, all of which are essential to the process of decision-making and creating debt. H2a is accepted.

Gender posits a moderate role between EM practices and debt financing on Palestinian manufacturing firms. To illustrate this, the interactive association between EM and GEN has a p-value of 0.013 under the Kothari model and 0.022 with DCAPS2. This interaction between EM and GEN transforms the previous negative association between EM and CAPS into a positive one, implying that higher levels of debt financing are used in running a firm. In other words, the existence of female representatives on the board of directors of Palestinian manufacturing firms leads to an increase in the effect of EM on debt financing. However, debt plays a disciplinary role for opportunistic-be managers to constrain the use of FCF and reduce agency costs, while EM practices are used as a way to avoid this disciplining device. As mentioned earlier, female directors can improve board performance by exerting a strong influence on the process of decision-making [92]. Moreover, given that the participation of female directors on corporate boards minimizes managerial opportunism and information asymmetry, boards with gender diversity have lower debt costs [93]. Consequently, this increases the trust of lenders and creditors, leading to a higher level of debt on Palestinian manufacturing firms. Hence, H2c is supported.

Also, similar results have been mentioned in the study of Bennouri et al. [94], who mentioned that the correlation between gender diversity on the board and corporate performance is typically elucidated by agency theory (which pertains to the monitoring function), resource dependence theory (which highlights the diversity female directors bring to the board), and behavioural-based theories, which highlights the unique behavioural traits of female directors in comparison to their male counterparts. Moreover, Pucheta-Martínez & Gallego-Álvarez [95] showed that CEO duality also has a positive effect on firm performance. Other board attributes that are positively associated with firm performance include size, independence, and the presence of a female director.

The third significant factor is CEOD, which moderates the relationship between EM and debt financing. The findings indicate that the existence of the CEOD situation decreases the impact of EM on debt financing for Palestinian manufacturing firms. To clarify, the association between EM and CEOD has a p-value of 0.027 under the Modified Jones model with DCAPS1 only. However, the existence of a CEO duality situation in the firm leads to an increase in the agency cost, consequently reducing the level of debt financing acquired by the firm due to constraining lenders' willingness to the firm with CEO duality condition [61]. So, H2d is rejected.

The rest of the CG features prove no significant moderate effect between EM and DCAPS. The interactive effect of EM and BIND has a p-value of 0.123 under the Kothari model and 0.913 under the Modified Jones model with DCAPS1.

**Table 5** Answering hypothesis (H2a-e) in Palestinian manufacturing firms listed in PEX

DCAPS	Variable	EM (Kothari)										EM (Modified Jones Model)									
		Fixed effect model					Random effect model					Fixed effect model					Random effect model				
		Beta	SD	P	R2/AR2	Hausman test	Beta	SD	P	R2/AR2	Hausman test	Beta	SD	P	R2/AR2	Hausman test	Beta	SD	P	R2/AR2	Hausman test
DCAPS1	EM	-6.42***	1.623	<0.001	0.693/0.613	0.98	-7.298***	1.786	<0.001	0.683/0.601	0.99	-7.298***	1.786	<0.001	0.683/0.601	0.98	-8.364***	1.626	<0.001	0.683/0.601	0.99
	BSIZE	1.335***	0.497	0.009		0.014	1.115	0.513**	0.033		0.036	1.115	0.513**	0.033		0.036	1.021**	0.486	0.036		
	BIND	1.652***	0.536	0.003		0.001	2.186***	0.596	<0.001		<0.001	2.186***	0.596	<0.001		<0.001	2.399***	0.552	<0.001		<0.001
	GEN	1.665***	0.486	0.001		0.002	1.772***	0.522	0.001		0.002	1.772***	0.522	0.001		0.002	1.505***	0.487	0.002		0.002
	CEOD	0.995***	0.145	<0.001		<0.001	1.045***	0.148	<0.001		<0.001	1.045***	0.148	<0.001		<0.001	1.007***	0.143	<0.001		<0.001
	INSOWNER	0.782***	0.19	<0.001		<0.001	0.717***	0.189	<0.001		<0.001	0.717***	0.189	<0.001		<0.001	0.655***	0.182	<0.001		<0.001
	FSIZE	-0.305***	0.106	0.005		0.008	-0.308***	0.099	0.003		0.003	-0.308***	0.099	0.003		0.003	-0.289***	0.095	0.002		0.002
	FAGE	0.001	0.002	0.735		0.536	0.001	0.002	0.882		0.882	0.001	0.002	0.882		0.882	0.002	0.002		0.451	0.451
	DIV	-0.033**	0.014	0.021		0.044	-0.028**	0.014	0.044		0.044	-0.03**	0.014	0.037		0.037	-0.025*	0.014	0.069		0.069
	EM: BSIZE	13.82***	2.989	<0.001		<0.001	13.51***	2.868	<0.001		<0.001	9.699***	2.791	0.001		0.001	9.737***	2.607	<0.001		<0.001
	EM: BIND	-4.827	2.917	0.102		0.123	-4.297	2.784	0.123		0.123	-0.769	2.748	0.78		0.78	-0.281	2.572	0.913		0.913
	EM: GEN	4.881	2.961	0.103		0.053	5.559*	2.876	0.053		0.053	2.606	2.858	0.365		0.365	3.859	2.699	0.153		0.153
	EM: CEOD	-2.222*	1.198	0.067		0.068	-2.11*	1.156	0.068		0.068	-2.179**	0.978	0.029		0.029	-2.056**	0.928	0.027		0.027
	EM: INSOWNER	-0.446	0.987	0.653		0.943	0.068	0.954	0.943		0.943	-0.12	1.111	0.914		0.914	0.507	1.028	0.622		0.622
DCAPS2	EM	-2.221***	0.564	<0.001	0.731/0.661	0.80	-2.507***	0.622	<0.001	0.731/0.661	0.80	-2.507***	0.622	<0.001	0.731/0.661	0.80	-2.888***	0.572	<0.001	0.722/0.65	0.99
	BSIZE	0.593***	0.173	0.001		0.002	0.532***	0.168	0.002		0.002	0.503***	0.179	0.006		0.006	0.466***	0.171	0.006		0.006
	BIND	0.622***	0.186	0.001		<0.001	0.64***	0.182	<0.001		<0.001	0.792***	0.207	<0.001		<0.001	0.876***	0.194	<0.001		<0.001
	GEN	0.657***	0.169	<0.001		<0.001	0.583***	0.165	<0.001		<0.001	0.67***	0.182	<0.001		<0.001	0.563***	0.171	<0.001		<0.001
	CEOD	0.358***	0.05	<0.001		<0.001	0.344***	0.05	<0.001		<0.001	0.374***	0.052	<0.001		<0.001	0.358***	0.05	<0.001		<0.001
	INSOWNER	0.279***	0.066	<0.001		<0.001	0.253***	0.065	<0.001		<0.001	0.255***	0.066	<0.001		<0.001	0.226***	0.064	<0.001		<0.001
	FSIZE	-0.115***	0.037	0.003		0.003	-0.106***	0.036	0.003		0.003	-0.112***	0.034	0.002		0.002	-0.108***	0.034	0.001		0.001
	FAGE	0.001	0.001	0.745		0.573	0.001	0.001	0.573		0.573	0	0.001	0.839		0.839	0.001	0.001		0.372	0.372
	DIV	-0.011**	0.005**	0.029		0.057	-0.009*	0.005	0.057		0.057	-0.01**	0.005	0.047		0.047	-0.008**	0.005	0.094		0.094
	EM: BSIZE	4.119***	1.039	<0.001		0.433	4.047***	1.013	<0.001		0.433	3.072***	0.971	0.002		0.002	3.044***	0.917	0.001		0.001
	EM: BIND	-1.306	1.014	0.202		0.221	-1.206	0.984	0.221		0.221	-0.272	0.956	0.777		0.777	-0.108	0.905	0.905		0.905
	EM: GEN	2.312**	1.029	0.027		0.013	2.51**	1.013	0.013		0.013	1.674*	0.995	0.096		0.096	2.179**	0.949	0.022		0.022
	EM: CEOD	-0.431	0.416	0.303		0.311	-0.413	0.408	0.311		0.311	-0.511	0.34	0.137		0.137	-0.496	0.326	0.129		0.129
	EM: INSOWNER	0.08	0.343	0.816		0.433	0.264	0.336	0.433		0.433	0.227	0.387	0.559		0.559	0.503	0.362	0.164		0.164

\*\*\* p-value < .001; \*\* p-value < .01; \* p-value < .05

Similarly, it has a p-value of 0.221 under the Kothari model and 0.905 under the Modified Jones model with DCAPS2. Furthermore, the interactive effect of EM and INSOWNER has a p-value of 0.943 under the Kothari model and 0.622 under the Modified Jones model with DCAPS1. Likewise, it has a p-value of 0.433 under the Kothari model and 0.164 under the Modified Jones model with DCAPS2.

### 3.2.3 Earnings management and capital structure in Jordan

Table 6 reviews the results of the association between EM and DCAPS in Jordanian manufacturing firms. DCAPS1 has a negative but insignificant association with EM ( $p=0.87$ ), which is higher than a 5% level of significance using the Kothari model, and an insignificant association ( $p=0.515$ ) using the Modified Jones model. On the other hand, DCAPS2 has a positive but insignificant association with EM ( $p=0.509$ ), which is higher than the 5% level of significance using the Kothari model, and the p-value is 0.795 using the Modified Jones model. This result is consistent with that of Al-Mohareb and Alkhalaileh [96], who mentioned that EM is positively and insignificantly associated with the alternative measurement of leverage (total debt to total assets) at a conventional level in Jordanian manufacturing firms. Also, Al amosh et al. [97] proved that Jordanian companies focus on debt financing rather than equity. Hence, H1 is rejected.

### 3.2.4 The role of corporate governance in the relationship between earnings management and capital structure in Jordan

Table 7 shows the result of the interaction analysis of CG features with EM on DCAPS.

The results support previous findings that proved CG features have not only a direct effect on the financing decision of a firm but also a moderate effect on the relationship between EM and DCAPS on Jordanian manufacturing firms. First, the interaction between EM and BIND depicted a positive and significant effect on DCAPS1, with a p-value of 0.034 under the Kothari model, and a positive and significant effect on CAPS2, with a p-value of 0.012. This implies that the interaction of EM and BIND alters the previous insignificant relationship between EM and DCAPS and transforms it into a significantly positive relationship. In other words, a higher existence of independent directors increases the effect of EM on debt financing in a sample of Jordanian manufacturing firms. To clarify, independent directors, i.e., non-executive directors, increase the transparency level and help provide growth opportunities by attracting capital. According to the agency theory, independent directors serve as a protective device against entrenched managers to ensure they act according to the best interest of the stakeholders of the firm, including creditors and lenders. Additionally, lenders' trust in independent directors as an efficient internal control body fosters a collaborative environment for debt creation, which improves financing resources accessibility, especially when management is willing to emphasize the firm's values [57]. Moreover, Jensen [29] proved a positive relationship between independent directors and leverage. More recently, Kok et al. [98] investigated the relationship between financial leverage and board independence for firms listed on the Malaysian stock exchange. The findings highlighted the importance on for large, established, or poorly performing companies to have independent directors to lower their financial leverage. These results add to the stylized facts about the relationship between board independence and financial leverage. In addition, Huynh et al. [99] conducted a study to investigate the influence of corporate governance on firm performance considering financial leverage as a mediating variable on a sample of 150 firms in Pakistan. They showed that board independence is positively correlated with firm performance. They also revealed that the financial leverage was positively correlated with audit committee size, female directorship, board independence, and board independence. Thus, H2b is accepted.

Furthermore, the interaction between EM and INSOWNER depicted a negative and significant effect on DCAPS2, with a p-value of 0.004 under the Kothari model and 0.03 under the Modified Jones model. This means that the interaction between EM and INSOWNER transforms the previous positive insignificant relationship between EM and CAPS into a negative and significant relationship. In other words, the effect of EM practices on debt financing decreased by 1.019 under the Kothari model and 0.587 under the Modified Jones model for each unit increase in institutional ownership. This supports the notion that the higher the number of institutional investors, the lesser the debt in a firm's capital structure. This result is consistent with that of Chung and Wang [100], who concluded that institutional ownership declines as suboptimal leverage rises for a firm and vice versa for institutional ownership as suboptimal leverage rises. Moreover, institutional investors, who are sizable shareholders, have strong incentives to raise the value of the firm. Thus, they

**Table 6** Answering hypothesis (H1) in Jordanian manufacturing firms listed in ASE

DCAPS	EM (Kothari)	EM (Modified Jones Model)															
		Fixed effect model				Random effect model				Fixed effect model				Random effect model			
		Variable	Beta	SD	P	R2/AR2	Beta	SD	P	R2/AR2	Hausman test	Beta	SD	P	R2/AR2	Hausman test	
DCAPS1	EM	-0.076	0.203	0.71	0.23/0.185	-0.033	0.202	0.87	0.23/0.185	0.208	-0.151	0.19	0.428	0.232/0.187	0.099		
	FSIZE	0.711***	0.142	<0.001		0.698***	0.142	<0.001			0.728***	0.144	<0.001				
	FAGE	0.006*	0.003	0.071		0.007*	0.003	0.052			0.006*	0.003	0.07				
	DIV	-0.778***	0.138	<0.001		-0.756***	0.136	<0.001			-0.796***	0.136	<0.001				
DCAPS2	EM	0.018	0.042	0.67	0.323/0.283	0.028	0.042	0.509	0.323/0.283	0.371	0.004	0.04	0.925	0.322/0.282	0.352		
	FSIZE	0.152***	0.03	<0.001		0.15***	0.029	<0.001			0.153***	0.03	<0.001				
	FAGE	0.001	0.001	0.697		0.001	0.001	0.622			0.001	0.001	0.721				
	DIV	-0.213***	0.029	<0.001		-0.208***	0.028	<0.001			-0.217***	0.028	<0.001				

\*\*\* p-value < .001; \*\* p-value < .01; \* p-value < .05

**Table 7** Answering hypothesis (H2a-e) in Jordanian manufacturing firms listed in ASE

DCAPS Variable	EM (Kothari)												EM (Modified Jones Model)												Hausman test
	Fixed effect model						Random effect model						Fixed effect model						Random effect model						
	Beta	SD	P	R2/AR2	Beta	SD	P	R2/AR2	Hausman test	Beta	SD	P	R2/AR2	Beta	SD	P	R2/AR2	Beta	SD	P	R2/AR2	Hausman test			
DCAPS1	EM	-9.205	6.444	0.155	0.337/0.259	-10.01	6.443	0.12	0.337/0.259	0.988	-3.706	4.4	0.401	0.329/0.25	-5.582	4.341	0.199	0.329/0.25	0.764						
	BSIZE	-0.533	0.459	0.248	0.337/0.259	-0.482	0.457	0.291	0.337/0.259	0.988	-0.527	0.464	0.258	0.329/0.25	-0.457	0.461	0.322	0.329/0.25							
	BIND	-0.382	0.837	0.649	0.337/0.259	-0.628	0.827	0.448	0.337/0.259	0.988	-0.173	0.82	0.833	0.329/0.25	-0.447	0.809	0.581	0.329/0.25							
	GEN	-0.487	1.518	0.749	0.337/0.259	-0.204	1.504	0.892	0.337/0.259	0.988	-0.86	1.633	0.599	0.329/0.25	-0.377	1.611	0.815	0.329/0.25							
	CEOD	-0.129	0.274	0.639	0.337/0.259	-0.2	0.266	0.452	0.337/0.259	0.988	-0.09	0.25	0.718	0.329/0.25	-0.16	0.243	0.511	0.329/0.25							
	INSOWNER	0.976***	0.243	<0.001	0.337/0.259	1.005***	0.242	<0.001	0.337/0.259	0.988	0.894***	0.24	<0.001	0.329/0.25	0.937***	0.239	<0.001	0.329/0.25							
	FSIZE	0.448**	0.177	0.012	0.337/0.259	0.419**	0.177	0.018	0.337/0.259	0.988	0.458**	0.182	0.013	0.329/0.25	0.405**	0.181	0.026	0.329/0.25							
	FAGE	0.006*	0.004	0.095	0.337/0.259	0.007*	0.004	0.058	0.337/0.259	0.988	0.005	0.004	0.218	0.329/0.25	0.005	0.004	0.144	0.329/0.25							
	DIV	-0.708**	0.138	<0.001	0.337/0.259	-0.688***	0.135	<0.001	0.337/0.259	0.988	-0.73***	0.137	<0.001	0.329/0.25	-0.71***	0.134	<0.001	0.329/0.25							
	EM: BSIZE	-0.631	2.772	0.82	0.337/0.259	-1.072	2.749	0.697	0.337/0.259	0.988	-0.261	2.477	0.916	0.329/0.25	-0.267	2.441	0.913	0.329/0.25							
	EM: BIND	12.07*	6.506	0.065	0.337/0.259	13.7**	6.469	0.034	0.337/0.259	0.988	5.159	4.496	0.253	0.329/0.25	7.492*	4.414	0.09	0.329/0.25							
	EM: GEN	-3.253	12.56	0.796	0.337/0.259	-7.461	12.37	0.546	0.337/0.259	0.988	-2.748	7.442	0.712	0.329/0.25	-6.14	7.306	0.401	0.329/0.25							
	EM: CEOD	1.157	1.739	0.507	0.337/0.259	1.214	1.702	0.476	0.337/0.259	0.988	0.961	1.438	0.505	0.329/0.25	0.861	1.408	0.541	0.329/0.25							
	EM: INSOWNER	-2.656	1.834	0.149	0.337/0.259	-3.154*	1.814	0.082	0.337/0.259	0.988	-1.693	1.385	0.223	0.329/0.25	-2.164	1.364	0.112	0.329/0.25							
DCAPS2	EM	-1.905	1.273	0.136	0.472/0.41	-2.078	1.265	0.101	0.472/0.41	0.985	-0.381	0.872	0.663	0.461/0.397	-0.639	0.858	0.456	0.461/0.397	0.944						
	BSIZE	-0.07	0.091	0.44	0.472/0.41	-0.059	0.09	0.51	0.472/0.41	0.985	-0.078	0.092	0.4	0.461/0.397	-0.063	0.091	0.49	0.461/0.397							
	BIND	-0.084	0.165	0.612	0.472/0.41	-0.132	0.162	0.417	0.472/0.41	0.985	-0.021	0.163	0.896	0.461/0.397	-0.075	0.16	0.639	0.461/0.397							
	GEN	-0.019	0.3	0.95	0.472/0.41	0.031	0.295	0.916	0.472/0.41	0.985	-0.267	0.324	0.411	0.461/0.397	-0.176	0.318	0.58	0.461/0.397							
	CEOD	-0.12**	0.054	0.028	0.472/0.41	-0.13**	0.052	0.012	0.472/0.41	0.985	-0.095**	0.05	0.055	0.461/0.397	-0.107**	0.048	0.027	0.461/0.397							
	INSOWNER	0.233***	0.048	<0.001	0.472/0.41	0.239***	0.047	<0.001	0.472/0.41	0.985	0.22***	0.048	<0.001	0.461/0.397	0.229***	0.047	<0.001	0.461/0.397							
	FSIZE	0.077**	0.035	0.029	0.472/0.41	0.071**	0.035	0.041	0.472/0.41	0.985	0.072**	0.036	0.046	0.461/0.397	0.063**	0.036	0.08	0.461/0.397							
	FAGE	0.001	0.001	0.873	0.472/0.41	0.001	0.001	0.98	0.472/0.41	0.985	0.002	0.001	0.656	0.461/0.397	0.001**	0.001	0.786	0.461/0.397							
	DIV	-0.202***	0.027	<0.001	0.472/0.41	-0.196***	0.026	<0.001	0.472/0.41	0.985	-0.207***	0.027	<0.001	0.461/0.397	-0.202***	0.026	<0.001	0.461/0.397							
	EM: BSIZE	-0.262**	0.547	0.633	0.472/0.41	-0.34**	0.54	0.528	0.472/0.41	0.985	-0.389	0.491	0.43	0.461/0.397	-0.421	0.482	0.383	0.461/0.397							
	EM: BIND	2.847*	1.285	0.028	0.472/0.41	3.176*	1.27	0.012	0.472/0.41	0.985	1.103	0.892	0.218	0.461/0.397	1.468*	0.872	0.092	0.461/0.397							
	EM: GEN	0.401	2.48	0.872	0.472/0.41	-0.305	2.428	0.9	0.472/0.41	0.985	0.356	1.476	0.809	0.461/0.397	-0.214	1.444	0.882	0.461/0.397							
	EM: CEOD	0.515	0.343	0.135	0.472/0.41	0.507	0.334	0.129	0.472/0.41	0.985	0.363	0.285	0.205	0.461/0.397	0.327	0.278	0.24	0.461/0.397							
	EM: INSOWNER	-0.916**	0.362	0.012	0.472/0.41	-1.019***	0.356	0.004	0.472/0.41	0.985	-0.508*	0.275	0.066	0.461/0.397	-0.587**	0.269	0.03	0.461/0.397							

\*\*\* p-value < .001; \*\* p-value < .01; \* p-value < .05



could serve as a debt replacement for the monitoring role of debt to reduce agency costs. Additionally, institutional investors can compel managers to place a greater emphasis on corporate performance and less on selfish or opportunistic behavior, which is consistent with the active monitoring theory [101]. Thus, H2e is rejected.

## 4 Conclusion

One of the most fundamental decisions managers must undertake is the financing policy of their firm. According to theories and previous literature, several factors can influence the capital structure of a firm. This study aimed to investigate the impact of EM practices on DCAPS in a sample of 13 Palestinian and 25 Jordanian manufacturing firms from 2013 to 2020. It also investigated whether CG, in particular indicators of board size, board independence, gender diversity, CEO duality and institutional ownership, could mitigate or reinforce the impact of EM on DCAPS in a sample of 13 Palestinian and 25 Jordanian manufacturing firms from 2013 to 2020. Furthermore, the firm size, firm age and divided policy were used as control variables.

The result for Palestinian manufacturing firms indicated that EM has a negative and significant association with DCAPS and debt-to-equity ratio, meaning that the practice of EM leads to higher use of equity financing and reduce debt financing. Furthermore, the moderate effect of CG features on the relationship between EM and DCAPS revealed that the size of the board of directors and gender diversity in the board of directors transformed the negative relationship into a positive one, implying that the existence of such CG features increase the use of debt financing in a firm's capital structure. On the other hand, the existence of CEO duality as a moderator in the relationship between EM and CAPS causes a decrease in the usage of debt financing.

The findings for Jordanian manufacturing firms suggest no significant impact of EM practices on the capital structure of a firm. Moreover, the findings of the moderating effect of governance features in the relationship between EM and DCAPS demonstrated that the non-executive directors (independent directors) increased the reliance on debt financing in capital structure of the firm. Nonetheless, institutional ownership transformed the positive insignificant relationship between EM and CAPS into a negative significant one, implying that the existence of institutional ownership as a moderator might mitigate the impact of earning management on debt financing.

However, this study has a few limitations. First, there was a lack of previous literature supporting the fundamental premise of the moderating impact of CG features on EM-CAPS. Second, the study lacked a few CG variables, including management expertise [102]; CEO tenure [103]; CEO compensation [104]; and ownership concentration [79]. The decision-making process for capital structure may be impacted by these variables. Such variables can be incorporated into models for future research. Third, the absence of a specific CG index to measure compliance with CG rules is also another limitation of this study. Fourth, the agency theory [29] suggests that debt can alleviate agency issues, implying that the choice of capital structure may have an impact on CG, which presents another potential area for research. Fifth, the research period includes an extraordinary economic condition due to the COVID-19 pandemic, which had a direct impact on the decision-making process and the value of firms. Lastly, the Jordanian market sample is two times bigger than the Palestinian sample used in this study, which most likely results in discrepancies in the accuracy of the results. Moreover, the results cannot be generalized to samples other than the manufacturing sector.

Based on the outcomes, this paper suggested that board of directors and management in a firm should consider the firm's risk tolerance during decision-making, particularly regarding the financial structure of the firm. The capital-structure policy should also be taken into account while making financial choices. Moreover, practitioners, policymakers and regulatory bodies should ensure that the gender representation on the board of directors is equal. It was observed that both in Palestine and Jordan, female representation was less than half of the board in the research period, even though female members proved to have a high level of credibility and professionalism that reflect on the value of a firm. This is in line with the emerging concerns about modernizing CG practices on a global scale.

### 4.1 Practical implications

The potential practical implications and considerations related to the present study are related to informed decision-making, risk management, investor confidence, and strategic planning. These findings contribute to the existing literature and inform managerial practices for corporate governance and the impact of earnings management on capital structure. Also, decision-makers can use this information to make more informed choices regarding investment, risk management,

and strategic planning. Investors may use this knowledge to assess the risk levels of potential investments in companies with varying degrees of corporate governance quality. According to the moderating role of Corporate Governance (CG), larger boards and the existence of female members on the board of directors cause an increase in the high-leverage impact of EM, so it should take these factors into consideration.

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## Declarations

**Ethics approval and consent to participate** All authors agree to publish the article in the journal Discover Sustainability.

**Research involving human participants and/or animals** Not applicable.

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