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Statistical Examination of Earnings Management, Financial Distress, and Managerial Competence

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Abstract: The research aims to unveil the nexus between earnings management, financial distress, and managerial ability within the Saudi economy, we analyzed data from 95 firms listed in the Saudi market (TADAWUL) from 2012 to 2023 using a quantitative approach, through four statistical models to explore the determinants of earnings management and managerial ability. Moreover, examine how earnings management and managerial ability impact financial distress. Furthermore, how managerial ability moderates the nexus between earnings management and financial distress. Our results reveal that firm attributes have mixed impacts on limiting earnings management and enhancing managerial ability. Besides, earnings management increases the probability of financial distress, but managerial ability decreases it. Our findings contribute to the academic accounting literature by providing empirical evidence from the Saudi context and provide other insights into the influence of earnings management and managerial ability in shaping a firm's financial health. In addition, it gives investors, professionals, policymakers, and regulators insights into this arguable area. Additionally, it can direct future research to explore the nexus between earnings management, financial distress, and managerial ability in other economies to develop a comprehensive framework of this field.

Keywords: Earnings Management, Financial Distress, Managerial Ability, Saudi Arabia.

1 Introduction

Due to unstable economic conditions, particularly following the COVID-19 pandemic and global political conflicts, many firms in the Middle East are experiencing financial distress (FD) and a decline in their profit ratios. Moreover, several financial scandals have been incurred globally by multinational firms in the same period, leading to bankruptcy suits and causing enormous losses to investors [1]. At the same time, all doubts are directed towards earnings management (EM), and for more than two decades, EM has been a critical ethical concern for stakeholders [2]. Furthermore, EM practices are noted as prevalent among firms, leading to the disclosure of misleading information in financial reports. This also means firms engage in EM practices even when their financial condition is healthy; hence, they are not using EM to hide their FD or managerial failure [3]. Instead, they may use EM to enhance their financial health to achieve a better reputation among stakeholders [4]. In depth, there are two types of EM practices: real EM and accrual EM. Fajriati et al. [5] illustrated that real EM is more costly than accrual EM, and distressed firms may not have enough financial resources to maneuver their real business operations. From another side, managerial ability (MA) is a critical factor that can influence how firms engage in EM and respond to financial distress. Skilled managers are better equipped to implement strategic initiatives, optimize resource allocation, and maintain stakeholder confidence, thereby reducing the likelihood of EM [6]. However, the extent to which MA can mitigate the adverse effects of FD in emerging markets remains an open question. This research aims to fill this gap by exploring the nexus of EM, FD, and MA in the Saudi Arabian context.

EM, FD, and MA are three interconnected phenomena in the business environment that have garnered significant attention in the fields of accounting and finance. In brief, EM refers to the manipulation of financial records to present a more favorable financial position to stakeholders [2,7]. FD occurs when a firm faces difficulties in meeting its financial obligations, often leading to operational disruptions, reduced profitability, and, in extreme cases, bankruptcy [8,9]. Furthermore, MA, which includes a firm's management team's skills, expertise, and decision-making capabilities, is critical

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in dealing with these challenges [10,11]. The interplay between these three factors is particularly complex and context-dependent, making it an arguable area for accounting and finance academic research.

The nexus between EM, FD, and MA has garnered significant attention in accounting literature. However, despite the growing body of research internationally, empirical evidence from the Gulf region – and Saudi Arabia in particular – remains limited. The key motivation for this research is filling that critical knowledge gap with new empirical evidence from the Saudi context, which is undergoing rapid transformation under the Vision 2030. The economic diversification efforts have heightened the need for more firm financial health and governance, making this research particularly timely and relevant. Another important element for this research is the unclear lens in the previous literature regarding how MA moderates the EM–FD nexus. While a wave of prior studies has established that EM can lead to FD and that MA can reduce FD, few have examined whether high-ability managers can reduce the negative impact of EM on firm financial health, especially in emerging economies such as Saudi Arabia. This research explores this gap by analyzing whether firms with more MA are better at facing the risks associated with EM, thereby avoiding expected financial consequences. In sum, this research is significant due to its contribution to the theoretical development of the EM–FD–MA triad, provision of context-specific evidence from a key economy in the Middle East and offering of practical implications for enhancing firms' financial stability in Saudi Arabia's evolving business environment. So, the research aims to answer the following main research questions:

- What are the determinants of EM and MA in Saudi Arabia?
- Do EM and MA impact the probability of firm financial distress in Saudi Arabia?
- Does MA moderate the nexus between EM and FD in Saudi Arabia?

By answering these questions, the research seeks to add new evidence to the literature on corporate governance and financial reporting in developing economies, and the findings will have important practical and social implications for policymakers, regulators and investors, offering insights into the nexus between EM, MA, and FD. The rest of this paper is structured as follows: part 2, theoretical assumptions, literature review, and hypotheses development. Part 3, the research models. part 4, the results. Then, the discussion in part 5, Followed by part 6, the conclusion.

2 literature Review and hypotheses:

2.1. The determinants of earnings management and managerial ability.

EM has been extensively studied, with firm-specific characteristics identified as the main determinants [6,10,12,13,14]. Larger firms are often hypothesized to exhibit lower EM due to increased scrutiny and sophisticated governance, though some evidence suggests the opposite due to greater resources and pressure to meet expectations. Highly leveraged firms tend to engage in more EM to alleviate debt covenant pressures. The nexus with profitability is ambiguous, with less profitable firms potentially managing earnings to mask poor performance, while highly profitable firms might smooth earnings. Strong operational cash flow and a higher proportion of tangible assets generally correlate with lower EM, as they reduce the need and opportunity for discretionary accounting choices. Conversely, the impact of cash holdings remains less conclusive, with arguments for both positive and negative associations depending on the interplay between liquidity needs and agency costs.

MA has garnered increasing attention in accounting research. This literature review explores the nexus between several firm-specific characteristics – firm size, leverage, profitability, cash holdings, operational cash flow, and tangibility – and MA [6,15]. Larger firms often provide managers with more resources and opportunities to develop specialized skills and implement complex strategies, potentially leading to higher MA. However, greater bureaucracy in larger firms could also hinder efficient decision-making. Highly leveraged firms may demand more astute financial management, potentially selecting or fostering managers with greater financial acumen. Profitable firms might attract and retain more talented managers due to better compensation and growth prospects, but high profitability could also mask managerial inefficiencies. Strong operational cash flow could be indicative of effective management in generating cash from core operations. The level of cash holdings might reflect managerial prudence in liquidity management, while a higher proportion of tangible assets could simplify operational decisions, potentially requiring less sophisticated managerial skills.

Regarding empirical evidence, it was mixed, Humeedat [1] found a positive nexus between earnings ratios and EM. In addition, a negative relationship with operating cash flow. However, Wijaya et al. [16] explored EM in Indonesia using 127 firms and found that firm leverage and profitability affect EM. Meanwhile, firm size and age do not have an effect. In addition, Emudainohwo [17] examined the determinants of EM in Nigeria using 77 firms and found that firm size and profit ratio have a positive impact on EM, while cash flows have a negative impact on EM. Based on the current mixed evidence, we developed the following hypotheses to obtain new evidence from Saudi Arabia regarding the impact of firm

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attributes (size, leverage, profitability, cash holding, operating cash flows, and tangibility) on both EM MA:

H1: Firm Attributes Impact Earnings Management and Managerial Ability In Saudi Arabia

2.2. Earning management, managerial ability, and financial distress

In the beginning of the 20th century, many scholars tried to examine the nexus between EM, MA, and FD, but the results were complex, which led to an unclear lens about the reality of this nexus [18].

2.2.1. The nexus between Earnings management and financial distress.

Many theories in the accounting and finance fields can be used to interpret the nexus between EM and FD, such as the stakeholders' theory which proposes that firms use financial information to prove their financial health to stakeholders [19]. So, when firms engage in EM practices, this behavior can lead to information asymmetries and increase the risk of FD [20]. In addition, by adopting the agency theory, under shareholders' expectations on financial performance, a firm's management may engage in EM practices when the firm is in distressed condition [4]. In addition, the nexus between EM and FD has attracted extensive attention, resulting in complex and contradictory empirical findings. The reviewed studies suggest that this nexus is highly dependent on the business environment, firm characteristics and the type of EM practices.

The evidence from national-level studies shows a lack of consensus on whether EM serves as a tool to exacerbate or limit the probability of FD. For instance, Humeedat [1] found no significant nexus between EM and FD using Altman Z-score among in the Jordanian environment, assuming that EM may not be a reliable factor or strategy for avoiding FD. Similarly, Meryana & Setiany [21], in the Indonesian context, concluded that neither EM nor investment levels significantly impact FD, challenging assumptions about the strategic use of EM in distress mitigation. In contrast, Kamal & Khazalle [4] using the Malaysian firms, identified a significant negative nexus between EM and FD, suggesting that firms under financial pressure may reduce EM practices, possibly due to heightened resource constraints. This finding contrasts with the results of Gandhi [18] in India, where real EM practices were found to be more prevalent among distressed firms, albeit with no evidence of accrual EM practices. Rakshit et al. [9] further complicated the lens by finding that financially healthy Indian firms engaged in EM practices more than distressed ones, assuming that EM might be a sign of opportunistic rather than defensive behavior.

International-level studies provide more insights, albeit with generalized evidence that may ignore contextual characteristics. Sumiyana et al. [22], using a cross-country sample spanning 46 nations, found that EM practices driven by past high-income lead to eventual FD because of overinvestment incentives, while past low income reverses this nexus. Similarly, Viana et al. [7] covering 20 emerging markets, reported that distressed firms are more likely to engage in accrual-based EM, suggesting that firms manipulate accounting information to mask financial condition.

Distinguishing between accrual-based and real activity-based EM offers deeper insight into firm behavior. Aljughaiman et al. [20] and Fajriati et al. [5], focusing on Chinese and broader regional contexts during COVID-19, found that distressed firms prefer accrual-based EM practices and argued that during economic crises, firms may find accrual EM practices more accessible than real activity-based EM. Conversely, Luu [23] exploring Vietnamese firms, found contrasting evidence; accrual EM increased the likelihood of FD, while real EM decreased it and suggests that real EM, although often more costly in the short term than accrual EM, may provide more sustainable, financially favorable results, potentially mitigating FD.

The previous studies reveal many key tensions: (A) the inconsistency in evidence. While a wave of studies highlights EM as a tool for managing or concealing FD [7,18], others suggest that distressed firms either reduce EM or that EM does not impact FD at all [1,21]. (B) The context (developed vs. developing economies) significantly affects the evidence; economic volatility seems to increase reliance on accrual EM, as observed in China during COVID-19 [20]. (C) The type of EM—real vs. accrual—plays a crucial role in determining its impact on FD. While real EM may delay FD, accrual EM is more likely to signal or even contribute to financial deterioration. Overall, the existence of EM practices is global for both developed and developing countries. Hence, the firms' decisions on their practices did not consider the economic condition or uncertainty [22]. Based on the current mixed evidence, we developed the following hypothesis to obtain new evidence from Saudi Arabia regarding the impact of EM on FD:

H2: Earnings Management Impacts Financial Distress in Saudi Arabia.

2.2.2. The nexus between managerial ability and financial distress.

The nexus between MA and corporate FD is a complex and intriguing area of study in accounting and finance, and the literature presents mixed evidence. A wave of literature suggested that there is a negative nexus; higher MA reduces the

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likelihood of FD. Able managers are better at managing resources and making strategic decisions [24], thus limiting the probability of facing any future financial difficulties and enhancing firm performance and resiliency. On the contrary, another wave proposes a positive relationship, arguing that highly able managers may engage in riskier strategies or aggressive financial reporting practices that can increase the firm's probability of distress.

Hatane et al. [25] explored the impact of board structures and managerial ownership on FD, using a sample of 24 Indonesian firms and 98 Malaysian firms and found that managerial ownership has an impact on limiting FD in Indonesia, while Malaysia's context shows a more significant impact. Furthermore, Naheed et al. [26] investigated the nexus between MA, investment decisions and the likelihood of FD, using 164 Chinese firms and found that MA is significant for the strategic decisions of the firms and helps the firms in securing resources, thus limiting FD. Going further, Kushermanto et al. [27] analyzed the role of MA in managing corporate FD during the COVID-19 pandemic in Indonesia based on 31 firms and found that MA has a major role in managing resources and limiting FD. Based on the current mixed evidence, we developed the following hypothesis to obtain evidence from Saudi Arabia regarding the impact of MA on FD:

H3: Managerial Ability Impacts Financial Distress In Saudi Arabia.

2.2.2. The moderating role of managerial ability.

While the individual nexus between MA, EM, and FD has received considerable attention, the literature remains inconclusive regarding MA's role in moderating the impact of EM on FD. Few studies have explicitly explored whether MA can mitigate the adverse consequences of EM practices on firm financial health. Among the valuable contributions, Cahyaningrum et al. [28] and Prameswari et al. [29] provide emerging evidence that while EM generally exacerbates FD, the nexus is significantly weaker in firms led by high-MA. These studies frequently use the Demerjian et al. [30] method to measure MA, combining data on firm efficiency, size, industry, and other performance proxies to isolate MA contributions. Their findings show that firms with high-ability managers are more successful in navigating EM practices-related risks without allowing these practices to lead to FD. This wave of research introduces an important issue, EM does not uniformly translate into FD across firms, and the managerial decision-making has a role in mediating this outcome. Nevertheless, the existing body of literature is still limited in scope and geographic diversity. Based on the rare evidence, we developed the following hypothesis to obtain evidence regarding the moderating role of MA on the nexus between EM and FD:

H4: Managerial Ability Moderates The Nexus Between Earning Management And Financial Distress In Saudi Arabia

3 Methodology.

3.1. The study sample.

The population comprises the non-financial Saudi listed firms during the period from 2012 to 2023, our research final sample was 95 firms, which means 1059 firm-year observations.

3.2. Variable's measurement.

3.2.1. Earnings management.

EM is an accounting practice used by a firm's management to hide any financial failures, meet the expected performance, and provide a more favorable financial performance than reality. Consistent with the accounting-related literature [9,31], we measured EM by calculating "discretionary accruals", based on four steps as followed: Modified jones model developed by Dechow & Sloan [32] was used, where the value of firm's discretionary accruals (NDAC) is computed as the difference between the non-discretionary accruals and total accruals, as following in equation (1):

$$NDAC_{ijt} = \alpha_j(1/TA_{ijt1}) + \beta_{1j}(\Delta REV_{ijt} - \Delta REC_{ijt}/TA_{ijt1}) + \beta_{2j}(PPE_{ijt}/TA_{ijt-1}) \quad (1)$$

where α_j, β_{1j} and β_{2j} are industry-specific coefficients evaluated using the subsequent cross-sectional regression.

$$TAC_{ijt}/TA_{ijt1} = \alpha_j(1/TA_{ijt1}) + \beta_{1j}(\Delta REV_{ijt}/TA_{ijt1}) + \beta_{2j}(PPE_{ijt}/TA_{ijt1}) + \varepsilon_{ijt} \quad (2)$$

Where, firm (i), industry (j), year (t); TAC_{ijt} = total accruals, ΔREV_{ijt} = change in revenue; PPE_{ijt} = gross property, plant and equipment; TA_{ijt-1} = total assets; ΔREV_{ijt} = the change in receivables.
Having evaluated NDAC from Equ. (1), the discretionary accrual (DAC) amount was computed as the residual value from the following equation (3):

$$DAC_{ijt} = TAC_{ijt} - NDAC_{ijt} \quad (3)$$

Then, we computed total accruals by using the cash flow method, where TAC was defined as the difference between

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operational cash flow and net income, as the following Equation (4):

$$TAC_{ijt} = NI_{ijt} - OCF_{ijt} \quad (4)$$

Finally, we used the discretionary accruals (absolute value) as a measure of AEM.

3.2.2. Financial distress.

FD is defined in the business world when firms face financial difficulties concerning low net cash flows and profitability. Based on that state, the firms might not be able to keep their daily operational activities. Consistent with the accounting-related literature [9,33,34,35], we used "Altman Z-Score Model", but the modified version, which is "Z-Score for Emerging Markets"to measure financial distress (as an inverse proxy), The formula can be written as below:

$$ZSEM = 3.25 + (6.72 \times A) + (1.05 \times C) + (6.5 \times D) + (3.26 \times E) \quad (5)$$

Where ZSEM is Z-Score for Emerging Markets, A is calculated as earnings before interest and tax over total assets, C is calculated as book value of equity over total liabilities, D is calculated as working capital over total assets, E is calculated as retained earnings over total assets. After that, we determine the degree of likelihood of the firm's financial distress according to Table (1) as follows:

Table 1: Firm's categories under Z-Score for emerging markets result.

Z-Score range	Less than 1.23	Between 1.23 and 2.99	More than 2.99
The likelihood of facing financial difficulties	(High) Financial distress	(Medium) unpredictable	(Low) Financial health

3.2.3. Managerial Ability.

We Followed [30] in measuring MA, by moving through two steps to capture the value of MA. The first Step is estimating firm-level efficiency using data envelopment analysis (DEA), the inputs and outputs used in this DEA model are chosen to reflect the resources available to management and the revenues generated from those resources, as the following model:

$$max_v\, \theta = \frac{SALES}{COGS_{v1} + SG\&A_{v2} + PP\&E_{v3} + OLEASE_{v4} + R\&D_{v5} + GW_{v6} + INTANG_{v7}} \quad (6)$$

Where, COGS is the cost of goods sold. SG&A is the selling, general, and administrative costs PP&E is the net property, plant and equipment. OLEASE is the net operating Leases. R&D is the net research and development. GW is the purchased goodwill. INTANG is the other Intangible Assets.

The second step, isolating MA from Firm-specific characteristics, the efficiency score obtained from step one encompasses both MA and various firm-specific factors. To isolate the component attributable to the manager, we regressed the DEA-estimated firm efficiency scores on a set of firm characteristics largely outside the current manager's direct control. The regression model takes the following general form:

$$Efficiency_{i,t} = \propto + \beta 1\, In\,(Firm\ Size)_{i,t} + \beta 2\, Market\ Share_{i,t} + \beta 3\, Capital\ Intensity_{i,t} + \beta 4\, Free\ Cash\ Flow_{i,t} + \beta 5\, In\,(Age)_{i,t} + \beta 6\, Business\ Segment\ Concentration_{i,t} + \beta 7\, Foreign\ Currency\ Indicator_{i,t} + Year_{i,t} + \epsilon_{i,t} \quad (7)$$

Where, "Efficiency" is the DEA-estimated firm efficiency score. "Firm size" is the natural logarithm of total assets. "Market share" is firm's sales divided by total industry sales. "Capital intensity" is PPE divided by total assets. "Free cash flow" is the operating cash flow minus capital expenditures, indicates a firm's ability to generate cash. "Age" is the natural logarithm of the firm's age. "Business segments" is the number of business segments. "Foreign currency" is coded to one when a firm reports any positive value for foreign currency adjustment. (i,t) is the firm and year. The residual (ϵ) from this regression is the measure of MA. This residual captures the portion of firm efficiency that cannot be explained by the firm characteristics, thereby attributing it to the unique capabilities of the management team. A positive residual indicates that the firm is more efficient than predicted by its observable characteristics, suggesting higher managerial ability, and vice versa.

3.3. Research models.

3.3.1. The first regression model examines the determinants of AEM:

$$AEM_{i,t} = \beta_0 + \beta_1\, Size_{i,t} + \beta_2\, Lev_{i,t} + \beta_3\, ROA_{i,t} + \beta_4\, CH_{i,t} + \beta_5\, OCF_{i,t} + \beta_6\, OCF^2{}_{i,t} + \beta_7\, Tang_{i,t} + Industry\ Effect + \varepsilon_{i,t}$$

3.3.2. The second regression model examines the determinants of MA:

$$MA_{i,t} = \beta_0 + \beta_1\, Size_{i,t} + \beta_2\, Lev_{i,t} + \beta_3\, ROA_{i,t} + \beta_4\, CH_{i,t} + \beta_5\, CH^2{}_{i,t} + \beta_6\, OCF_{i,t} + \beta_7\, Tang_{i,t} + \beta_8\, Tang^2{}_{i,t} + \varepsilon_{i,t}$$

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3.3.3. The third regression model examines the impact of AEM and MA on FD:

$$ZSEM_{i,t} = \beta_0 + \beta_1 AEM_{i,t} + \beta_2 MA_{i,t} + \beta_3 MA^2{}_{i,t} + \beta_4 Size_{i,t} + \beta_5 Lev_{i,t} + \beta_6 Lev^2{}_{i,t} + \beta_7 ROA_{i,t} + \beta_8 CH_{i,t} + \beta_9 OCF_{i,t} + \beta_{10} Tang_{i,t} + Year\ Effect + Industry\ Effect + \varepsilon_{i,t}$$

3.3.4. The fourth regression model examines the moderating role of MA on the nexus between AEM and FD:

$$ZSEM_{i,t} = \beta_0 + \beta_1 AEM_{i,t} + \beta_2 MA_{i,t} + \beta_3 MA^2{}_{i,t} + \beta_4 MA\_AEM_{i,t} + \beta_5 Size_{i,t} + \beta_6 Lev_{i,t} + \beta_7 Lev^2{}_{i,t} + \beta_8 ROA_{i,t} + \beta_9 CH_{i,t} + \beta_{10} OCF_{i,t} + \beta_{11} Tang_{i,t} + Year\ Effect + Industry\ Effect + \varepsilon_{i,t}$$

Where, (i,t) refers to firm and year, $ZSEM_{i,t}$ is an inverse proxy of FD, $AEM_{i,t}$ is the accruled-based earning management, $MA_{i,t}$ is the managerial ability, $MA^2{}_{i,t}$ is the quadratic value of managerial ability,$MA\_AEM_{i,t}$ is the interactive term between managerial ability and earning management, $Size_{i,t}$ is the firm size, $Lev_{i,t}$ is the financial leverage ratio, $Lev^2{}_{i,t}$ is the quadratic value of financial leverage ratio, $ROA_{i,t}$ is the return on assets ratio, $CH_{i,t}$ is the cash holding ratio, $CH^2{}_{i,t}$ is the quadratic value of cash holding ratio, $OCF_{i,t}$ is the net operating cash flows ratio, $OCF^2{}_{i,t}$ is the quadratic value of net operating cash flows ratio, $Tang_{i,t}$ is the tangibility ratio, $Tang^2{}_{i,t}$ is the quadratic value of tangibility ratio, β_0 is the estimated constant term, ε_{it} is the estimated random error.

4 Results:

4.1. Descriptive Statistics

Table (2) provides the summary statistics for all independent, dependant, and control variables included in the research models. The variables have been winsorized at 3% to solve the effect of outliers.

Table 2: Descriptive Statistics.

Variable	Obs.	Mean	Std. Dev.	Min	Max
ZSEM	1027	7.002	5.83	-8.548	40.186
AEM	1050	0.06	0.054	0.001	0.254
MA	1059	-0.279	0.496	-1.389	1.582
Size	1059	21.051	1.587	18.076	25.015
Lev	1059	0.537	0.302	0.031	1.834
ROA	1059	0.064	0.138	-0.782	0.882
OCF	1056	0.056	0.118	-0.309	0.401
Tang	1048	0.321	0.204	0.008	0.824
CH	1059	0.131	0.146	0.002	0.707

Focusing on the main variables in our research. Concerning FD, the average of ZSEM is 7.002 (the minimum value was -8.548 and the maximum value was 40.186), which means that, on average, the sampled firms are far from potential FD and are likely to continue their operations for the foreseeable future without significant risk of business interruption. Regarding AEM, the average of AEM is 0.06 (the minimum value was 0.001 and the maximum value was 0.254), which reflects that most Saudi firms do not use accruals to manage earnings and manipulate the financial reports. Furthermore, AEM shows a widespread variation (0.054). Concerning MA, it shows an average of -0.279 (the minimum value was -1.389 and the maximum value was 1.582), with a standard deviation of 0.496, which shows a very high heterogeneity among the firm-year observations.

4.2. Correlation Analysis Results

Table (3) presents the Pearson correlation matrix, which offers preliminary understanding of the linear relationships among variables. In deep, the Pearson's correlation matrix reveals that ZSEM has positive correlations with ROA, OCF, and CH, suggesting that non-distressed firms tend to be more profitable, generate more cash from operations, and hold more cash. Conversely, the correlation between ZSEM and AEM is negative, and there is also a negative correlation with MA, suggesting a tendency for non-distressed firms to be associated with lower AEM and lower MA. Moreover, MA has a significant positive correlation with Size, ROA, and OCF, and a significant negative correlation with Tang. This suggests that firms with higher MA tend to be larger, more profitable, and generate more operating cash flows. Conversely, higher MA is associated with lower levels of asset tangibility. The MA's correlation with Lev and CH is statistically insignificant, indicating no clear linear relationship. The Pearson correlation matrix reveals that AEM exhibits statistically significant negative correlation with ZSEM. Specifically, as AEM increases, there is a tendency for FD to increase. The remaining correlations between AEM and other variables such as MA, Size, ROA, and OCF are statistically insignificant, suggesting a lack of linear relationship between these pairs of variables in the sample.

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According to the multicollinearity, the pairwise correlation among the explanatory variables is not very high in magnitude. The highest correlation coefficient was (-0.755), which was found between Lev. and ZSEM. However, it is not necessarily problematic because it is found between the dependent variable (ZSEM) and one of the control variables.

Table 3: Correlation Matrix (Pairwise Correlations)

Var.	ZSEM	AEM	MA	Size	Lev	ROA	OCF	Tang	CH
ZSEM	1.000								
AEM	-0.148***	1.000							
	(0.000)								
MA	-0.114***	-0.023	1.000						
	(0.000)	(0.459)							
Size	-0.223***	-0.004	0.405***	1.000					
	(0.000)	(0.884)	(0.000)						
Lev	-0.755***	0.207***	0.046	0.210***	1.000				
	(0.000)	(0.000)	(0.138)	(0.000)					
ROA	0.473***	-0.011	0.158***	0.118***	-0.466***	1.000			
	(0.000)	(0.726)	(0.000)	(0.000)	(0.000)				
OCF	0.290***	-0.032	0.172***	0.074**	-0.332***	0.589***	1.000		
	(0.000)	(0.305)	(0.000)	(0.016)	(0.000)	(0.000)			
Tang	-0.125***	-0.058*	-0.050*	-0.173***	-0.176***	-0.205***	0.023	1.000	
	(0.000)	(0.063)	(0.105)	(0.000)	(0.000)	(0.000)	(0.451)		
CH	0.306***	0.065**	0.009	-0.004	-0.167***	0.430***	0.451***	-0.213***	1.000
	(0.000)	(0.034)	(0.764)	(0.892)	(0.000)	(0.000)	(0.000)	(0.000)	

*** p<0.01, ** p<0.05, * p<0.1.

4.3. Hypotheses Testing

4.3.1. Testing the First and Second Regression Models

The first and second regression models examine the determinants of AEM and MA, respectively. Table (4) presents the first and second regression models' results by providing three main panels: Panel (A) shows the OLS goodness of fit tests. Panel (B) shows the fitted GLS regression. Panel (C) shows the turning points and non-linear effects.

Panel (A) shows that there is no multicollinearity among the regressors of the first and second regression models. because all variance inflation factors are below the threshold of 10. Also, it presents the results of the heteroskedasticity test (the Breusch–Pagan/Cook–Weisberg test), the omitted variables test (the Ramsey RESET test), and the serial correlation test (the Wooldridge test for autocorrelation). About the curve estimation in the first and second regression models, it reveals the existence of non-linear relationships that should be considered in the fitted regressions.

Panel (B) shows the fitted GLS regression results of the first and second regression models. The GLS method is used to consider the econometric problems of heteroskedasticity, misspecification, and autocorrelation in the first and second regression models. Additionally, the fitted models consider the potential non-linear relationships. The first and second regression models are significant since their Prob>F is less than 0.05. According to the value of R-squared, the explanatory variables included in the first and second regression models have explained around 19% and 19.6% of AEM and MA, respectively.

The first regression model shows that leverage has a significant positive impact on AEM because highly leveraged firms often face greater pressure to meet financial obligations, prompting managers to manipulate earnings to satisfy their debt covenants, to ensure ongoing debt financing. Conversely, Tang has a significant negative effect on AEM because firms with more tangible assets, such as property and equipment, tend to have less flexibility in manipulating earnings through accruals. Tangible assets are more easily audited, making it difficult for managers to obscure financial performance through misreporting tangible assets, thus reducing the incentive or ability to engage in AEM. However, size, ROA, and CH have an insignificant effect on AEM.

The OCF has a non-linear U-shaped effect on AEM, as observed in the first regression model in Panel (B). As such, the GLS regression results show that the coefficient of (OCF) is significantly negative, while the coefficient of (OCF^2) is significantly positive. Accordingly, the non-linear effect of the OCF on the AEM takes the form of a convex curve. Specifically, AEM initially decreases with the increase in the OCF, until the increase in the OCF reaches a certain threshold

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(0.075684), which is considered as a turning point beyond which AEM increases with the further increase in the OCF.

The second regression model reveals that firm size, ROA, and OCF positively influence MA because these factors provide a foundation for developing and enhancing managerial skills. Larger firms often face more complex challenges, necessitating skilled management to ensure effective operations. Higher OCF and ROA enables managers to invest in training to further enhance their competencies and skills. As a result, greater firm size, improved ROA, and higher OCF contribute to the overall development of managerial abilities within a firm. However, leverage has no significant effect on MA.

Furthermore, the second regression model shows that CH and Tang have non-linear U-shaped effects on MA, as observed in Panel (B). As such, the GLS regression results show that the coefficients of CH and Tang are significantly negative, while the coefficient of CH^2 and $Tang^2$ are significantly positive. Accordingly, the non-linear effects of CH and Tang on MA takes the form of a convex curve. Specifically, MA initially deteriorates with the increase in CH and Tang, until the increase in CH and Tang reaches a certain threshold (0.406250 for cash holding and 0.354877 for tangibility), which is considered as a turning point beyond which MA improves with the further increase in CH and Tang.

Table 4: Analysis of the First and Second Regression Models

Panel (A): The OLS Goodness of Fit Tests			
Test		The First Regression Model	The Second Regression Model
Multicollinearity	ROA	2.166	2.16
	OCF	1.786	1.761
	Lev	1.538	1.543
	CH	1.399	1.396
	Tang	1.233	1.245
	Size	1.121	1.134
	Mean VIF	1.541	1.54
Heteroskedasticity		Prob>chi2 = 0.0000	Prob>chi2 = 0.2149
Omitted variables		Prob>F = 0.0005	Prob>F = 0.0000
Autocorrelation		Prob>F = 0.7784	Prob>F = 0.0049
Curve Est. between AEM and OCF		β_1 = -0.124*** β_2 = 0.738***	--
Curve Est. between MA and CH		--	β_1 = -0.776*** β_2 = 1.503***
Curve Est. between MA and Tang		--	β_1 = -1.137*** β_2 = 1.358***
Panel (B): The Fitted Generalized Least Squares Regression Results			
Variable		The First Regression Model	The Second Regression Model
Size		0	0.114***
Lev		0.033***	0.053
ROA		0.019	0.28*
CH		-0.012	-0.637**
CH2		--	0.784*
OCF		-0.094***	0.608***
OCF2		0.621***	--
Tang		-0.026***	-0.604**
Tang2		--	0.851**
Constant		0.034	-2.627***
Year-Fixed-Effect		No	No
Industry-Fixed-Effect		Yes	No
Number of obs		1036	1045
Prob>F		0.000	0.000
R-squared		0.190	0.196
Panel (C): The Turning Points of Non-linear Effects			
Variable		The First Regression Model	The Second Regression Model
CH			$\frac{\beta \text{ of CH}}{-(\beta \text{ of CH}^2)*2} = 0.406250$

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OCF	$\frac{\beta \text{ of OCF}}{-(\beta \text{ of OCF}^2)*2} = 0.075684$	
Tang		$\frac{\beta \text{ of Tang}}{-(\beta \text{ of Tang}^2)*2} = 0.354877$
*** p<0.01, ** p<0.05, * p<0.1.		

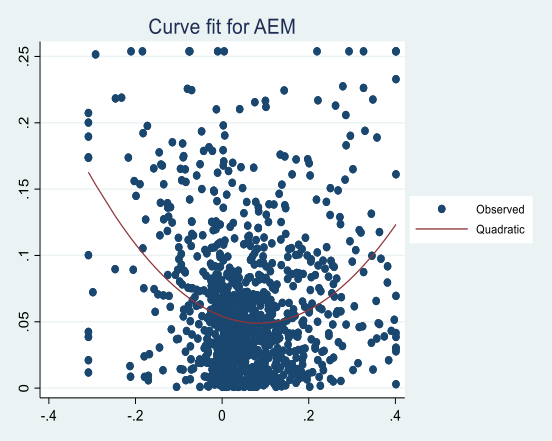

Fig. 1: Curve Est. AEM and OCF

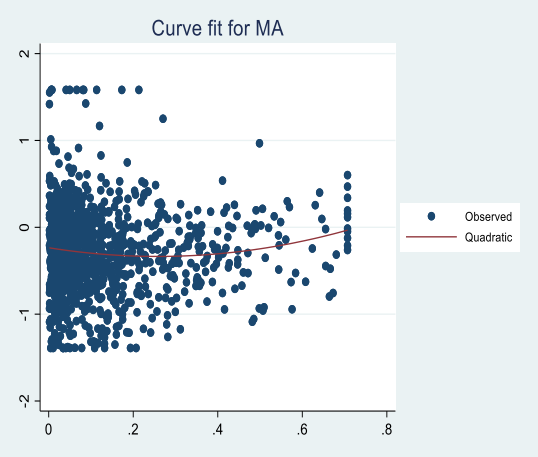

Fig. 2: Curve Est. MA and CH

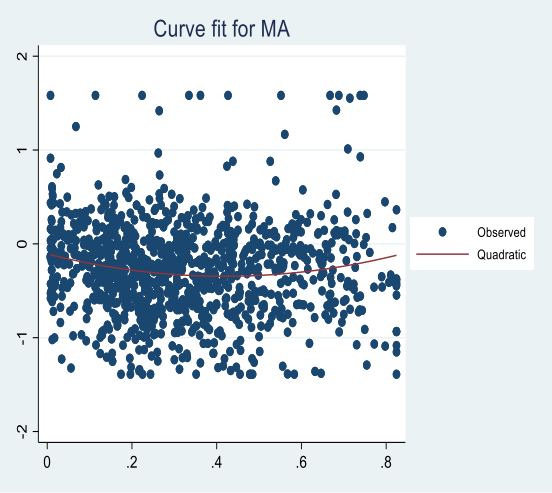

Fig. 3: Curve Est. MA and Tang

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4.3.2. Testing the Third and Fourth Regression Models

The third regression model examines the direct impact of AEM and MA on FD. In contrast, the fourth regression model investigates the interactive effect of MA and AEM on FD. Table (5) shows the results of the third and fourth regression models by providing three main panels: Panel (A) shows the OLS goodness of fit tests. Panel (B) shows the fitted GLS regression, and Panel (C) shows the turning points of the non-linear effects.

Panel (A) shows that there is no multicollinearity among the regressors of the first and second regression models. because all variance inflation factors are below the threshold of 10. Also, it shows the results of the heteroskedasticity test (the Breusch–Pagan/Cook–Weisberg test), the omitted variables test (the Ramsey RESET test), and the serial correlation test (the Wooldridge test for autocorrelation). About the curve estimation in the first and second regression models, it reveals the existence of non-linear relationships that should be considered in the fitted regressions.

Panel (B) shows the fitted GLS regression results of the third and fourth regression models. The GLS method is used to consider the econometric problems of heteroskedasticity and misspecification in the third and fourth regression models. Additionally, the fitted models consider the potential non-linear relationships. The third and fourth regression models are significant since their Prob>F is less than 0.05. According to the value of R-squared, the explanatory variables included in the third and fourth regression models have explained around 73.3% and 73.4% of FD, respectively.

AEM negatively affects ZSEM, as observed in the third and fourth regression models in Panel (B). However, the fourth regression model reveals that the interaction between AEM and MA introduces complexity into this relationship. The direct significant negative effect of AEM is reversed to a significantly positive impact when moderated by MA.

MA has a non-linear U-shaped effect on ZSEM, as observed in the third and fourth regression models in Panel (B). As such, the GLS regression results show that the coefficient of MA is significantly negative, while the coefficient of MA^2 is significantly positive. Accordingly, the non-linear effect of MA on ZSEM takes the form of a convex curve. Specifically, ZSEM initially decreases with the increase in MA, until the increase in MA reaches a certain threshold (0.457063 in the third model and 0.638218 in the fourth model), which is considered as a turning point beyond which ZSEM increases with the further increase in MA.

The third and fourth regression models reveal that the ROA and CH have significant positive effects on ZSEM. A higher ROA indicates that a firm is effectively generating profits relative to its total assets, which enhances its financial stability and ability to meet obligations. Meanwhile, substantial CH provide a buffer against unexpected expenses or revenue shortfalls, thus reducing the likelihood of distress. As ROA and CH ratios increase, a firm's ability to achieve its planned goals with its own cash resources improves. This reduces the need for external financing sources, leading to lower levels of liabilities and debt in the capital structure. Consequently, the likelihood of facing FD decreases, while the probability of a firm's long-term operational sustainability increases. Together, these factors contribute to a stronger ZSEM, suggesting that firms with strong ROA and high CH are better equipped to absorb financial challenges, thereby lowering FD risk.

Tang has a negative effect on ZSEM, as observed in the third and fourth regression models. As, firms with higher tangibility possess physical assets, such as property and equipment, that can be used as a collateral for securing loans. This asset base allows firms to borrow more, thus increasing the debt-associated risks as well. The increase in pledged assets increases the perceived risk of default among creditors, leading to tighter credit terms and higher borrowing costs. As a result, companies with greater tangibility are more likely to experience FD, reflected in a lower ZSEM, indicating poorer financial health and stability. However, size and OCF have no significant effect on ZSEM, as shown in the third and fourth regression models.

Furthermore, leverage has a non-linear U-shaped effect on ZSEM, as observed in the third and fourth regression models in Panel (B). As such, the GLS regression results indicate that the coefficient of Lev. is significantly negative, while the coefficient of Lev^2 is significantly positive. Accordingly, the non-linear effect of Lev on ZSEM takes the form of a convex curve. Specifically, ZSEM initially decreases with the increase in leverage, until the increase in leverage reaches a certain threshold (1.752150 in the third model and 1.755659 in the fourth model), which is considered as a turning point beyond which ZSEM increases with the further increase in leverage.

Table 5: Analysis of the Third and Fourth Regression Models

Panel (A): The OLS Goodness of Fit Tests			
Test		The Third Regression Model	The Fourth Regression Model
Multicollinearity	ROA	2.147	2.147
	OCF	1.79	1.792
	Lev	1.623	1.624
	CH	1.385	1.386

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	Size	1.29	1.292
	Tang	1.229	1.229
	MA	1.223	2.649
	AEM	1.067	1.417
	MA AEM	--	2.796
	Mean VIF	1.469	1.815
Heteroskedasticity		Prob>chi2 = 0.0000	Prob>chi2 = 0.0000
Omitted variables		Prob>F = 0.0000	Prob>F = 0.0000
Autocorrelation		Prob>F = 0.0655	Prob>F = 0.0646
Curve Est. between ZSEM and MA		β_1 = -0.967 **β_2 = 1.121***	
Curve Est. between ZSEM and Lev		β_1 = -25.588 ***β_2 = 7.184***	
Panel (B): The Fitted Generalized Least Squares Regression Results			
Variable		The Third Regression Model	The Fourth Regression Model
AEM		-6.87663***	-4.85798***
MA		-1.15467***	-1.58361***
MA2		1.26314***	1.24065***
MA_AEM		--	7.13317*
Size		0.073	0.071
Lev		-25.404***	-25.356***
Lev2		7.24938***	7.22122***
ROA		4.99144***	4.95639***
CH		2.81961***	2.82758***
OCF		-0.952	-1.050
Tang		-7.49393***	-7.47494***
Constant		17.22420***	17.17466***
Year-Fixed-Effect		Yes	Yes
Industry-Fixed-Effect		Yes	Yes
Number of obs.		1005	1005
Prob>F		0.000	0.000
R-squared		73.3%	73.4%
Panel (C): The Turning Points of Non-linear Effects			
Variable	(The Third Regression Model)		(The Fourth Regression Model)
MA	$\frac{\beta \text{ of MA}}{-(\beta \text{ of MA}^2)*2} = 0.457063$		$\frac{\beta \text{ of MA}}{-(\beta \text{ of MA}^2)*2} = 0.638218$
Lev	$\frac{\beta \text{ of Lev}}{-(\beta \text{ of Lev}^2)*2} = 1.752150$		$\frac{\beta \text{ of Lev}}{-(\beta \text{ of Lev}^2)*2} = 1.755659$
*** p<0.01, ** p<0.05, * p<0.1.			

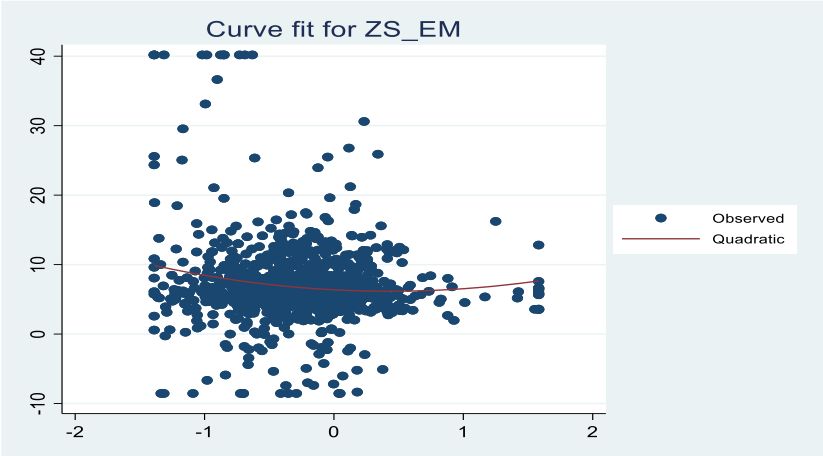

Fig. 4. Curve Est. ZSEM and MA

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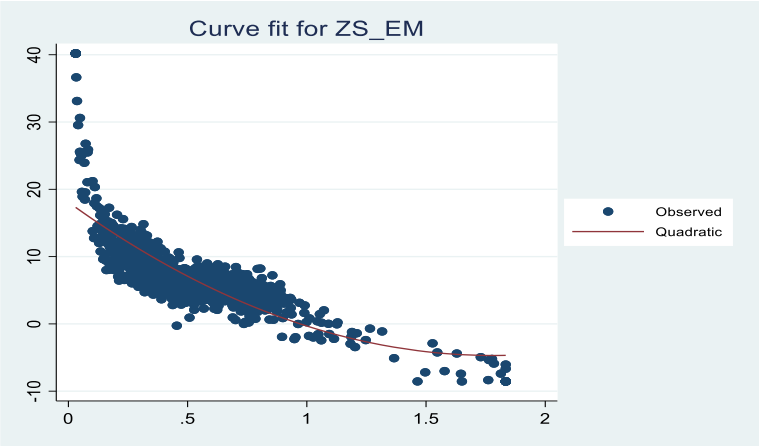

Fig. 5: Curve Est. ZSEM and Lev

5 Discussion

This research investigates the complex nexus between AEM, MA, and FD within Saudi Arabia's context. Our results contribute significantly to the existing literature by providing new empirical evidence from an emerging economy, which is often characterized by different institutional and cultural factors compared to developed economies. To answer the first research question, we developed the first hypothesis, "Firm attributes impact earnings management and managerial ability in Saudi Arabia". Our result based on the first regression model found different impacts of firm attributes on adopting AEM, as shown in the following table (6):

Table 6: the impact of Firm attributes on adopting EM

Dependent variable	**Independent variable**	**The impact on adopting AEM**		
		positive	negative	other
Adopting AEM	Size			Insignificant impact
	Lev	√		
	ROA			Insignificant impact
	OCF			Non-linear U-shaped
	Tang		√	
	CH			Insignificant impact

On another hand, our results based on the second regression model found different impacts of firm attributes on enhancing MA, as shown in the following table (7):

Table 7: the impact of Firm attributes on enhancing MA

Dependent variable	**Independent variable**	**The impact on enhancing MA**		
		positive	negative	other
Enhancing MA	Size	√		
	Lev			Insignificant impact
	ROA	√		
	OCF	√		
	Tang			Non-linear U-shaped
	CH			Non-linear U-shaped

Going to the second research question, we developed the second hypothesis to answer it, "Earnings management impacts financial distress in Saudi Arabia", our result based on the third regression model found that AEM negatively affects ZSEM (an inverse proxy of FD). By artificially inflating earnings and asset values or deflating liabilities through accrual adjustments, firms engaging in such practices can temporarily create a misleadingly strong financial position. This misrepresentation may be discovered in the long run. Consequently, the ZSEM can be viewed as more reliable and more effective at predicting potential distress when accrual-based earnings management is prevalent, as it reveals the true underlying financial vulnerabilities. Thus, in the Saudi context, where investor protection might still be evolving compared to more mature markets and information asymmetry can be pronounced, such findings underscore the risks associated with opaque financial reporting. Firms engaging in AEM might delay necessary operational adjustments or mislead

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stakeholders, ultimately leading to a more severe and prolonged period of distress. this result was in the same line with [4,9].

Regarding the third hypothesis, "Managerial ability impacts financial distress in Saudi Arabia", our result based on the third and fourth regression models found that MA has a non-linear U-shaped effect on ZSEM (an inverse proxy of FD), this result was in the same line with [26,27].

Concerning the third research question, we developed the fourth hypothesis, "Managerial ability moderates the nexus between earnings management and financial distress", Our result noted that the direct significant negative effect of AEM on ZSEM is reversed to a significantly positive impact when moderated by MA. This indicates that the presence of highly skilled managers may lead to falsely indicating lower FD risk. As a result, within the environment of high MA, ZSEM becomes less reliable and less effective at predicting potential bankruptcy when AEM is used, as MA masks the true underlying financial vulnerabilities.

6 Conclusions

Saudi Arabia is an ideal context for examining our research variables, given the current reforms under Vision 2030. We found important evidence about the nexuses between AEM, MA, and FD. In addition, new evidence about the determinants of AEM and MA from an emerging and promising economy.

Our research carries several significant practical and social implications based on the empirical results, especially given its focus on Saudi Arabia. These implications extend beyond just the financial markets and touch upon various aspects of society. (A) Enhancing investor confidence in the Saudi capital market's integrity, where the average value of AEM reflects that most Saudi firms do not engage in earnings management through discretionary accruals to manipulate the annual financial reports. At the same time, the Saudi business environment is characterized by a high MA based on the average value, which leads to better outcomes and can increase investors' trust. ((B) Ensuring the Saudi economic stability, on average, the Saudi firms are far from further potential FD and are likely to continue their operations for the foreseeable future without significant risk. especially with the low level of AEM and a high level of MA. (C) Regulatory and policy Implications, where the research provides new empirical evidence, which can inform regulators (e.g., Capital Market Authority and Saudi Central Bank) about the prevalence and impact of EM and MA on a firm's FD. Thus, research-informed policy can lead to a more transparent financial system, which supports the credibility of Saudi Arabia's financial market. To summarise, our academic research on AEM, MA, and FD in Saudi Arabia has significant practical and social implications. It sheds light on how corporate financial practices directly affect the business's stability and investors' trust, ultimately impacting the Saudi economy.

Despite its contributions, this research is subject to some limitations that offer avenues for future research. First, while we employ established proxies for EM (discretionary accruals), MA [30], and FD (Z-Score for emerging markets), future research could explore the nexus with other or alternative measures, using more time series from the Saudi context, to ensure our current research results. Second, the research focuses on non-financial listed firms in the Saudi market. The dynamics between EM, MA, and FD might differ in unlisted firms (which are prevalent in the Saudi economy) or specific sectors (e.g., the oil and gas sector). Future research could expand the sample to include a broader range of firm types or sectors. In addition, the research explores the Saudi economy during a specific period (from 2012 to 2023). The rapid economic development under Saudi Vision 2030 means that these nexuses might change over time. So, future research could also consider the current and any future reforms (e.g., IFRS adoption, new governance codes)

Finally, our research contributed to enriching the accounting literature about the nexus between EM, MA, and FD by providing evidence from an emerging economy. At the same time, the use of the Saudi economy, while acceptable due to the number of observations and period covered in the research empirical study, may limit the applicability of the results. So, this research area still needs more empirical studies in many directions. First, future research could compare countries (developing and developed) to determine the global variations in the important nexus between EM, MA, and FD. Second, exploring the impact of contextual factors as moderating factors for a better understanding.

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Data Availability Statement:

The data presented in this study are available on request from the corresponding author.

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Conflicts of Interest:

The authors declare no conflict of interest.

References

[1] Humeedat, M. M. (2018). Earnings Management to Avoid Financial Distress and Improve Profitability: Evidence from Jordan. International Business Research, 11(2). Https://doi.org/10.5539/ibr.v11n2p222

[2] Almubarak, W. I., Chebbi, K., & Ammer, M. A. (2023). Unveiling the Connection among ESG, Earnings Management, and Financial Distress: Insights from an Emerging Market. Sustainability (Switzerland), 15(16). https://doi.org/10.3390/su151612348

[3] Alazmi, H., Metwaly, A., & Albaz, M. (2023). The Impact of Russia-Ukraine War on The Egyptian Stock Market. International Journal of Accounting and Management Sciences, 2(4). Https://doi.org/10.56830/ijams10202302

[4] Kamal, M. E., & Khazalle, S. S. (2021). Concealing Financial Distress With Earnings Management: A Perspective on Malaysian Public Listed Companies. International Journal of Financial Research, 12(2). Https://doi.org/10.5430/ijfr.v12n2p341

[5] Fajriati, N., Wahyuni, E. T.,&Rosdini, D. (2023). Financial distress and earnings management before and during the Covid-19 pandemic. Jurnal Akuntansi&Auditing Indonesia. Https://doi.org/10.20885/jaai.vol27.iss1.art8

[6] Huang, X., & Sun, L. (2017). Managerial ability and real earnings management. Advances in Accounting, 39. Https://doi.org/10.1016/j.adiac.2017.08.003

[7] Viana, D. B. C., Lourenço, I., & Black, E. L. (2022). Financial distress, earnings management and Big 4 auditors in emerging markets. Accounting Research Journal, 35(5). Https://doi.org/10.1108/ARJ-06-2021-0165

[8] Li, Y., Li, X., Xiang, E., & Geri Djajadikerta, H. (2020). Financial distress, internal control, and earnings management: Evidence from China. Journal of Contemporary Accounting and Economics, 16(3). Https://doi.org/10.1016/j.jcae.2020.100210

[9] Rakshit, D., Chatterjee, C., & Paul, A. (2024). Financial Distress, the Severity of Financial Distress and Direction of Earnings Management: Evidence from Indian Economy. FIIB Business Review, 13(2). Https://doi.org/10.1177/23197145211039351

[10] Hasan, M. M., Hossain, M. S., & Gotti, G. (2022). Product market competition and earnings management: the role of managerial ability. Review of Accounting and Finance, 21(5). Https://doi.org/10.1108/RAF-06-2021-0169

[11] Liao, H., Wei, Y., Wang, Y., Lin, Y.,&Tan, R. Y. (2023). Managerial ability and earnings management: The moderating role of career concerns☆. Finance Research Letters, 57. Https://doi.org/10.1016/j.frl.2023.104269

[12] Kumar, M., & Goswami, R. (2021). Managerial Ability and Real Earnings Management Among Indian Listed Firms. Vision. Https://doi.org/10.1177/09722629211046065

[13] Garad. A. & Stefanovic. M. (2024), The State of Organizational Learning post-COVID, International Journal of Strategy and Organizational Learning, Vol.1, No,1, Pp 69-83

[14] Alzahrani. A.S., (2025), PIF's Role in Achieving Sustainable Development Goals (Applied study on the Kingdom of Saudi Arabia), Interdisciplinary Journal of Humanities, Media, and Political Science, Vol.2, No.1 Pp 126-142

[15] Putra, A. A., Mela, N. F., & Putra, F. (2021). Managerial ability and real earnings management in family firms. Corporate Governance (Bingley), 21(7). Https://doi.org/10.1108/CG-02-2021-0083

[16] Wijaya, N., Pirzada, K., & Fanady, C. (2020). Determinants of earnings management: An empirical analysis. Journal of Security and Sustainability Issues, 9(4). Https://doi.org/10.9770/JSSI.2020.9.4(13)

[17] Emudainohwo, O. B. (2021). Determinants of earnings management: the study of Nigerian nonfinancial companies. Economic Horizons, 23(2). Https://doi.org/10.5937/EKONHOR2102139E

[18] Gandhi, K. (2024). Financial Distress, Earnings Benchmark and Earnings Management Practices. Vision, 28(2). Https://doi.org/10.1177/09722629211010978

[19] Albaz, M., Alazmi, H., & Metwaly, A. (2023). Adopting Cloud Computing and Accounting Practices: A Review of Artifice Intelligence Perspective. International Journal of Accounting and Management Sciences, 2(2). Https://doi.org/10.56830/ijams04202302

[20] Aljughaiman, A. A., Nguyen, T. H., Trinh, V. Q., & Du, A. (2023). The Covid-19 outbreak, corporate financial distress and earnings management. International Review of Financial Analysis, 88. Https://doi.org/10.1016/j.irfa.2023.102675

[21] Meryana, M. & Erna Setiany, E., (2021). The Effect of Investment, Free Cash Flow, Earnings Management, and Interest Coverage Ratio on Financial Distress. Journal of Sosial Science, 2(1). Https://doi.org/10.46799/jsss.v2i1.86

[22] Sumiyana, S., Na'im, A., Kurniawan, F., & Nugroho, A. H. L. (2023). Earnings management and financial distress or soundness determining ceos' future over- and under-investment decisions. Humanities and Social Sciences Communications, 10(1). Https://doi.org/10.1057/s41599-023-01638-6

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Natural Sciences Publishing Cor.

[23] Luu, Q. (2023). Impact of earning management and business strategy on financial distress risk of Vietnamese companies. Cogent Economics and Finance, 11(1). Https://doi.org/10.1080/23322039.2023.2183657
[24] Aldoseri, M. M., & Albaz, M. M. (2023). Climate Change Risks Disclosure: Do Business Strategy and Management Characteristics Matter? International Journal of Financial Studies, 11(4). Https://doi.org/10.3390/ijfs11040150
[25] Hatane, H., Chandra, N., & Tarigan, J. (2019). Board Structures and Managerial Ownership in Identifying the Financial Distress Likelihood. Https://doi.org/10.2991/icame-18.2019.46
[26] Naheed, R., Sarwar, B., & Naheed, R. (2021). Managers ability and investment dynamics during the global financial crisis: an emerging market context. Journal of Chinese Economic and Foreign Trade Studies, 14(2). Https://doi.org/10.1108/JCEFTS-07-2020-0027
[27] Kushermanto, A., Alisa, I. R., Ulum, A. S., & Zulaikha, . (2023). COVID-19 Spread and Financial Distress: Does Managerial Ability Matter? Jurnal Dinamika Akuntansi Dan Bisnis, 10(2). Https://doi.org/10.24815/jdab.v10i2.28905
[28] Cahyaningrum, N., Gunawan, J., & Anis, I. (2022). Financial Distress dan Internal Control pada Earnings Management dengan Managerial Ownership Sebagai Moderasi. E-Jurnal Akuntansi, 32(6). Https://doi.org/10.24843/eja.2022.v32.i06.p09
[29] Prameswari, N. P. A. S., Suaryana, I. G. A. N., Sujana, I. K., & Rasmini, N. K. (2022). Good corporate governance moderates the effect of corporate social responsibility disclosure, financial distress and managerial ability on earnings management with variable. International Journal of Business, Economics & Management, 5(4). Https://doi.org/10.21744/ijbem.v5n4.2038
[30] Demerjian, P., Lev, B., & mcvay, S. (2012). Quantifying managerial ability: A new measure and validity tests. Management Science, 58(7). Https://doi.org/10.1287/mnsc.1110.1487
[31] Agrawal, K., & Chatterjee, C. (2015). Earnings Management and Financial Distress: Evidence from India. Global Business Review, 16. Https://doi.org/10.1177/0972150915601928
[32] Dechow, P.M.,&Sloan, A. S. (1995). Detecting earnings management. Accounting review. The Accounting Review, 70(193–225).
[33] Kamaluddin, A., Ishak, N., & Mohammed, N. F. (2019). Financial distress prediction through cash flow ratios analysis. International Journal of Financial Research, 10(3). Https://doi.org/10.5430/ijfr.v10n3p63
[34] Kamau, C. G., Banafa, A. A., & Kariuki, S. N. (2022). Correlation between Earnings Management and Financial Distress among Selected Firms in Kenya. In researchsquare. Https://doi.org/10.21203/rs.3.rs-1643310
[35] Suranta, E., Satrio, M. A. B., & Midiastuty, P. P. (2023). Effect of Investment, Free Cash Flow, Earnings Management, Interest Coverage Ratio, Liquidity, and Leverage on Financial Distress. Ilomata International Journal of Tax and Accounting, 4(2). Https://doi.org/10.52728/ijtc.v4i2.714

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