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## Article

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# CEO features, foreign ownership, and real earnings manipulation: evidence from Jordan

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## ABSTRACT

This study investigates the impact of foreign ownership (FOR) on the relationship between CEO features and real earnings management (REM) practices, including abnormal cash flow from operating (ACO), abnormal discretionary expenses (ADIET), abnormal production costs (APRC), and aggregate REM. Using the Feasible Generalized Least Squares (FGLS) method, regressions were performed using 685 enterprise-year observations of enterprises listed on the Amman Stock Exchange from 2017 to 2021. The findings reveal that female CEOs restrict REM (APRC), while CEOs with prior experience engage more in REM by manipulating sales, reducing discretionary expenses, and engaging in aggregate REM to establish a positive reputation. Additionally, it was found that CEOs with longer tenures are less likely to engage in REM (ADIET and APRC). Furthermore, enterprises with older CEOs have a mitigating effect on aggregate REM practices, although they are more inclined to engage in REM by reducing discretionary expenses. Consistent with the knowledge spillover hypothesis, foreign ownership acts as a constraint on the practice of REM. Specifically, when combined with CEO tenure, foreign ownership limits REM (ACO and aggregate REM). However, in line with the information asymmetry hypothesis, the study reveals that foreign ownership, in combination with CEO gender, increases REM (ACO). Moreover, foreign ownership increases REM (ADIET) when combined with CEO experience. Additionally, the results indicate that foreign ownership intensifies REM (ACO and aggregate REM) when combined with CEO age. This study provides new insights into the impact of foreign ownership (FOR) on the relationship between CEO features and REM practices, demonstrating that foreign ownership can either limit or intensify REM practices depending on the specific combination of CEO features, such as gender, experience, tenure, and age. These findings will benefit practitioners, investors, and regulators by enhancing their understanding that enterprises with significant FOR and longer CEO tenure tend to demonstrate higher financial reporting quality (FRQ) and employ lower levels of REM.

## IMPACT STATEMENT

This study highlights how foreign ownership (FOR) affects the relationship between CEO features (CEO gender, experience, tenure, and age) and REM, namely, abnormal cash flow from operating (ACO), abnormal discretionary expenses (ADIET), abnormal production costs (APRC), and aggregate REM. It provides evidence that CEOs who are female tend to decrease REM through sales manipulation, and CEOs experience increased REM through manipulating sales, reducing discretionary expenses, and engaging in aggregate REM. Additionally, it was found that CEOs with longer tenures are less likely to engage in REM through discretionary expenses and overproduction. Also, enterprises with older CEOs have a mitigating effect on aggregate REM practices, although they are more inclined to engage in REM by reducing discretionary expenses. The results revealed that foreign ownership could limit or intensify REM practices depending on the combination of CEO features, such as gender, experience, tenure, and age. These findings will benefit practitioners, investors, and regulators by enhancing their understanding that the interaction between foreign ownership and CEO tenure further contributes to restricting REM (ACO and aggregate REM).

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## 1. Introduction

External stakeholders, particularly investors, heavily rely on accounting earnings as a crucial metric for evaluating an enterprise's performance. However, the dependability of this information is occasionally questioned because managers can exploit the flexibility inherent in accounting standards to manipulate reported earnings, creating a more favorable impression of the enterprise's financial performance (Oussii & Klibi, 2023). This practice, commonly known as earnings management (EM), involves enterprises deliberately manipulating financial information to influence reported earnings (Healy & Wahlen, 1999). EM takes two primary forms: accrual EM (AEM) and real EM (REM). AEM involves selectively using accounting methods and techniques to achieve a desired income level. On the other hand, REM entails manipulating the enterprise's actual activities to impact reported earnings, including pricing decisions, production levels, or discretionary expenses (Roychowdhury, 2006). REM has gained increased emphasis in recent years as enterprises have shown a growing inclination toward managing earnings through these real activities instead of relying solely on AEM (Habib et al., 2022). The shift towards REM can be attributed to several factors, such as stricter accounting standards, the mandatory adoption of IFRS (Calabrò et al., 2022), the implementation of the Sarbanes-Oxley Act, and increased scrutiny from audits, which have constrained managers' ability to employ AEM (Cohen et al., 2008; Ipino & Parbonetti, 2017; Roychowdhury, 2006). Consequently, managers have turned to manipulative practices in real activities as a less easily detectable means of managing earnings (Habib et al., 2022; Ipino & Parbonetti, 2017). EM, encompassing the manipulation of financial information, holds significant importance as it directly affects the accuracy and dependability of financial data. Consequently, the reliability of financial information plays a crucial role in influencing decision-making processes among stakeholders. Therefore, comprehending the practices and consequences of EM becomes crucial, particularly given its prominent presence in emerging markets, such as Jordan (Abu Afifa et al., 2024; Abu Afifa et al., 2023; Aburisheh et al., 2022; Al-Begali & Phua, 2023a; Saleh et al., 2023).

The Chief Executive Officer (CEO) of an enterprise holds a significant position of influence within the organization, primarily because they have unrestricted access to vital information about the enterprise's operations (Oussii & Klibi, 2023). Extensive research in the field of accounting suggests that the CEO, as a member of the top management team, has a significant impact on the quality of financial reporting (FRQ) (Musa et al., 2023; Putra & Setiawan, 2024). According to Hambrick and Mason (1984), the CEO's features play a crucial role in shaping strategic options, influencing their decision-making processes and cognitive values, and ultimately impacting the outcomes of the enterprise. However, given the CEO's pivotal role in financial reporting and corporate decision-making, the potential for engaging in earnings management (EM) practices becomes a concern (Musa et al., 2023). Executives place significant emphasis on meeting specific earnings thresholds, such as achieving positive earnings or meeting analysts' forecasts, as these benchmarks hold substantial importance (Oussii & Klibi, 2023). Consequently, these thresholds exert a powerful influence on external stakeholders' perceptions of an enterprise's performance, often leading to the distortion of the organization's true financial position.

Despite instances of corporate failures attributed to earnings manipulation practices by CEOs, research examining the association between CEO features and EM is limited, particularly in developing countries (Al-Begali & Phua, 2023b; Alhmood et al., 2023). Existing studies have reported mixed findings regarding the role of CEOs' features in engaging in EM (Alhmood et al., 2023; Altarawneh et al., 2022; Musa et al., 2023; Oussii & Klibi, 2023; Putra & Setiawan, 2024). In the context of Jordan, previous studies on EM and CEO features have primarily focused on AEM (Alqatamin et al., 2017; Qawasmeh & Azzam, 2020), with limited research investigating CEO features and REM (Al-Begali & Phua, 2023b; Alhmood et al., 2023; Alhmood et al., 2020). Furthermore, there is a debate on whether the CEO's role is primarily one of oversight or opportunism, with concerns that personal interests may overshadow shareholder interests (Al-Begali & Phua, 2023b). A definitive explanation for the involvement of CEOs in the downfall of numerous enterprises has not been provided. Consequently, scholars have emphasized the need for further research to comprehensively investigate the interplay between CEO features and EM (Al-Begali & Phua, 2023b; Oussii & Klibi, 2023). Therefore, this study aims to extend previous research by exploring the

effect of CEO features on REM, including abnormal cash flow from operations, abnormal production costs, abnormal discretionary expenses, and aggregate REM in the Jordanian market.

Foreign ownership (FOR) refers to the extent to which entities or individuals from outside the country where an enterprise is based hold shares in that enterprise. FOR serves as an important corporate governance mechanism, reducing information asymmetry, overseeing agent performance, and providing access to new markets, advanced technologies, and managerial expertise, thereby fostering innovation and promoting growth (Al-Duais et al., 2021; Debnath et al., 2021; Guo et al., 2015). Despite possessing professional qualifications and adhering to good governance practices, foreign owners may have a limited understanding of the host country's market dynamics and cultural context (Alghemary et al., 2023). As a result, they closely monitor the activities of enterprises to ensure accurate financial reporting. Therefore, foreign ownership can act as a constraint on earnings management (EM) behavior (Alzoubi, 2016; Nguyen et al., 2021; Tran et al., 2023; Vo & Chu, 2019). Foreign owners, particularly those from developed countries, impose stringent requirements for financial information transparency and uphold the quality of the information provided to external stakeholders (Al-Duais et al., 2021; Debnath et al., 2021; Guo et al., 2015; Shayan-Nia et al., 2017).

In the case of Jordan, the privatization process that enterprises have undergone has transformed the economy from a controlled to a market-based economy, abolishing state monopolies. This transformation has led to changes in the ownership structure of enterprises listed on the Amman Stock Exchange (ASE), with increased foreign ownership in the Jordanian market (Alhababsah, 2019). Foreign investors currently hold approximately half of the ASE's capital (Alzoubi, 2016). It is argued that foreign investors play a significant role in improving corporate governance in developing markets by strengthening the monitoring role of managers (Young et al., 2008). Foreign investors are often concerned about their investments in host enterprises, leading them to monitor enterprises more effectively than local investors (Young et al., 2008). They aim to achieve a return on their investments, so they insist on appointing qualified and experienced CEOs to ensure better management and the provision of transparent and reliable information (Al-Msiedeen & Al Sawalqa, 2021). Additionally, foreign investors prefer to invest in enterprises with more efficient CEOs and may seek to remove poorly performing CEOs from their positions (Aggarwal et al., 2011; Hanousek et al., 2004). Consequently, under the scrutiny of foreign ownership, managers are likely to curtail EM practices.

Previous studies have demonstrated a positive correlation between higher foreign ownership and higher earnings quality (Al-Duais et al., 2021; Debnath et al., 2021; Guo et al., 2015; Shayan-Nia et al., 2017), indicating a restriction of REM practices. Also, prior research has attempted to address the mixed findings in the CEO features - EM relationship by examining moderating variables such as ownership concentration (Alhmood et al., 2023) and family ownership (Al-Begali & Phua, 2023b; Oussii & Klibi, 2023). However, the question of whether the features of CEOs in the Jordanian market act as a constraint or catalyst for EM, especially in situations involving concentrated ownership, particularly foreign ownership, remains unanswered. Hence, this study attempts to extend the previous research by exploring the moderating effect of foreign ownership on the relationship between CEO features and REM in the Jordanian market from 2017 to 2021. This period includes two significant events: the revision of the Jordanian Corporate Governance Code and the impact of the COVID-19 pandemic on the global economy.

Our paper differs from previous studies in several ways. Firstly, Alhmood et al. (2023) and Alhmood et al. (2020) utilized a small sample of only 58 enterprises listed on the Amman Stock Exchange from 2013 to 2018, before the COVID-19 pandemic. In contrast, our study utilizes a larger sample of 137 enterprises between 2017 and 2021, covering both the service and industry sectors. Secondly, Alhmood et al. (2023) and Alhmood et al. (2020) measured REM solely through abnormal production costs and abnormal discretionary expenses while disregarding abnormal cash flow from operations, which is considered one of the most important REM metrics. In our study, we incorporate all REM measurements, including abnormal cash flow from operations, abnormal production costs, abnormal discretionary expenses, and aggregate REM. Additionally, our study introduces foreign ownership as the moderator, which differs from Alhmood et al. (2023) use of ownership concentration in general as a moderator for the relationship between CEO features and REM. Furthermore, our study's moderator is distinct from that used by Al-Begali and Phua (2023b), who employed family ownership as a moderator for the

relationship between CEO features and EM. Therefore, their findings may not accurately reflect the situation of enterprises with foreign ownership. These differences in sample size, REM measurements, and choice of moderators contribute to the novelty and uniqueness of our study, allowing for a more comprehensive examination of the relationship between CEO features and REM in the present of foreign ownership.

Due to several factors, Jordan is appropriate for conducting this research. Firstly, EM is more prevalent in emerging markets than in developed markets. Previous studies documented that Jordan is an emerging market, and EM is widespread in its market (Abu Afifa et al., 2024; Abu Afifa et al., 2023; Aburisheh et al., 2022; Al-Begali & Phua, 2023a; Alzoubi, 2016; Saleh et al., 2023), making it a critical and concerning issue. Secondly, FOR plays a significant role in the market, with foreign investors holding a substantial portion of the country's capital (Alzoubi, 2016). Considering foreign owners' different monitoring mechanisms and expectations complicates the CEO features - REM relationship. The lack of trust in the financial statements of listed enterprises has a negative impact on foreign investment in the stock market (Uddin, 2023). According to Aburisheh et al. (2022), Jordan's domestic financial market limitations have led to a significant dependence on foreign finance. As a result, FRQ must be maintained in order to maintain the trust of foreign investors. Last but not least, the institutional environments in developing nations such as Jordan are distinct from those in industrialized nations, further influencing the CEO features - REM relationship. Consequently, studying the Jordanian market provides valuable insights into the unique dynamics of CEO features and REM within an emerging economy.

This study utilizes a dataset covering 137 enterprises listed on the ASE from 2017 to 2021. It aims to investigate the potential influence of foreign ownership (FOR) on the relationship between CEO features and earnings management (REM). The study's findings indicate that not all CEO features effectively restrict REM. Specifically, female CEOs are found to restrict REM in terms of abnormal production costs (APRC). Conversely, CEOs' experience is shown to increase REM through sales manipulation, discretionary expenditures, and overall REM. In contrast, the results demonstrate that CEO tenure (CEOTEN) helps mitigate REM through discretionary expenditures and over-production. Additionally, CEO age (CEOAGE) plays a role in reducing REM through overall REM and increasing REM through discretionary expenditures. Moreover, consistent with the knowledge spillover hypothesis, foreign ownership acts as a constraint on the practice of REM. Specifically, when combined with CEO tenure, foreign ownership limits REM (ACO and aggregate REM). However, in line with the information asymmetry hypothesis, the study reveals that foreign ownership, in combination with CEO gender, increases REM (ACO). Furthermore, foreign ownership increases REM (ADIET) when combined with CEO experience. Additionally, the results indicate that foreign ownership intensifies REM (ACO and aggregate REM) when combined with CEO age.

Overall, the study contributes to the existing body of knowledge by bridging the gap in the literature regarding the role of foreign ownership in the relationship between CEO features and REM. Thus, this study makes significant contributions in terms of both theoretical and empirical implications. Theoretically, this study contributes to the accounting literature by developing a comprehensive theoretical framework that incorporates multiple theories, including agency theory, upper echelon theory, knowledge spillover hypothesis, and information asymmetry hypothesis. By integrating these theories, the study provides a more holistic understanding of the factors influencing REM practices. The results regarding the effect of CEO features on REM support both agency theory and upper-echelon theory, indicating that CEO features influence REM and FRQ. Furthermore, the findings regarding foreign ownership as a moderator support both the information asymmetry and spillover hypotheses, highlighting how foreign ownership can either restrict or intensify REM practices depending on specific CEO features like gender, experience, tenure, and age. As a result, this research has the potential to deepen the understanding of these theories in an emerging market where ownership concentration affects investor protection and corporate governance effectiveness. Also, unlike previous studies that focused on aggregate REM, this study specifically examines the influence of CEO features on various REM techniques, including sales manipulation, discretionary expenses, over-production, and overall REM. This approach enhances the information obtained and allows for a more detailed comprehension of REM (Chi et al., 2011).

Empirically, the current study has significant empirical contributions with practical implications for various users of financial information. The results of this study confirm the occurrence of REM practices in Jordanian-listed enterprises, providing regulators, stakeholders, and users of financial information with

a better understanding of these techniques and their impact on enterprises. The study highlights the importance of CEO features in explaining REM, with specific features showing varying effects on REM practices. In this regard, the findings of this study reassure investors, indicating that enterprises with long-tenured CEOs are more likely to restrict REM practices and produce high-quality financial reports. However, older CEOs tend to restrict aggregate REM but are more likely to engage in REM through discretionary expenses, particularly in enterprises with high foreign ownership. This highlights the need for caution when dealing with enterprises that appoint older CEOs and emphasizes the influence of CEO experience. The study also emphasizes the influential role of foreign ownership as a moderator in the relationship between CEO features and REM. In enterprises with foreign ownership, certain CEO features, such as long tenure, play a significant role in restricting the practice of REM. This finding provides valuable insights for investors and shareholders, guiding them towards enterprises with high foreign ownership for better investment decisions. These results offer an opportunity to evaluate how well corporate governance laws, especially in the context of foreign ownership, prevent CEO opportunistic conduct. Thus, the study's results can inform regulatory and policymaker bodies in their efforts to improve Jordanian corporate governance practices. The study also benefits shareholders, investors, and board directors by identifying specific CEO features that contribute to the production of high-quality financial reports. Therefore, stakeholders can make informed decisions and promote transparency in corporate reporting based on the study's results.

The remaining paper is structured as follows: Sections 2, 3, 4, 5, 6, and 7 represent the theoretical framework, literature review and hypotheses, research design, findings, additional analyses, and conclusion, respectively.

## 2. Theoretical framework

The study's discussion is based on theoretical perspectives such as agency theory and upper echelons theory, which offer explanations for the relationship between CEO features and REM. Additionally, theories like knowledge spillover and the information asymmetry hypothesis provide explanations for the role of foreign ownership (FOR) as a moderator in this relationship.

### 2.1. Agency theory

A widely recognized framework for analyzing the dynamics between managers and shareholders is provided by agency theory, which highlights the inherent conflict of interest arising from the separation of ownership and control in businesses (Jensen & Meckling, 1976). Managers driven by self-interest may resort to earnings management (EM) practices to manipulate financial information, deceiving shareholders and prioritizing short-term gains over long-term shareholder value (Alhmood et al., 2023; Putra & Setiawan, 2024). According to agency theory, CEOs play a significant role in the opportunistic behavior of managers who engage in earnings manipulation for various motives (Jensen & Meckling, 1976). They possess the power and access to information necessary to carry out EM and maximize their personal interests. Furthermore, agency theory suggests that male CEOs may exhibit a higher inclination towards engaging in EM activities due to their desire for personal wealth accumulation and the attainment of power (Jensen & Meckling, 1976). Consequently, agency theory asserts that managers, including CEOs, may prioritize their own interests over those of the owners (Jensen, 1986).

### 2.2. Upper echelons theory (UET)

According to the upper echelons theory (UET), organizational outcomes are directly influenced by the knowledge and experiences of top-level managers (Hambrick & Mason, 1984). CEO features are believed to significantly impact strategic decision-making, value creation, and organizational outcomes, including FRQ. Recent studies have increasingly employed the UET to examine the connection between CEO features and earnings manipulation, highlighting the influence of CEO features on decision-making and organizational outcomes (Alhmood et al., 2023; Putra & Setiawan, 2024). Building upon this prior

research, our study adopts agency theory and the UET to examine the relationship between CEO features and REM.

### **2.3. Knowledge spillover and the information asymmetry hypothesis**

The effects of foreign ownership can be explained by two contrasting hypotheses: the knowledge spillover and the information asymmetry hypothesis (Guo et al., 2015). According to the knowledge spillover hypothesis, the presence of foreign investors in an enterprise brings several benefits, including introducing new management styles, advanced technologies, and improved oversight of accounting processes and operational efficiency (Shayan-Nia et al., 2017). Foreign investors also contribute to the development of local markets and facilitate risk-sharing between domestic and foreign shareholders. Due to the threat of divesting their shareholdings, foreign owners improve the monitoring capacity of directors, thus mitigating managerial opportunism (Chung et al., 2004; Desender et al., 2016). In this regard, the knowledge spillover hypothesis suggests that foreign owners bring valuable expertise, knowledge, and access to international markets, which can benefit the invested enterprises and enhance earnings quality (Guo et al., 2015). Empirical evidence supports the negative association between foreign ownership and real earnings management (Al-Duais et al., 2021; Debnath et al., 2021; Guo et al., 2015; Shayan-Nia et al., 2017). However, the effectiveness of monitoring by foreign shareholders may be limited by information asymmetry and a lack of knowledge about the local institutional environment. The information asymmetry hypothesis posits that the geographical distance and complexities associated with international markets may impede effective monitoring and control of financial reporting processes, potentially leading to earnings management (Guo et al., 2015). In this regard, it is expected that distance and unfamiliarity with the local context can hinder the ability of foreign investors to constrain real earnings management effectively. Therefore, our study leverages agency theory and the UET to investigate the relationship between CEO features and REM. Additionally, we consider the insights from the knowledge spillover and information asymmetry hypotheses to explore the moderating effect of foreign ownership. By integrating these theoretical perspectives, our study aims to deepen our understanding of how CEO features influence REM practices, particularly in the context of foreign ownership.

## **3. Literature review and hypothesis**

### **3.1. Earnings manipulation and CEO features**

In general, earnings management (EM) can be categorized into two types: accrual EM (AEM) and real EM (REM). AEM occurs when managers utilize accounting techniques and estimates to manipulate accounting information and deceive stakeholders (Healy & Wahlen, 1999). On the other hand, REM involves intentional deviations from normal operational processes with the aim of misleading users about the actual performance of the enterprises (Roychowdhury, 2006). This includes manipulating real enterprise activities that directly impact the enterprises' cash flows to achieve the desired earnings. It is important to note that AEM typically occurs at the end of the financial year, while REM takes place throughout the year. For example, enterprises may engage in REM by overproducing during the year to minimize production costs, increase sales through discounts, or reduce discretionary expenses (Roychowdhury, 2006).

EM occurs due to a misalignment of priorities between management and owners, with managers seeking personal gains or rewards (Jensen & Meckling, 1976). Chief Executive Officers (CEOs) are particularly influential in EM, using their position and authority to exploit opportunities for personal interest, such as increasing their compensation (Ali & Zhang, 2015). According to agency theory, CEOs are major participants in the opportunistic conduct of managers who manipulate earnings for different motivations (Jensen & Meckling, 1976). They have the power and access to information to carry out EM and maximize their own interests. While some studies highlight the negative consequences of CEO misconduct and manipulation of financial reports (Putra & Setiawan, 2024), others argue that CEO features have a significant impact on the supervision of financial reporting (Altarawneh et al., 2022; Musa et al., 2023; Oussii & Klibi, 2023). Additionally, the upper echelons theory emphasizes the significance of CEOs' backgrounds and experiences in shaping corporate strategies and outcomes (Hambrick & Mason, 1984).

Gaining insights into the inclinations and biases of CEOs is essential. Hence, investigating the impact of CEO features on REM and the role of foreign ownership (FOR) in this relationship, specifically in the Jordanian market, can yield valuable insights into the influence of CEO features on enterprise outcomes and the reliability of financial reporting. The hypotheses regarding the association between CEO features and EM are presented in the next subsections.

### 3.1.1. CEO gender

Gender plays a role in influencing the behaviors and ethics of executives, thus influencing decision-making related to the enterprises. According to agency theory, male CEOs may exhibit a greater propensity to engage in earnings management (EM) activities due to their inclination towards personal wealth accumulation and attaining power (Jensen & Meckling, 1976). On the other hand, the upper echelons theory highlights the influence of CEO gender on EM through the shaping of values, attitudes, and experiences (Hambrick & Mason, 1984). In contrast, previous literature has argued that women tend to avoid risks (Faccio et al., 2016; Muhammad et al., 2022), exhibit higher ethical behavior, and implement stronger monitoring (Belot & Serve, 2018; Putra & Setiawan, 2024; Qi et al., 2018).

Prior research on the relationship between CEO gender and EM has yielded conflicting results. Several studies, including Altarawneh et al. (2022), Belot & Serve (2018), Gavius et al. (2012), Putra and Setiawan (2024), and Qi et al. (2018), have indicated that female CEOs are less prone to engaging in EM or reducing managerial opportunism. On the other hand, Musa et al. (2023) discovered evidence in their experimental investigation in the Nigerian market that showed a greater proportion of female CEOs promoted the use of real EM (REM). Nevertheless, research by Al-Begali and Phua (2023b) and Peni and Vähämaa (2010) did not find a significant association between CEO gender and EM.

Based on the above, it can be noted that previous studies have yielded mixed results, and most of them focused on accrual EM (AEM). Therefore, this study fills the gap and contributes to the EM literature by investigating the relationship between CEO gender and REM (including ACO, ADIET, APRC, and aggregate REM) in the Jordanian market. Drawing from the preceding discussion and in line with agency theory, we can anticipate the following hypothesis:

H1: Female CEOs and REM (ACO, ADIET, APRC, and aggregate REM) have a negative correlation.

### 3.1.2. CEO experience

The upper-echelon theory posits that CEOs, through their features such as experience and unique skills, can impact an enterprise's value creation, strategic decisions, and financial reporting choices. The financial expertise of a CEO plays a crucial role in financial reporting and decision-making within an enterprise. CEOs with a background in finance or accounting are regarded as experts and contribute to the trustworthiness of financial reporting (Jiang et al., 2013). Their knowledge enables them to identify and rectify financial fraud and EM instances, leading to more equitable and reliable accounting information (Troy et al., 2011). Moreover, CEOs with financial expertise understand the significance of accounting information for investors and effectively communicate it to the public (Custódio & Metzger, 2014). They also closely monitor accounting and internal audit departments, facilitating the detection and prevention of irregular accounting practices (Musa et al., 2023). Thus, CEOs with financial expertise demonstrate a decreased tendency to pursue EM as a strategy to avoid reporting losses and declining earnings (Oussii & Klibi, 2023).

Previous studies have examined the CEO experience – EM relationship, but the results are inconsistent. For example, Gounopoulos and Pham (2018) obtained that newly listed enterprises with financial expert CEOs reduced engagement in EM compared with non. Similarly, Oussii and Klibi (2023) find that CEOs with financial expertise are less likely to resort to EM to avoid reporting losses and declining earnings on the Tunis Stock Exchange. However, Zouari et al. (2015) and Qi et al. (2018) showed that executives with financial work experience are more likely to engage in AEM. Additionally, Putra and Setiawan (2024) discovered that CEOs possessing financial and accounting expertise exhibit familiarity with accounting standards and the obstacles associated with auditor oversight. As a result, these CEOs are more inclined to employ AEM rather than REM strategies. In contrast to some earlier conclusions, there

was no evidence discovered by Altarawneh et al. (2022), Hu et al. (2017), and Jiang et al. (2013) that CEOs with financial skills participate in less or more AEM.

Furthermore, conflicting outcomes have been reported in earlier investigations on the REM-CEO experience relationship. For instance, Jiang et al. (2013) and Musa et al. (2023) discovered that a CEO's financial ability may lower REM and raise the calibre of financial reporting. Conversely, Kouaib and Jarbouï (2016) demonstrated a notably beneficial relationship between REM and CEO experience. Furthermore, Qi et al. (2018) demonstrate that executives who have expertise in the financial industry are more likely to participate in REM than those without such expertise. Alhmood et al. (2020) looked at how the CEOs' experiences affected REM in Jordan as determined by ADIET and APRC procedures. The findings demonstrated a strong favorable correlation between CEO experience and REM. Qawasmeh and Azzam (2020) did not, however, discover any proof indicating a connection between CEO skill and AEM.

Based on the discussion above, it can be said that previous research provides mixed empirical outcomes (ie positive, negative, or no significant association) regarding CEO experience and EM, whether AEM, REM, or both. This inconsistency may be attributed to the use of different samples, varying research periods, different measurements of CEO expertise, and different countries. In developing countries, few studies focus on the association between CEO experience and REM, particularly in Jordan. Furthermore, no study has examined the CEO experience - REM after updating the JCGC, particularly during the COVID-19 pandemic. Therefore, based on the findings of previous studies and the upper-echelon theory, we can anticipate support for this hypothesis.

H2.1: The CEO experiences effects in REM (ACO, ADIET, APRC, and aggregate REM).

### 3.1.3. CEO tenure

The tenure of CEO refers to the period of time during which an individual holds the position of CEO and manages an enterprise. Research suggests that longer CEO tenures have a positive impact on CEOs' knowledge, experience, and ability to provide relevant financial information to directors (Altarawneh et al., 2022; Putra & Setiawan, 2024). CEOs bear primary responsibility for presenting favorable financial statements to stakeholders, and as their tenure progresses, they gain increased dominance within the enterprises (Hambrick & Fukutomi, 1991). This heightened influence allows them to exert greater control over investment decisions and accounting procedures, occasionally leading to overconfidence in their abilities (Hambrick & Fukutomi, 1991). Upon assuming their roles, newly appointed CEOs are driven to modify earnings in the early years of their tenure to create a positive perception of their capabilities in the market. This motivation often leads to the manipulation of accounting findings in order to send optimistic signals to stakeholders (Bouaziz et al., 2020; Qawasmeh & Azzam, 2020). CEOs with longer tenures benefit from the advantages associated with implementing an entrenchment strategy, and as a result, they may engage in opportunistic behaviors such as EM (Bouaziz et al., 2020).

Agency theory posits that managers, including CEOs, may prioritize their own interests over those of owners (Jensen, 1986). Furthermore, the upper echelons theory emphasizes the significance of CEO features and demographic features in shaping their roles, values, and knowledge, ultimately influencing the accounting outcomes within the enterprises (Hambrick & Mason, 1984).

Previous studies have provided mixed results regarding the influence of CEO tenure on EM. Di Meo (2014) found that CEOs with longer tenures engaged in opportunistic behavior through EM to conceal investment inefficiencies. In contrast, Hu et al. (2015) concluded that managers were initially conservative in managing earnings but became more aggressive in subsequent years. Ali and Zhang (2015) and Qawasmeh and Azzam (2020) revealed higher earnings overstatement in the early years of CEOs' service. Similarly, Kouaib and Jarbouï (2016) documented decreased research and development expenses in CEOs' initial years. Altarawneh et al. (2022) and Bouaziz et al. (2020) found a negative correlation between CEO tenure and AEM, indicating manipulation of accounting findings at the beginning of CEOs' appointments. However, it is worth noting that Alhmood et al. (2020) and Putra and Setiawan (2024) did not find an impact of CEOs' tenure on EM in their respective studies.

CEO tenure is crucial in shaping CEOs' knowledge, experience, and impact on financial reporting. It also influences the interplay between their personal features and accounting outcomes. Considering the above findings, agency theory, and upper echelons theory, it can be expected that enterprises

employing CEOs with longer tenures will likely exhibit an effect on EM levels. Therefore, the following hypothesis can be formulated:

H3. The CEO tenure affects REM (ACO, ADIET, APRC, and aggregate REM).

#### 3.1.4. CEO's age

The UET contends that an organization's decision-making processes and results are significantly influenced by the CEO's age (Hambrick & Mason, 1984). Psychological and accounting research indicates a positive association between age and ethical behavior, with older professionals exhibiting stronger ethical values (Al-Begali & Phua, 2023b; Le et al., 2020). Additionally, CEO age has implications for financial decisions, with younger CEOs being more prone to risk-taking and higher debt usage, while older CEOs tend to be more conservative in their investment strategies (Serfling, 2012).

There hasn't been much empirical research on the CEO age-EM link, especially in the setting of REM, and the ones that have been done have produced conflicting findings. CEO age has a negative impact on AEM, as shown by Belot and Serve (2018). Similar findings were reported by Qi et al. (2018), who hypothesized that fewer CEOs participate in both AEM and REM. Le et al. (2020) presented findings indicating a negative association between CEO age and AEM, with older CEOs displaying a more conservative and ethical stance. Nevertheless, a number of researchers (e.g., Altarawneh et al., 2022; Bouaziz et al., 2020; Putra & Setiawan, 2024; Qawasmeh & Azzam, 2020) have not discovered any meaningful correlation between CEO age and AEM. According to the arguments that came previously, the subsequent hypothesis was generated: -

H4. REM (ACO, ADIET, APRC, and aggregate REM) is impacted by the CEO's age.

### 3.2. Foreign ownership, the CEO features, and REM

Foreign ownership refers to the ownership or control of shares in an enterprise by individuals, organizations, or entities from outside the country where the enterprise is based. Foreign investors have a substantial impact on implementing corporate governance mechanisms and monitoring enterprises compared to other owners (Tran et al., 2023; Vo & Chu, 2019). According to Guo et al. (2015), the effect of foreign ownership on earnings management can be explained through the information asymmetry and knowledge spillover hypotheses. The knowledge spillover hypothesis suggests that foreign owners bring expertise, knowledge, and international market access, which can benefit the enterprises they invest in and improve earnings quality (Guo et al., 2015). However, the information asymmetry hypothesis suggests that distance and challenges in international markets may limit effective monitoring and control of financial reporting processes, potentially leading to EM (Guo et al., 2015).

Previous research investigating the link between foreign ownership and AEM has produced inconsistent results. Some studies (e.g., Alzoubi, 2016; Nguyen et al., 2021; Tran et al., 2023; Vo & Chu, 2019) found that foreign ownership improves FRQ by potentially reducing EM. However, there is evidence that foreign ownership may drive managers to practice EM (Farouk & Bashir, 2017), and it is an ineffectual method for lowering REM participation (Alghemary et al., 2023). However, other studies have reported no significant effect of foreign ownership on EM (Al-Haddad & Whittington, 2019; Saleh et al., 2023).

The majority of foreign investors are concerned about their investments in host enterprises. They want a return on their investment, so they insist on choosing skilled and experienced CEOs to ensure that these enterprises are better managed and that more transparent and reliable data is obtained (Al-Msiedeen & Al Sawalqa, 2021). Furthermore, international investors prefer to invest in enterprises with more efficient CEOs, and they may strive to remove ineffective CEOs from their posts (Aggarwal et al., 2011; Hanousek et al., 2004). The existing studies support the notion that foreign ownership can serve as an essential control mechanism to restrict opportunistic managerial behavior associated with REM (Al-Duais et al., 2021; Debnath et al., 2021; Guo et al., 2015; Shayan-Nia et al., 2017). Foreign owners improve the monitoring capacity of directors, thus mitigating managerial opportunism (Chung et al., 2004; Desender et al., 2016). However, the COVID-19 crisis has raised concerns among foreign investors

regarding the accuracy of publicly available financial records and the true economic impact of the pandemic (Alharasis, 2023).

Empirical studies that examined the relationship between CEO features and REM show inconsistent results, as discussed above. However, these conflicting findings could be further explained by introducing the moderating variable. In this regard, prior research has attempted to address the mixed findings in the CEO features – EM relationship by examining moderating variables such as ownership concentration (Alhmood et al., 2023) and family ownership (Al-Begali & Phua, 2023b; Oussii & Klibi, 2023). However, the question of whether the features of CEOs in the Jordanian market act as a constraint or catalyst for EM, especially in situations involving concentrated ownership, particularly foreign ownership, remains unanswered. To the best of the researcher's knowledge, no study has analyzed the moderating role of foreign ownership on CEO features – REM relationship despite the significance of foreign investment in the Jordanian market, comprising approximately half of its capital. Consequently, this study seeks to verify whether the CEO features – REM relationship is affected by foreign ownership as a moderator variable.

Based on the explanation above, the monitoring role of foreign shareholders is expected to decrease CEOs' opportunistic conduct and safeguard their interests against expropriation by insiders. Hence, foreign ownership is expected to moderate the relationship between CEO features and REM in Jordanian enterprises. As a result, the hypothesis that follows may be made: -

H5: The CEO features -REM relationship is moderated by foreign ownership.

## 4. Research design

### 4.1. Sample selection and data collection

The study's sample comprises all industrial and service enterprises registered on the ASE from 2017 to 2021, following the update of the Jordanian Corporate Governance Code (JCGC) in 2017. Jordan was selected as the research context due to its status as an emerging market. Being a developing country, the Jordanian market exhibits a distinct pattern of ownership concentration, where a small group of shareholders holds a significant proportion of shares (Al-Begali & Phua, 2023a, 2023b; Alhmood et al., 2023).

The chosen study period spans from 2017 to 2021 to coincide with the implementation of the JCGC update. This update mandated increased disclosure of corporate governance data by Jordanian shareholding enterprises, aiming to strengthen the role of corporate governance in curbing opportunistic behavior by managers and controlling shareholders. Additionally, this time period encompasses the significant global COVID-19 pandemic. However, by 2021, countries had begun reopening their economies after the imposed economic closures. Therefore, the study includes COVID-19 as a control variable to mitigate data bias. The industrial and service sectors were chosen because of their crucial roles in the growth and development of countries. In Jordan, the industrial sector serves as the primary source of employment and economic advancement, while the service sector contributes approximately two-thirds of productivity compared to other sectors. Consequently, the role of service enterprises in the Jordanian environment, known as the service market, is vital due to their contribution to GDP (Abu Afifa et al., 2023). Therefore, it is essential to examine corporate governance features as supervisory management to limit REM in these sectors.

Additionally, most bankruptcy and liquidation cases occur in the industrial and service sectors. Hence, understanding the impact of CEO features on REM in these sectors is necessary to enhance the reliability and transparency of financial reporting, including reported profits, to attract investors and boost the Jordanian economy. The banking and insurance sectors were excluded due to their unique regulatory frameworks, which differentiate them from other sectors in terms of financial reporting requirements governed by the Insurance Commission and the Central Bank of Jordan. These sectors are subject to stringent laws and regulations that differ from those of other sectors. Furthermore, the financial databases of these sectors possess distinct features that set them apart from the industrial and service sectors (Al-Haddad & Whittington, 2019; Alhmood et al., 2023). Given the research objectives, a quantitative approach was adopted for this study. Fifty-nine enterprises (comprising industrial and service enterprises) were excluded from the analysis due to incomplete data. Consequently, the final sample consists

**Table 1.** Sample of the study.

Details	Enterprises	Observation
population (all sectors)	235	1175
Excluded the following enterprises: -		
Enterprises from the insurance and banking sectors	(39)	
Whole industrial and service enterprises	196	980
Excluded enterprises missing data: -		
Industrial enterprises 'missing data.	(23)	
Service enterprises 'missing data.	(36)	
Total missing data from industrial and service enterprises	(59)	(295)
The research's end sample/observations	137	685

of 685 enterprise-year observations, as indicated in Table 1. Data on variables such as ACO, ADIET, APRC, REM, CEO features, foreign ownership, and control variables were primarily sourced from annual reports accessible on the enterprises' websites and the ASE.

## 4.2. Measurements of variables

### 4.2.1. Dependent variable

Previous research has indicated that REM can be practiced by manipulating operating activities, investment, and financing decisions. In this article, we focus on the manipulation of operating activities. We use three indicators: abnormal cash flow from operations (ACO), abnormal discretionary expenses (ADIET), and abnormal production costs (APRC), all derived from Roychowdhury (2006). This study explains how well these three indicators reflected actual behaviors that negatively impact an enterprise's future value and describes the proxies we use to operationalize them. Therefore, our research employs the comprehensive measure of REM as well as the three different proxies for genuine EM (ACO, ADIET, and APRC) since the three separate variables provide more information than depending only on aggregate REM (Chi et al., 2011).

**4.2.1.1. Abnormal cash flow from operations.** Toward the end of the year, managers may choose to lower prices or provide better credit conditions in an effort to increase current-period earnings. The goal of this strategy is to push revenues into the current year from the next fiscal year. By doing this, managers demonstrate their willingness to forgo future earnings in order to report higher sales during the present time. Nevertheless, there might be a price to this actual action, such as a reduction in future profitability upon the restoration of the original pricing and a decrease in cash flows for each dollar of sales during the present time. Therefore, it is believed that negative operational discretionary cash flows indicate rising REM. Following Roychowdhury (2006), we predict the usual amounts of cash flow from operations (ACO) for each industry and each year by the following model:

$$\frac{CO_t}{AS_{t-1}} = \beta_1 \left( \frac{1}{AS_{t-1}} \right) + \beta_2 \left( \frac{S_t}{AS_{t-1}} \right) + \beta_3 \left( \frac{\Delta S_t}{AS_{t-1}} \right) + \varepsilon_t \quad (1)$$

where  $CO_t$  is cash flow from operations at time (t);  $AS_{t-1}$  is lagged total assets in the year  $t-1$ ;  $S_t$  is sales at time t;  $\Delta S_t$ , change in sales from time  $t-1$  to time t, and  $\varepsilon_t$  is the residual from equation number (1), it is known as ACO if it is lower, indicating higher REM and vice versa.

**4.2.1.2. Abnormal discretionary expenses.** Managers can increase current period earnings by cutting non-operating costs like advertising, R&D, and SG&A expenditures. Therefore, by cutting back on discretionary spending, current-period cash flows may rise. As a result, activities done to enhance earnings—known as earnings-increasing REM acts—are indicated by negative discretionary expenses in the current period (Roychowdhury, 2006). In order to evaluate unusual discretionary spending, we use the following model:

$$\frac{DIET_t}{AS_{t-1}} = \beta_1 \left( \frac{1}{AS_{t-1}} \right) + \beta_2 \left( \frac{S_{t-1}}{AS_{t-1}} \right) + \varepsilon_t \quad (2)$$

$DIET_t$  is discretionary spending as the total advertising, R&D, and SG&A costs and  $S_{t-1}$ ; lagged sales at time  $t - 1$ . The residual ( $\varepsilon_t$ ) from the computation Eq. (2) is represented by abnormal discretionary expenditures (ADIET); the smaller the residual values, the greater the REM degree.

**4.2.1.3. Abnormal production costs.** Managers can lower the cost of goods sold (COGS) by engaging in overproduction during a given period to boost earnings. By increasing production levels, fixed overhead costs can be spread across larger units, thereby reducing the fixed costs per unit. The COGS will decrease as long as there are no corresponding increases in variable costs per unit. However, if the total increase in production costs is not matched by a proportional increase in sales, positive abnormal production costs are considered as evidence of REM (Eng et al., 2019; Roychowdhury, 2006). Production costs (PRC) are defined as the combination of costs of goods sold at time  $t$  and the change in inventories. Every industry uses the following cross-sectional study with the year to anticipate the extraordinary cost of production:

$$\frac{PRC_t}{AS_{t-1}} = \beta_1 \left( \frac{1}{AS_{t-1}} \right) + \beta_2 \left( \frac{S_t}{AS_{t-1}} \right) + \beta_3 \left( \frac{\Delta S_t}{AS_{t-1}} \right) + \beta_4 \left( \frac{\Delta S_{t-1}}{AS_{t-1}} \right) + \varepsilon_t \quad (3)$$

Where  $PRC_t$ , production costs at time  $t$ , and the residual ( $\varepsilon_t$ ) in the calculation Eq. (3) is the abnormal production costs (APRC). Greater APRC indicates greater REM practice.

**4.2.1.4. Aggregate REM.** This research also builds upon prior studies that have utilized a combination of three measurements to estimate REM. It has been argued that using the aggregate of these three REM measures provides more robust information, indicating a higher degree of EM activities. However, it is crucial to note that lower values of ACO and ADIET indicate higher levels of REM, while higher values of APRC signify greater REM practices (Cohen et al., 2008; Roychowdhury, 2006). Thus, this study also estimates REM using the aggregate measures in equations (1) (2), and (3). The standardized residuals of ACO and ADIET are multiplied by  $-1$  and added to the standardized residuals of APRC. Higher values of these measures indicate an increased level of REM activities. Therefore, Eq. (4) is employed to measure REM.

$$REM = ACO * (-1) + ADIET * (-1) + APRC \quad (4)$$

#### 4.2.2. Independent variables

In this research, CEO features serve as independent variables, with four specific variables being evaluated: CEO gender (CEOG), CEO experience (CEOEXP), CEO tenure (CEOTEN), and CEO age (CEOAGE). According to Belot and Serve (2018), Putra and Setiawan (2024), and other sources, CEOG is a dummy variable that takes the value '1' if the CEO is female and '0' otherwise. The dummy variable 'CEOEXP' has a value of '1' if the CEO has previous experience in any of the following: banking, investment enterprises, large auditing enterprises, or finance positions like CFO, VP of finance, or accountant. If not, it has a value of zero (Bouaziz et al., 2020; Putra & Setiawan, 2024). The length of time a CEO has been employed as CEO of their present enterprises is used to calculate CEOTEN (Altarawneh et al., 2022; Bouaziz et al., 2020). CEOAGE is a measure of the CEO's age in the research years of a certain organization.

#### 4.2.3. Control variables

Control variables are additional factors included in our research study to isolate the impact of CEO features on earnings management while controlling for potential effects of enterprise size (CSIZ), enterprise growth (CGR), financial leverage (LEV), and return on assets (ROA). This approach allows for a more accurate assessment of the relationship between CEO features and REM practices. One such control variable is enterprise size (CSIZ), which refers to the magnitude of an enterprise's operations. CSIZ can be measured by the natural logarithm of total assets (Abu Afifa et al., 2023; Al-Begali & Phua, 2023a, 2023b; Alhmood et al., 2023). The inclusion of CSIZ as a control variable is justified based on previous studies that have indicated its potential influence on EM (Musa et al., 2023; Putra & Setiawan, 2024). Enterprise growth (CGR) can be measured as a ratio that compares an enterprise's market value to its book value. Previous investigations have yielded mixed results regarding the association between enterprise growth

and EM (Al-Begali & Phua, 2023a, 2023b). Therefore, our study includes CGR as a control variable. Financial leverage (LEV) is another control variable that represents the extent to which an enterprise relies on debt financing in its capital structure. High levels of leverage may create financial pressure on enterprises, potentially influencing their incentives or ability to engage in earnings management practices (Altarawneh et al., 2022; Musa et al., 2023). Financial leverage (LEV) is measured by the proportion of all debt to all assets (Abu Afifa et al., 2023; Alhmood et al., 2023). Return on assets (ROA) is a financial performance metric that measures an enterprise's profitability relative to its total assets. ROA is sometimes used as a control variable because enterprises with different levels of profitability may have varying motivations or opportunities to engage in EM. ROA is measured by net profit after tax divided by total assets (Al-Begali & Phua, 2023b). Al-Begali and Phua (2023a) and Garfatta et al. (2023) discovered that COVID-19 also had an impact on REM. Thus, as a result, we expanded the control variables in our regression models to include the dummy variable (pandemic) to address the possible influence of COVID-19 on the outcomes. '1' represents the COVID-19 outbreak era (2020–2021), while '0' represents the time leading up to the outbreak (2017–2019).

#### 4.2.4. Moderator variable

The current investigation uses foreign ownership (FOR) as a moderating variable to examine how it affects the CEO features -REM connection. The measurement of FOR in this study involves calculating the ratio of shares owned by foreigners to the total number of shares of the enterprises (Alzoubi, 2016; Guo et al., 2015; Vo & Chu, 2019).

### 4.3. Regression model

This study employs the following model to examine how the CEO features of industrial and service enterprises affect the level of REM:

$$\begin{aligned} \text{ACO}_{it} = & \beta_0 + \beta_1 \text{CEOG}_{it} + \beta_2 \text{CEOEXP}_{it} + \beta_3 \text{CEOTEN}_{it} + \beta_4 \text{CEOAGE}_{it} + \beta_5 \text{CSIZ}_{it} + \beta_6 \text{CGR}_{it} + \beta_7 \text{LEV}_{it} \\ & + \beta_8 \text{ROA}_{it} + \beta_9 \text{COV}_{it} + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon_{it} \end{aligned} \quad (5-A)$$

$$\begin{aligned} \text{ADIET}_{it} = & \beta_0 + \beta_1 \text{CEOG}_{it} + \beta_2 \text{CEOEXP}_{it} + \beta_3 \text{CEOTEN}_{it} + \beta_4 \text{CEOAGE}_{it} + \beta_5 \text{CSIZ}_{it} + \beta_6 \text{CGR}_{it} + \beta_7 \text{LEV}_{it} \\ & + \beta_8 \text{ROA}_{it} + \beta_9 \text{COV}_{it} + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon_{it} \end{aligned} \quad (5-B)$$

$$\begin{aligned} \text{APRC}_{it} = & \beta_0 + \beta_1 \text{CEOG}_{it} + \beta_2 \text{CEOEXP}_{it} + \beta_3 \text{CEOTEN}_{it} + \beta_4 \text{CEOAGE}_{it} + \beta_5 \text{CSIZ}_{it} + \beta_6 \text{CGR}_{it} + \beta_7 \text{LEV}_{it} \\ & + \beta_8 \text{ROA}_{it} + \beta_9 \text{COV}_{it} + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon_{it} \end{aligned} \quad (5-C)$$

$$\begin{aligned} \text{Aggregate REM}_{it} = & \beta_0 + \beta_1 \text{CEOG}_{it} + \beta_2 \text{CEOEXP}_{it} + \beta_3 \text{CEOTEN}_{it} + \beta_4 \text{CEOAGE}_{it} + \beta_5 \text{CSIZ}_{it} + \beta_6 \text{CGR}_{it} \\ & + \beta_7 \text{LEV}_{it} + \beta_8 \text{ROA}_{it} + \beta_9 \text{COV}_{it} + \text{Year fixed effects} + \text{Industry fixed effects} \\ & + \varepsilon_{it} \end{aligned} \quad (5-D)$$

Using the following model, this study looks at how foreign ownership affects the CEO features – REM (ACO, ADIET, APRC and aggregate REM) relationship.

$$\begin{aligned} \text{REM}_{it} = & \beta_0 + \beta_1 \text{CEOG}_{it} + \beta_2 \text{CEOEXP}_{it} + \beta_3 \text{CEOTEN}_{it} + \beta_4 \text{CEOAGE}_{it} + \beta_5 \text{FOR}_{it} + \beta_6 (\text{FOR}_{it} * \text{CEOG}_{it}) \\ & + \beta_7 (\text{FOR}_{it} * \text{CEOEXP}_{it}) + \beta_8 (\text{FOR}_{it} * \text{CEOTEN}_{it}) + \beta_9 (\text{FOR}_{it} * \text{CEOAGE}_{it}) + \beta_{10} \text{CSIZ}_{it} + \beta_{11} \text{CGR}_{it} \\ & + \beta_{12} \text{LEV}_{it} + \beta_{13} \text{ROA}_{it} + \beta_{14} \text{COV}_{it} + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon_{it} \end{aligned} \quad (6)$$

Table 2 contains definitions for every dependent, independent, control and moderate variable.

**Table 2.** Measurement variables.

Variable	Measurement
Dependent variables	
Abnormal cash flow from operating (ACO)	It represents residuals ( $\varepsilon_{it}$ ) from the Eq. (1)
Abnormal discretionary expenses (ADIET)	It represents residuals ( $\varepsilon_{it}$ ) from the Eq. (2)
Abnormal production costs (APRC)	It represents residuals ( $\varepsilon_{it}$ ) from the Eq. (3)
Real earnings management (REM)	The total value of REM (-ACO-ADIET + APRC)
Independent variable	
CEO gender (CEOG)	'1' indicates that the CEO is a female, while '0' otherwise
CEO experience (CEOEXP)	If the CEO possesses previous financial expertise, the dummy variable is equal to '1'; if not, it is equivalent to '0'.
CEO tenure (CEOTEN)	It is measured by the number of years the CEO worked in his / her current enterprise as CEO.
CEO age (CEOAGE)	Determined by calculating the number of years they have lived.
Moderator variables	
Foreign Ownership (FOR)	It is calculated by taking the number of shares held by foreigners and dividing it by the total number of shares in the enterprises.
Control variables	
Enterprise Size (CSIZ)	The total assets of an enterprise expressed in natural logarithm (The market value/the book value) of the enterprise
Enterprise Growth (CGR)	The proportion of all debt to all assets
Financial Leverage (LEV)	Net profit after tax divided by total assets
Return on assets (ROA)	The COVID-19 epidemic years (2020 and 2021) assign a value of '1' to the dummy variable, whereas all other years assume a value of '0'.
Pandemic (COV)	

**Table 3.** Descriptive statistics.

Panel (A) Continuous variables					
Variable	Obs	Mean	Std. Dev	Min	Max
ACO	685	0.000	0.137	−0.669	1.807
ADIET	685	0.000	0.069	−0.314	0.577
APRC	685	0.000	0.096	−0.741	0.857
ACO*-1	685	0.000	0.137	−1.807	0.669
ADIET*-1	685	0.000	0.069	−0.577	0.314
REM	685	0.000	0.202	−2.158	0.997
FOR	685	0.112	0.171	0.000	0.610
CEOTEN	685	8.055	7.530	1.000	57.000
CEOAGE	685	52.318	11.607	22.000	86.000
Ln CSIZ	685	16.969	1.498	12.792	21.132
CGR	685	1.037	0.849	0.227	3.536
LEV	685	0.303	0.245	0.001	1.349
ROA	685	0.001	0.078	−0.541	0.407
Panel (B) Dichotomous Variables.					
Variables	Measurement	Fre	Percentage (%)		
Pandemic	'1' for the two-year COVID-19 pandemic (2020–2021)	274	40.00		
	'0' else	411	60.00		
CEOG	'1' in the case of a female CEO	51	7.45		
	'0' else	634	92.55		
CEOEXP	'1' if the CEO had experience with finance before	172	25.11		
	'0' else	513	74.89		

## 5. Empirical results

### 5.1. Descriptive statistics

Descriptive data for the REM proxies (ACO, ADIET, APRC, and aggregate REM) and other continuous variables are shown in Table 3, Panel (A). REM proxies (ACO, ADIET, APRC) means are 0.000. Also, Panel (A) shows a minimum value of −2.158, a maximum value of 0.997, and a mean value of 0.000 for the combined REM. It has been shown that the average combined REM is virtually zero, suggesting that both upward and downward REM are used by Jordanian enterprises listed on the Amman Stock Exchange. This result is too close to the results documented by Al-Haddad and Whittington (2019) and Alhmoody et al. (2023). The range of the mean foreign ownership (FOR) in our sample is 0.112%, lower than those documented by Alzoubi (2016) and Al-Haddad and Whittington (2019), at 15.1% and 17%, respectively. Additionally, Panel (A)'s results illustrate the length of time spent in the role of CEO (CEOTEN), with an

average of 8.055 years and a range of a minimum of 1 year to a maximum of 57 years for the sample. This value was lower than the mean of 9.764 presented by Alhmood et al. (2023) in Jordanian enterprises and Putra and Setiawan (2024) in the Indonesian Stock Exchange. However, this average is too close to the results reported at 8.676 by Bouaziz et al. (2020) in France.

Furthermore, the average age (CEOAGE) of the CEOs in the sample was 52.318. In the sample, the oldest CEO was 86 years old, while the youngest was 22 years old. This mean is too close to the result of 52.42 reported by Qawasmeh and Azzam (2020) in Jordanian enterprises. However, that means comparatively lower than those reported by Bouaziz et al. (2020), Belot and Serve (2018) in France and Putra and Setiawan (2024) in the Indonesian Stock Exchange.

With respect to the CEO gender (CEOG), Table 3 – Panel (B) indicates that 92.55% of the CEOs are male. In contrast, the percentage of CEOs who are female is 7.45%, suggesting that the majority of enterprises studied in Jordan had male CEOs. This is likely due to the tribal society characterizing Jordan and most Arabian countries, which seek to give senior positions, such as CEO positions, to males without females. This percentage is higher than the 6% reported by Putra and Setiawan (2024) for the Indonesian Stock Exchange.

Moreover, Panel (B) results from the CEO experience (CEOEXP) show that 25.11% of Jordanian enterprises have CEOs with financial experience. This percentage is too close to the result of the 26% reported by Gounopoulos and Pham (2018) in the U.S. However, that percentage is lower than that reported by previous Jordanian studies (e.g., Alhmood et al., 2023; Qawasmeh & Azzam, 2020; Oussii & Klibi, 2023) in Tunis Stock Exchange and Putra and Setiawan (2024) in the Indonesian Stock Exchange. There is a significant difference in the percentage between this study and previous studies conducted in the context of Jordan. This difference can be attributed to variations in the scale used to measure the CEO's experience.

According to the study's control factors, the average leverage ratio is almost 30%, and the average enterprise size (Ln CSIZ) is 16.969. The average corporate growth rate (CGR) is 1.037, while the average return on assets (ROA) is 0.06%, indicating a lack of profitability for the enterprises. The results of Panel (B) show that 411 observations were made before the pandemic, accounting for 60% of all observations, and 274 observations were made during the epidemic period, accounting for 40% of all observations.

## 5.2. Diagnostic tests

Homoscedasticity, autocorrelation, and multicollinearity tests were carried out to guarantee objective statistical inference when presenting the results; they are discussed in greater detail below:

### 5.2.1. Test of homoscedasticity

The study uses the Breusch–Pagan/Cook–Weisberg test to determine if the regression models are homoscedastic. Given that all model  $p$ -values are less than .05, Table 4 results show serious heteroskedasticity problems.

### 5.2.2. Autocorrelation

Autocorrelation occurs when variables are associated, and it can bias regression results and lead to inaccurate conclusions. The Wooldridge test detected autocorrelation, and the results indicated its significance. Thus, the null hypothesis, stating the absence of first-order autocorrelation, is rejected as the significant  $F$ -value ( $p < .05$ ) indicates the presence of autocorrelation in all models of REM in the study, as demonstrated in Table 5. As a result, the FGLS estimation method was employed to address heteroskedasticity and autocorrelation issues. These methods were chosen based on previous research that

**Table 4.** Breusch–Pagan/Cook–Weisberg test.

Model	Chi2(1)	Prob > Chi2	(H0)
ACO	23.73	0.000	Rejected
ADIET	74.61	0.000	Rejected
APRC	10.70	0.0011	Rejected
Aggregate REM	89.73	0.000	Rejected

**Table 5.** Wooldridge test.

DVS	F (1,136)	Prob > F	Null(H0)
ACO	19.404	0.000	Rejected
ADJET	4.377	0.0383	Rejected
APRC	5.515	0.0203	Rejected
Aggregate REM	10.297	0.002	Rejected

**Table 6.** Variance inflation factors (VIF).

Variables	VIF	1/VIF
CSIZ	1.521	0.657
LEV	1.483	0.674
CEOAGE	1.236	0.809
ROA	1.211	0.826
CEOTEN	1.199	0.834
CEOEXP	1.185	0.844
CEOG	1.128	0.886
FOR	1.068	0.937
CGR	1.045	0.957
COV	1.01	0.991
Mean VIF	1.209	.

**Table 7.** Correlation Matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) CEOG	1.000									
(2) CEOEXP	−0.297***	1.000								
(3) CEOTEN	0.009	−0.069*	1.000							
(4) CEOAGE	0.110***	−0.259***	0.353***	1.000						
(5) FOR	0.068*	−0.031	−0.092**	0.078**	1.000					
(6) CSIZ	0.116***	−0.002	0.167***	0.084**	0.019	1.000				
(7) CGR	0.018	−0.020	0.058	0.022	0.131***	−0.068*	1.000			
(8) LEV	0.129***	−0.028	0.123***	0.063*	−0.057	0.468***	0.075**	1.000		
(9) ROA	0.024	−0.117***	0.121***	0.071*	0.098**	0.196***	0.076**	−0.165***	1.000	
(10) COV	−0.018	0.015	0.038	0.034	0.019	−0.017	0.046	0.037	−0.044	1.000

\*\*\* $p < .01$ , \*\* $p < .05$ , \* $p < .1$ .

had successfully dealt with similar concerns (Bouaziz et al., 2020; Musa et al., 2023). The study also controlled for potential outliers by winsorizing at the 5% and 95% levels.

### 5.2.3. Test of multicollinearity

The variance inflation factors (VIFs) were calculated in order to look for multicollinearity. As per Hair et al. (2014), multicollinearity is shown when the VIF score surpasses 10. Every VIF value in our analysis was less than 2. Thus, the VIF test indicates that our research does not have any multicollinearity problems, as Table 6 illustrates.

### 5.3. Correlation analysis

Using the Pearson correlation analysis, the bivariate correlation's magnitude and direction between CEO features, FOR, and control variables were ascertained in Table (7). The strongest correlation (0.468) is seen between CSIZ and LEV. Because the coefficients in this study are less than 90%, there are no notable multicollinearity issues (Gujarati & Porter, 2009). In general, it is important to keep in mind that correlation analysis evaluates the relationship between two variables, not the aggregate effect of several variables on REM (Cramer & Howitt, 2004). Therefore, multivariate analysis is the best method for determining how foreign ownership affects the CEO features -REM relationship.

### 5.4. Multivariate regression results

The findings of the regression analysis used to evaluate the study's hypotheses are shown in this section.

**Table 8.** FGLS estimation of the CEO features – REM relationship.

Variable	ACO		ADIET		APRC		Aggregate REM	
	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat
CEOG	−0.002	−0.400	−0.002	−1.440	−0.008***	−2.580	−0.002	−0.260
CEOEXEP	−0.006**	−2.340	−0.011***	−6.740	−0.002*	−1.190	0.014**	2.510
CEOTEN	0.000	0.320	0.001***	4.940	−0.001***	−5.220	−0.000	−0.370
CEOAGE	0.000	1.560	−0.000**	−6.440	0.000	1.530	−0.001**	−2.320
CSIZ	−0.004***	−4.020	−0.001	−1.420	0.001	0.900	−0.002	−0.690
CGR	0.017***	7.590	0.003***	3.750	−0.006***	−3.950	−0.026***	−4.420
LEV	−0.020**	−2.250	0.018***	5.370	0.042***	7.450	0.062***	4.180
ROA	0.349***	12.130	0.052***	5.410	−0.136***	−7.840	−0.469***	−9.440
COV	−0.005**	−2.36	−0.004***	−4.320	0.002	1.430	0.023***	4.150
Constant	0.143	0.060	0.399	0.470	1.622	1.420	7.461	1.640
Year				Yes				
Industry				Yes				
Obse				685.000				
Wald chi2	221.235		164.479		171.467		201.522	
Prob > ci2					0.000			

#### 5.4.1. CEO features and REM

Regression analysis results on the effect of CEO features on REM are summarized in Table 8. ACO, ADIET, APRC, and aggregate REM are the four regressions that we conducted to test the hypotheses of this study. The models appear to be accurate and capable of explaining the differences between REMs, as indicated by the highly significant result obtained from the Wald chi-square test. The findings showed that the CEO gender (CEOG) exhibits a significant and negative correlation at the 1% level when APRC is used as a proxy for REM ( $\beta = -0.008$ ,  $t$ -value =  $-2.580$ ). This supports the notion that enterprises with CEOs who are female are less likely to do the REM through overproduction. Consequently, our findings are consistent with the upper echelon's hypothesis, which maintains that top executives' demographic features, such as gender, may mold their experiences, attitudes, and beliefs, which in turn can affect their strategic choices and actions. This result aligns with those published by Putra and Setiawan (2024), who found that female CEOs are less prone to engaging in EM. However, our findings do not indicate a significant relationship between CEO gender (CEOG) and ACO, APRC, and aggregate REM. These results align with those published by Al-Begali and Phua (2023b) who did not get any relationship between CEO gender and REM. Consequently, H1 is rejected.

The results in Table 8 indicate that when using ACO and ADIET as proxies for REM, the estimated coefficients on CEOEXEP were significantly negative (at 5% and 1%). This suggests that enterprises with CEOs who have prior experience are more likely to engage in sales manipulation and reduce discretionary expenses, resulting in lower abnormal cash flows from operations and decreased abnormal discretionary expenses. However, in terms of aggregate REM, the results reveal a positive and significant effect of CEOEXEP at level 5% ( $\beta = 0.014$ ,  $t$ -value =  $2.510$ ). As a result, H2 is accepted in relation to ACO, ADIET, and aggregate REM. These findings suggest that CEOs with substantial experience are driven to engage in REM in order to enhance their short-term earnings and establish a favorable reputation. These results are consistent with the upper echelons theory, which proposes that CEOs with greater experience are more inclined to take risks and engage in REM compared to their less experienced counterparts. This finding aligns with the results reported by Alhmood et al. (2023), which also indicate that experienced CEOs are more proficient in implementing strategies that increase aggregate REM.

Furthermore, the results revealed that when using abnormal discretionary expenses (ADIET) as a proxy for REM, CEOTEN exhibited a significant and positive estimated coefficient ( $\beta = .001$ ,  $t$ -value =  $4.94$ ) at the 1% level. It suggests that CEOs with longer tenures are less likely to do the REM through discretionary expenses. Also, the results revealed that when using abnormal production costs (APRC) as a proxy for REM, CEOTEN exhibited a significant and negative estimated coefficient ( $\beta = -0.001$ ,  $t$ -value =  $-5.22$ ) at the 1% level. It suggests that CEOs with longer tenures are less likely to do the REM through overproduction. This finding supports the findings of Altarawneh et al. (2022) and Bouaziz et al. (2020), who also discovered that a CEO's long-term tenure contributes to reducing the extent of discretionary accruals and building their reputation in the capital market. These results also fit with the upper echelon theory, which says that the length of time a CEO has been in charge should affect the kind of decisions they make. This is because longer tenure provides CEOs with more experience and time to effectively

monitor the activities of the enterprise, increasing their ability to mitigate REM. However, it did not find any significant relationship between CEO tenure and aggregate REM, consistent with the results of Alhmood et al. (2023) and Putra and Setiawan (2024), who did not find an impact of CEOs' tenure on EM in their respective studies. Consequently, the H3 is accepted as related to ADIET and APRC only.

Table (8) revealed different findings depending on the proxy used for REM. When using ADIET as a proxy for REM, the CEO age (CEOAGE) demonstrated a significant and negative relationship at level 5% ( $\beta = -0.000$ ,  $t\text{-value} = -6.440$ ). This suggests that enterprises with older CEOs are more inclined to engage in REM by reducing discretionary expenses, resulting in lower abnormal discretionary expenses. This result is not consistent with that reported by Qi et al. (2018), who found that managers who are near retirement age are less likely to use discretionary expenditures to manipulate earnings.

On the other hand, when using aggregate REM as a proxy for REM ( $ACO^*-1 + ADIET^*-1 + APRC$ ), the results showed that CEO age (CEOAGE) exhibited a significant and negative relationship at level 5% ( $\beta = -0.001$ ,  $t\text{-value} = -2.320$ ). This indicates that CEOAGE contributes to mitigating REM through aggregate REM, suggesting that older CEOs help in reducing REM by considering the combined effect of various factors such as ACO, ADIET, and APRC. Consequently, the H4 is accepted as related to ADIET and aggregate REM only. The result of aggregate REM supports the findings of Qi et al. (2018), who discovered that senior executives in the Chinese setting had a lower likelihood of participating in REM as they got older. This finding lends credence to the argument that, as they get closer to retirement, senior leaders put their reputation first and steer clear of profit manipulation. These results are consistent with the upper echelon's hypothesis, which maintains that top executives' demographic features, such as age, may mould their experiences, attitudes, and beliefs, which in turn can affect their strategic choices and actions.

Regarding control variables, when using ACO as a proxy for REM, the enterprise size (CSIZ) shows a significant negative relationship, indicating that larger enterprises are more likely to increase REM by sales manipulation. Nevertheless, the results did not show any correlation between aggregate REM and enterprise size. This outcome is consistent with the findings of Alhmood et al. (2023). Also, when using ACO, ADIET, APRC and aggregate REM as a proxy for REM, the results indicate that enterprises with high leverage tend to engage in higher levels of REM by sale manipulation, discretionary expenditures, overproduction and aggregate REM. These results are consistent with the results of Musa et al. (2023), who found that enterprises with high leverage engage in high REM.

The results show that when using ACO, ADIET, APRC and aggregate REM as a proxy for REM, the results indicate that enterprises with high (CGR) and return on assets (ROA) engage in lower levels of REM by sale manipulation, discretionary expenditures, overproduction and aggregate REM. These results are consistent with the results of Alhmood et al. (2023), who found that enterprises with profitability engage in less REM. Finally, the result found that COVID-19 has a negative relationship with ACO and ADIET and a positive relationship with aggregate REM. This indicates that COVID-19 increased REM through sales manipulation and discretionary expenditures, leading to high aggregate REM. These results align with Ali et al. (2022) study that found enterprises were more motivated to use REM during the COVID-19 epidemic.

#### 5.4.2. CEO features, REM, and foreign ownership

This section investigates the moderating effect of foreign ownership (FOR) on the relationship between CEO features (CEO gender, CEO expertise, CEO tenure, and CEO age) and REM using ACO, ADIET, APRC, and aggregate REM as proxies for REM.

The results presented in Table 9 show a significant positive correlation between foreign ownership (FOR) and REM (ACO and DIET), indicating that FOR restricted REM by sale manipulation and discretionary expenses. However, the relationship between FOR and REM (APRC and aggregate REM) is negative, indicating that FOR restricted REM by overproduction and aggregate REM. These results are consistent with those reported by Al-Duais et al. (2021) and Debnath et al. (2021), who found that foreign ownership could be an essential control mechanism for restricting REM. Also, these results support the knowledge spillover hypothesis, which assumes that the superior knowledge of foreign investors is more likely to mitigate REM practices.

**Table 9.** FGLS estimation of the foreign ownership on the CEO features – REM relationship.

Variable	ACO		ADIET		APRC		Aggregate REM	
	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat
CEOG	0.005	0.153	−0.003	−1.630	−0.005**	−2.010	−0.011	−1.010
CEOEXEP	−0.009**	−2.120	−0.005**	−2.260	0.003**	2.030	0.141***	3.040
CEOTEN	−0.001***	−2.720	0.001***	3.520	0.000	0.300	−0.000	−0.050
CEOAGE	0.001***	4.520	−0.000***	−3.720	0.000**	2.650	−0.001**	−2.340
FOR	0.527***	5.630	0.075***	2.740	−0.073***	−2.750	−0.676***	−3.410
CEOG*FOR	−0.138***	−3.730	0.009	0.630	0.007	0.640	0.158*	1.760
CEOEXEP*FOR	−0.012	−0.310	−0.061***	−5.210	−0.012	−1.410	0.003	0.410
CEOTER*FOR	0.025***	8.100	−0.001	−0.650	−0.001*	−0.350	−0.034***	−4.750
CEOAGE*FOR	−0.012***	−6.430	−0.000	−0.410	−0.003	−1.520	0.014***	3.390
CSIZ	−0.003**	−2.170	−0.002	−1.610	0.000	0.110	0.030	1.050
CGR	0.016***	7.890	0.003***	3.360	−0.006***	−2.910	−0.032***	−5.480
LEV	−0.015*	−1.780	0.023***	5.440	0.034***	4.540	0.053***	3.230
ROA	0.301***	11.410	0.030***	3.350	−0.129***	−6.460	−0.464***	−8.760
COV	−0.004	−1.730	−0.004***	−3.830	0.001	0.760	0.024***	4.400
Constant	0.759	0.380	1.067	1.240	1.247	0.890	6.821	1.540
Year				Yes				
Industry				Yes				
Obse				685.000				
Wald chi2	389.713		173.374		111.761		184.127	
Prob > chi2				0.000				

The results presented in Table 9 indicate a significant negative correlation between the interaction variable (CEOG\*FOR) and ACO at level 1% ( $\beta = -0.138$ ,  $t$ -value =  $-3.73$ ), suggesting that the presence of FOR, combined with CEO who is female, provides some evidence that enterprises with higher foreign ownership engage in higher REM by sale manipulation. This result contradicts previous studies that emphasize the effective supervisory role of women in restricting EM (Altarawneh et al., 2022; Belot & Serve, 2018; Putra & Setiawan, 2024; Qi et al., 2018). These findings support the theory of information asymmetry, suggesting that foreign investors, who are external to the country, may face challenges in monitoring an enterprise's performance and reducing EM. This is due to geographical distance and the complexities of international markets, which can limit effective monitoring and control of financial reporting processes, potentially leading to EM.

Furthermore, the interaction variable (CEOEXEP\*FOR) demonstrates a significant negative relationship with ADIET at level 1% ( $\beta = -0.061$ ,  $t$ -value =  $-5.21$ ). This result proves that enterprises with higher foreign ownership engage more in EM by cutting down discretionary expenses when interacting with CEO experience. This result supports the information asymmetry hypothesis, suggesting that distance and challenges in international markets may limit effective monitoring and control of financial reporting processes, potentially leading to EM. This result is consistent with results reported by Farouk and Bashir (2017), who found that foreign ownership may drive managers to practice EM.

In addition, the results from Table 9 demonstrate that when foreign ownership is present and interacts with CEO tenure (CEOTER\*FOR), it leads to a decrease in earnings management (EM) through cash flows from operating and overall aggregate EM. This suggests that the presence of foreign ownership plays a significant role in effectively monitoring and restraining aggregate EM practices, particularly when it interacts with CEO tenure. These results support the knowledge spillover hypothesis, which assumes that the superior knowledge of foreign investors is more likely to mitigate REM. These results are consistent with results reported by Guo et al. (2015), who found that enterprises with high foreign ownership engage in less REM related to cash flows from operating.

Furthermore, the results presented in Table 9 indicate a significant negative correlation between the interaction variable (CEOAGE\*FOR) and abnormal cash flows (ACF) at level 1% ( $\beta = -0.012$ ,  $t$ -value =  $-6.43$ ). This suggests that older CEOs are more likely to engage in EM through sales manipulation when they are associated with foreign ownership. Additionally, the findings reveal a significant positive relationship between (CEOAGE\*FOR) and aggregate EM at a 1% level of significance ( $\beta = 0.014$ ,  $t$ -value =  $3.39$ ). This implies that foreign ownership, in conjunction with CEO age, may increase the likelihood of engaging in aggregate earnings management (EM) practices. As a result, despite the commonly assumed monitoring role of older CEOs, foreign ownership may undermine their monitoring capabilities, thereby encouraging opportunistic managerial behavior in EM practices. Consequently, these results

indicate a weakening of the relationship between CEO age and EM due to foreign ownership. These findings align with the information asymmetry hypothesis, which posits that foreign investors, being situated outside the country, may encounter difficulties in monitoring enterprise's performance and mitigating EM. These results align with the findings reported by Farouk and Bashir (2017), who discovered that foreign ownership could incentivize managers to engage in EM. However, these findings contrast with the conclusions drawn by previous studies (e.g., Al-Haddad & Whittington, 2019; Saleh et al., 2023), which found no significant impact of foreign ownership on earnings management (EM) in the Jordanian market.

## 6. Additional analysis

### 6.1. Alternative proxy for REM

To guarantee the validity of the results, this research used substitute proxies to evaluate REM. Rather than utilizing the aggregate measure REM, two sub-aggregate measures of REM (REM1 and REM2) were used to increase the robustness of the analysis, as shown in Table 10. REM1 represents abnormal production costs plus discretionary expenses, while REM2 represents abnormal operating cash flow plus discretionary expenses. Consequently, the regression analysis was re-evaluated to explore these alternative estimations of REM. Table 10 provides the regression outcomes based on the alternative REM measurements. Remarkably, the results closely resemble those obtained from the main analysis in both models. However, when foreign ownership interacts with the COE gender (CEOG\*FOR), that leads to a restriction REM1 and REM2. Ultimately, the supplementary examination produces results that almost match those of the primary study, thus strengthening the validity of the conclusions.

### 6.2. Alternative proxy of foreign ownership

The current study followed previous studies that measured foreign ownership (FOR) as a percent by dividing the common stock possessed by foreign investors in the enterprise (more than 5% of the total enterprise share) by the total enterprise stock (Alzoubi, 2016; Guo et al., 2015; Vo & Chu, 2019). However, to check the robustness of the main result, the current study re-examines the relationship between FOR and REM, measuring FOR as a dummy variable that equals '1' if foreign members own not less than 5% and '0' otherwise. The outcomes reported in Table 11 show no difference between robustness and the main outcomes.

**Table 10.** Alternative measures for REM.

Variables	REM1		REM2	
	Coef	t-value	Coef	t-value
CEOG	-0.005	-0.940	0.011	1.450
CEOEXEP	0.007**	2.460	0.015***	2.630
CEOTEN	-0.000	-0.440	0.001	1.490
CEOAGE	-0.000	-1.120	-0.000**	-2.300
FOR	0.089	1.510	-0.559***	-5.970
CEOG*FOR	-0.088**	-2.320	-0.200***	-3.610
CEOEXEP*FOR	-0.005	-0.230	0.026	0.630
CEOTER*FOR	-0.006***	-2.780	-0.013***	-3.080
CEOAGE*FOR	0.002***	2.740	0.004***	2.850
CSIZ	0.002	1.940	-0.002	-0.720
CGR	-0.007***	-3.26	-0.028***	-6.68
LEV	0.015**	2.120	0.000	0.010
ROA	-0.224***	-12.91	-0.369***	-8.92
COV	0.005***	2.980	0.018***	4.040
Constant	-0.292	-0.210	0.660	0.180
Year				
Industry				
Obse				
Wald chi2	211.370		261.735	
Prob > ci2	0.000		0.000	

**Table 11.** Alternative measures for foreign ownership.

Variables	REM	
	Coef	t-value
CEOG	−0.000	−0.160
CEOEXEP	0.020**	2.170
CEOTEN	−0.000	−0.160
CEOAGE	−0.001**	−2.120
FOR	−0.576***	−3.510
CEOG*FOR	−0.000	−1.560
CEOEXEP*FOR	−0.012	−1.270
CEOTER*FOR	−0.025**	−2.410
CEOAGE*FOR	0.035***	3.200
CSIZ	−0.000	−0.050
CGR	−0.017***	−5.230
LEV	0.043***	3.880
ROA	−0.458***	−11.700
COV	0.014***	3.800
Constant	5.732*	1.810
Year		Yes
Industry		yes
Obse		685
Wald chi2		256.908
Prob > chi2		0.000

**Table 12.** Durbin Wu-Hausman test.

Variables	Durbin (score) chi2		Wu-Hausman F (4532)	
Aggregate REM	3.34001	( <i>p</i> = .5026)	0.815593	( <i>p</i> = .5155)
ACO	5.50805	( <i>p</i> = .2390)	1.35038	( <i>p</i> = .2501)
ADIET	4.6242	( <i>p</i> = .3281)	1.13185	( <i>p</i> = .3406)
APRC	3.60593	( <i>p</i> = .4620)	0.880959	<i>p</i> = .4750

**Table 13.** GMM regression estimation.

Variables	REM	
	Coef	t-value
L	0.14	0.857
CEOG	−0.003	−0.370
CEOEXEP	0.016***	3.510
CEOTEN	−0.001	−0.500
CEOAGE	−0.03***	−3.320
FOR	−0.016***	−4.430
CSIZ	−0.004	−0.800
CGR	−0.027***	−4.720
LEV	0.072***	5.170
ROA	−0.471***	−8.450
COV	0.025***	4.260
Constant	8.471	1.440
Year		Yes
Industry		yes
Sargan's statistics		1.75 ( <i>p</i> = .627)
Hansen J statistic		1.54 ( <i>p</i> = .673)
Arellano- Bond test AR (1)		−0.36 ( <i>p</i> = .721)
Arellano- Bond test AR (2)		−0.33 ( <i>p</i> = .741)

### 6.3. Test of endogeneity

Endogeneity, the association between explanatory variables and the error term in a regression equation, is a prevalent concern in accounting research. Ignoring endogeneity can lead to biased parameter estimates and invalid conclusions. This study examined the potential endogeneity between CEO features and REM practices using the Durbin-Wu-Hausman test. The results, presented in Table 12, indicated non-significance at a 5% level, indicating the absence of endogeneity bias in the models.

### 6.4. Generalized method of moments (GMM)

We adopt the approach followed in other studies (e.g., Abu Afifa et al., 2024; Al-Ahdal et al., 2020; Alhadab et al., 2020; Gull et al., 2018; Le & Nguyen, 2023; Wang et al., 2023) by utilizing the Generalized

Method of Moments (GMM) framework. Utilizing GMM ensures that the coefficient estimators are both consistent and efficient. It also addresses issues such as time-invariant fixed effects, problems associated with omitted variables, autocorrelation, and heteroscedasticity (Abu Afifa et al., 2024; Saleh et al., 2023). The GMM methodology was developed by Arellano and Bond (1991) to tackle endogeneity and unobserved heterogeneity problems. In order to test the robustness of our findings, we employ a two-step system (GMM). The estimated GMM results, presented in Table 13, are used to analyze the impact of CEO features and foreign ownership on real earnings manipulation. We employ the two-step system dynamic panel estimation because it is suitable when there are autoregressive features in the dependent variable (Tayachi et al., 2023). To ensure the validity of our instruments, we conduct the Sargan test, where we observe an insignificant p-value (0.627), indicating the validity of the instruments. Additionally, we employ the Arellano-Bond test AR(1) and AR(2) to examine the presence of autocorrelation. Our findings reveal that AR (1) and AR (2) coefficients are insignificant, which leads us to reject the presence of autocorrelation. Table 13 demonstrates that the GMM estimator yields consistent results that align with those obtained from the FGLS regression. These consistent findings across both estimation methods provide evidence of the robustness and reliability of the results.

## 7. Conclusion

The purpose of the current study is to determine if foreign ownership mitigates the CEO features -REM relationship. Utilized data comes from 137 enterprises that were listed on the ASE from 2017 to 2021 (not including the insurance and banking sectors). This study utilized agency theory and the upper echelons theory to investigate the relationship between CEO features and REM. It also utilized the knowledge spillover and information asymmetry hypotheses to investigate the effect of foreign ownership on this relationship.

The results indicate that CEOs who are female restricted REM by sales manipulation, while experienced CEOs utilize REM (ACO, ADIET and aggregate REM) to enhance short-term earnings and establish a positive reputation. Conversely, CEOs with longer tenures are less likely to engage in REM by reducing discretionary expenses (ADIET) and over-production (APRC). Additionally, enterprises with older CEOs tend to engage in REM by reducing discretionary expenses, while CEO age has a mitigating effect on aggregate REM practices. Furthermore, the study provides evidence supporting both the knowledge spillover hypothesis and the information asymmetry hypothesis. In line with the knowledge spillover hypothesis, foreign ownership acts as a constraint on the practice of REM. Specifically, when combined with CEO tenure, foreign ownership limits REM (ACO and aggregate REM). However, in line with the information asymmetry hypothesis, the study reveals that foreign ownership, in combination with CEO gender, increases REM practices by sales manipulation (ACO). Moreover, foreign ownership increases REM by reducing discretionary expenses (ADIET) when combined with CEO experience. Additionally, the results indicate that foreign ownership intensifies REM (abnormal cash flow from operating and aggregate REM) when combined with CEO age.

This study makes significant contributions in terms of both theoretical and empirical implications. Theoretically, the present study's findings have an optimistic impact on the existing body of knowledge. Moreover, the current literature has not yet investigated the role of foreign ownership in the relationship between CEO features and REM. Therefore, this study contributes to the accounting literature by addressing this research gap. Additionally, this study aims to develop a comprehensive theoretical framework by incorporating multiple theories, such as agency theory, upper echelon theory, knowledge spillover hypothesis, and information asymmetry hypothesis. The results regarding the effect of CEO features on REM support both agency theory and upper echelon theory, indicating that CEO features influence REM and FRQ. Furthermore, the findings regarding foreign ownership as a moderator support both the information asymmetry and spillover hypotheses, highlighting how foreign ownership can either restrict or intensify REM practices depending on specific CEO features like gender, experience, tenure, and age. As a result, this research has the potential to deepen the understanding of these theories in an emerging market where ownership concentration affects investor protection and corporate governance effectiveness. Additionally, unlike previous studies that focused on aggregate REM, this study specifically examines the influence of CEO features on various REM techniques, including sales manipulation,

discretionary expenses, over-production, and overall REM. This approach enhances the information obtained and enables a more comprehensive understanding of REM practices (Chi et al., 2011).

Empirically, the current study has made significant contributions with practical implications for various users of financial information. Specifically, it has practical ramifications for investors, shareholders, policy-makers, regulators, researchers, and managers in terms of financial reporting quality. The study confirms the occurrence of REM practices in Jordanian-listed enterprises, providing regulators, stakeholders, and other users with a better understanding of various REM techniques. The results of the study provide substantial evidence that CEO features play a crucial role in explaining REM. However, not all CEO features effectively restrict REM. Therefore, market participants should exercise caution and implement corporate governance guidelines that effectively prevent EM. The findings of the study also offer reassurance to investors that enterprises with longer CEO tenure tend to restrict the practice of REM and produce high-quality financial reports. However, it is important to note that although older CEOs restrict the practice of aggregate REM, they engage in REM through discretionary expenses and display more aggressive REM practices, particularly in enterprises with high foreign ownership. Additionally, CEOs with prior experience are more likely to engage in REM practices such as sales manipulation, reducing discretionary expenses, and participating in aggregate REM. Therefore, investors and shareholders should be cautious when dealing with enterprises that appoint older CEOs and those with extensive experience. The study highlights the influential role of foreign ownership as a moderator in the relationship between CEO features and REM. Specifically, in enterprises with foreign ownership, CEOs with longer tenure play a significant role in restricting the practice of REM. This information can be beneficial to investors and shareholders, helping them make better investment decisions by considering enterprises with high foreign ownership. The results also indicate that despite the small number of female CEOs, they played an effective role in restricting the practice of REM through over-production. Therefore, regulatory bodies such as the Jordanian Securities Commission and the Amman Stock Exchange must pay more attention to appointing women to the senior leadership of institutions, especially in Jordan, which gives priority to seats for men in senior departments.

However, this study has identified several limitations that indicate areas warranting further investigation. Firstly, the scope of the current study was limited to service and industrial enterprises registered on the ASE. To enhance the comprehensiveness of future research, it would be valuable to expand this study to include additional industries such as banking and insurance. Secondly, the current study primarily focused on foreign ownership as a moderating variable. Therefore, future research could benefit from exploring other forms of ownership, including managerial, institutional, and government shareholders. Examining these different types of ownership could provide valuable insights into the relationship under investigation. Thirdly, the study was constrained by its exclusive focus on specific CEO features, namely gender, experience, tenure, and age. As a result, it is recommended that future studies consider incorporating additional CEO features, such as religion (Muslim-Christian), nationality, incentive structures, ownership stakes, power dynamics, compensation arrangements, and other relevant features. Expanding the range of CEO features examined would contribute to a more comprehensive understanding of their impact on the variables under scrutiny. Finally, a limitation arises concerning the measurement of REM. In this study, three proxies developed by Roychowdhury (2006) were employed, which are commonly used in the existing literature. Future investigations could consider alternative models for REM measurement, such as those applied in studies involving stock repurchases, the sale of fixed assets, and related-party transactions. Examining diverse measurement approaches would contribute to a deeper understanding of earnings management and its implications.

## Authors contribution

**Safia Abdo Ali Al-Begali** was involved in the conceptualization, designing, analysis and interpretation of the data. She was also involved in the drafting of the paper, revising the manuscript critically for intellectual content, and obtaining the final approval of the version to be published. **Lian Kee Phua** was also involved in drafting the paper and critically revising the manuscript for intellectual content. **Magdi Abdoh Al-Rowaidi** was involved in conceptualising, writing and designing the manuscript. Authors have agreed to be accountable for all aspects of the manuscript submitted.

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## Data availability statement

The data utilized in this study was classified as secondary data, specifically obtained from the annual reports of companies listed in ASE. The dataset consisted of 685 observations, which were carefully selected to support the findings of this research. The data that support the findings of this study are on request from the corresponding author, S. A. A. Al-Begali, upon reasonable request.

## References

- Abu Afifa, M. M., Saleh, I. H., & Haniah, F. F. (2023). Does earnings management mediate the relationship between audit quality and company performance? Evidence from Jordan. *Journal of Financial Reporting and Accounting*, 21(3), 747–774. <https://doi.org/10.1108/JFRA-08-2021-0245>
- Abu Afifa, M., Saleh, I., Al-Shoura, A., & Vo Van, H. (2024). Nexus among board characteristics, earnings management and dividend payout: evidence from an emerging market. *International Journal of Emerging Markets*, 19(1), 106–133. <https://doi.org/10.1108/IJOEM-12-2021-1907>
- Aburisheh, K. E., Dahiyat, A. A., & Owais, W. O. (2022). Impact of cash flow on earnings management in Jordan. *Cogent Business & Management*, 9(1), 2135211. <https://doi.org/10.1080/23311975.2022.2135211>
- Aggarwal, R., Erel, I., Ferreira, M., & Matos, P. (2011). Does governance travel around the world? Evidence from institutional investors. *Journal of Financial Economics*, 100(1), 154–181. <https://doi.org/10.1016/j.jfineco.2010.10.018>
- Al-Ahdal, W. M., Alsamhi, M. H., Tabash, M. I., & Farhan, N. H. S. (2020). The impact of corporate governance on financial performance of Indian and GCC listed firms: An empirical investigation. *Research in International Business and Finance*, 51, 101083. <https://doi.org/10.1016/j.ribaf.2019.101083>
- Al-Begali, S. A. A., & Phua, L. K. (2023a). Earnings management in emerging markets : The COVID-19 and family ownership. *Cogent Economics & Finance*, 11(1), 2220246. <https://doi.org/10.1080/23322039.2023.2220246>
- Al-Begali, S. A. A., & Phua, L. K. (2023b). Accruals, real earnings management, and CEO demographic attributes in emerging markets: Does concentration of family ownership count? *Cogent Business & Management*, 10(2), 2239979. <https://doi.org/10.1080/23311975.2023.2239979>
- Al-Duais, S. D., Ali, M., Hamid, A., & Almasawa, A. M. (2021). Ownership structure and real earnings management: evidence from an emerging market. *Journal of Accounting in Emerging Economies*, 12(2), 380–404. <https://doi.org/10.1108/JAEE-01-2021-0008>
- Alghemary, M., Al-Najjar, B., & Polovina, N. (2023). What do we know about real earnings management in the GCC? *Journal of Accounting in Emerging Economies*, 14(3), 659–691. <https://doi.org/10.1108/JAEE-06-2023-0180>

- Alhababsah, S. (2019). Ownership structure and audit quality: An empirical analysis considering ownership types in Jordan. *Journal of International Accounting, Auditing and Taxation*, 35, 71–84. <https://doi.org/10.1016/j.intaccaudtax.2019.05.006>
- Alhadab, M., Abdullatif, M., & Mansour, I. (2020). Related party transactions and earnings management in Jordan : the role of ownership structure. *Journal of Financial Reporting and Accounting*, 18(3), 505–531. <https://doi.org/10.1108/JFRA-01-2019-0014>
- Al-Haddad, L., & Whittington, M. (2019). The impact of corporate governance mechanisms on real and accrual earnings management practices: Evidence from Jordan. *Corporate Governance*, 19(6), 1167–1186. <https://doi.org/10.1108/CG-05-2018-0183>
- Alharasis, E. E. (2023). Evaluation of ownership structure and audit-quality in the wake of the Covid-19 crisis: Empirical evidence from Jordan. *International Journal of Law and Management*, 65(6), 635–662. <https://doi.org/10.1108/IJLMA-03-2023-0035>
- Alhmoode, M. A., Shaari, H., & Al-Dhamari, R. (2020). CEO Characteristics and real earnings management in Jordan. *International Journal of Financial Research*, 11(4), 255. <https://doi.org/10.5430/ijfr.v11n4p255>
- Alhmoode, M., Shaari, H., Al-Dhamari, R., & Sani, A. A. (2023). Does ownership concentration matter for the relationship between CEO characteristics and real earnings management: Evidence from Jordan. *EuroMed Journal of Business*, 1450–2194. Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/EMJB-09-2022-0155>
- Ali, A., & Zhang, W. (2015). CEO tenure and earnings management. *Journal of Accounting and Economics*, 59(1), 60–79. <https://doi.org/10.1016/j.jacceco.2014.11.004>
- Ali, H., Amin, H. M. G., Mostafa, D., & Mohamed, E. K. A. (2022). Earnings management and investor protection during the COVID-19 pandemic: evidence from G-12 countries. *Managerial Auditing Journal*, 37(7), 775–797. <https://doi.org/10.1108/MAJ-07-2021-3232>
- Al-Msiedeen, J., & Al Sawalqa, F. (2021). Ownership structure and CEO Compensation: Evidence from Jordan. *Asian Economic and Financial Review*, 11(5), 365–383. <https://doi.org/10.18488/journal.aefr.2021.115.365.383>
- Alqatamin, R. M., Aribi, Z. A., & Arun, T. (2017). The effect of the CEO's characteristics on EM: Evidence from Jordan. *International Journal of Accounting & Information Management*, 25(3), 356–375. <https://doi.org/10.1108/IJAIM-10-2016-0099>
- Altarawneh, M., Shafie, R., Ishak, R., & Ghaleb, B. A. A. (2022). Chief executive officer characteristics and discretionary accruals in an emerging economy. *Cogent Business & Management*, 9(1), 2024117. <https://doi.org/10.1080/23311975.2021.2024117>
- Alzoubi, E. S. S. (2016). Ownership structure and earnings management: Evidence from Jordan. *International Journal of Accounting & Information Management*, 24(2), 135–161. <https://doi.org/10.1108/IJAIM-06-2015-0031>
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277. <https://doi.org/10.2307/2297968>
- Belot, F., & Serve, S. (2018). Earnings quality in private SMEs: Do CEO demographics matter? *Journal of Small Business Management*, 56(1), 323–344. <https://doi.org/10.1111/jsbm.12375>
- Bouaziz, D., Salhi, B., & Jarboui, A. (2020). CEO characteristics and earnings management: empirical evidence from France. *Journal of Financial Reporting and Accounting*, 18(1), 77–110. <https://doi.org/10.1108/JFRA-01-2019-0008>
- Calabrò, A., Cameran, M., Campa, D., & Pettinicchio, A. (2022). Financial reporting in family firms: A socioemotional wealth approach toward information quality. *Journal of Small Business Management*, 60(4), 926–960. <https://doi.org/10.1080/00472778.2020.1745003>
- Chi, W., Lisic, L. L., & Pevzner, M. (2011). Is enhanced audit quality associated with greater real earnings management? *Accounting Horizons*, 25(2), 315–335. <https://doi.org/10.2308/acch-10025>
- Chung, R., Ho, S., & Kim, J. (2004). Ownership structure and the pricing of discretionary accruals in Japan. *Journal of International Accounting, Auditing and Taxation*, 13(1), 1–20. <https://doi.org/10.1016/j.intaccaudtax.2004.02.003>
- Cohen, D. A., Dey, A., & Lys, T. Z. (2008). Real and accrual-based earnings management in the pre-and post-Sarbanes-Oxley periods. *The Accounting Review*, 83(3), 757–787. <https://doi.org/10.2308/accr.2008.83.3.757>
- Cramer, D., & Howitt, D. (2004). *The sage dictionary of statistics a practical resource for students in the social sciences*. London SAGE Publications. <https://doi.org/10.4135/9780857020123>
- Custódio, C., & Metzger, D. (2014). Financial expert CEOs: CEO 's work experience and firm's financial policies. *Journal of Financial Economics*, 114(1), 125–154. <https://doi.org/10.1016/j.jfineco.2014.06.002>
- Debnath, N. C., Chowdhury, S. P., & Khan, S. (2021). Ownership structure and real earnings management: An empirical study on emerging economy. *Corporate Ownership and Control*, 18(2), 74–89. <https://doi.org/10.22495/cocv18i2art6>
- Desender, K. A., Aguilera, R. V., Lópezpuertas-Lamy, M., & Crespi, R. (2016). A clash of governance logics: Foreign ownership and board monitoring. *Strategic Management Journal*, 37(2), 349–369. <https://doi.org/10.1002/smj.2344>
- Di Meo, F. (2014). Overinvestment, subsequent earnings management, and CEO tenure. *Spanish Journal of Finance and Accounting*, 43(3), 217–240. <https://doi.org/10.1080/02102412.2014.942152>
- Eng, L. L., Fang, H., Tian, X., Yu, T. R., & Zhang, H. (2019). Financial crisis and real earnings management in family firms: A comparison between China and the United States. *Journal of International Financial Markets, Institutions & Money*, 59, 184–201. <https://doi.org/10.1016/j.intfin.2018.12.008>

- Faccio, M., Marchica, M. T., & Mura, R. (2016). CEO gender, corporate risk-taking, and the efficiency of capital allocation. *Journal of Corporate Finance*, 39, 193–209. <https://doi.org/10.1016/j.jcorpfin.2016.02.008>
- Farouk, M. A., & Bashir, N. M. (2017). Ownership structure and earnings management of listed conglomerates in Nigeria. *Indian-Pacific Journal of Accounting and Finance*, 1(4), 42–54. <https://doi.org/10.52962/ipjaf.2017.1.4.27>
- Garfatta, R., Hamza, M., & Zorgati, I. (2023). COVID-19 outbreak and earnings management practice: Case of Tunisia. *Asian Journal of Accounting Research*, 8(3), 307–318. <https://doi.org/10.1108/AJAR-04-2022-0129>
- Gavious, I., Segev, E., & Yosef, R. (2012). Female directors and earnings management in high-technology firms. *Pacific Accounting Review*, 24(1), 4–32. <https://doi.org/10.1108/01140581211221533>
- Gounopoulos, D., & Pham, H. (2018). Financial expert CEOs and earnings management around initial public offerings. *The International Journal of Accounting*, 53(2), 102–117. <https://doi.org/10.1016/j.intacc.2018.04.002>
- Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th ed.). McGraw-Hill International Edition.
- Gull, A. A., Nekhili, M., Nagati, H., & Chtioui, T. (2018). Beyond gender diversity: How specific attributes of female directors affect earnings management. *The British Accounting Review*, 50(3), 255–274. <https://doi.org/10.1016/j.bar.2017.09.001>
- Guo, J., Huang, P., Zhang, Y., & Zhou, N. (2015). Foreign ownership and real earnings management: Evidence from Japan. *Journal of International Accounting Research*, 14(2), 185–213. <https://doi.org/10.2308/jiar-51274>
- Habib, A., Ranasinghe, D., Wu, J. Y., Biswas, P. K., & Ahmad, F. (2022). Real earnings management: A review of the international literature. *Accounting & Finance*, 62(4), 4279–4344. <https://doi.org/10.1111/acfi.12968>
- Hair, J. F., Black, B., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis* (7th ed.). Pearson Education, Limited.
- Hambrick, D. & Fukutomi, G. D. S. (1991). The seasons of a CEO's tenure. *Academy of Management Review*, 16(4), 719–742. <https://doi.org/10.5465/amr.1991.4279621>
- Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *The Academy of Management Review*, 9(2), 193–206. <https://doi.org/10.5465/amr.1984.4277628>
- Hanousek, J., Kocenda, E., & Svejnar, J. (2004). Ownership, control and corporate performance after large-Scale Privatization. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.508623>
- Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13(4), 365–383. <https://doi.org/10.2308/acch.1999.13.4.365>
- Hu, N., Hao, Q., Liu, L., & Yao, L. J. (2015). Managerial tenure and earnings management. *International Journal of Accounting & Information Management*, 23(1), 42–59. <https://doi.org/10.1108/IJAIM-04-2014-0025>
- Hu, N., Huang, R., Li, X., & Liu, L. (2017). The impact of CEOs' accounting backgrounds on earnings management and conservatism. *Journal of Centrum Cathedra*, 10(1), 4–24. <https://doi.org/10.1108/JCC-10-2016-0016>
- Ipino, E., & Parbonetti, A. (2017). Mandatory IFRS adoption: The trade-off between accrual-based and real earnings management. *Accounting and Business Research*, 47(1), 91–121. <https://doi.org/10.1080/00014788.2016.1238293>
- Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, 76(2), 323–329. <https://www.jstor.org/stable/1818789>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Jiang, F., Zhu, B., & Huang, J. (2013). CEO's financial experience and earnings management. *Journal of Multinational Financial Management*, 23(3), 134–145. <https://doi.org/10.1016/j.mulfin.2013.03.005>
- Kouaib, A., & Jarbou, A. (2016). Real earnings management in innovative firms: Does CEO profile make a difference? *Journal of Behavioral and Experimental Finance*, 12, 40–54. <https://doi.org/10.1016/j.jbef.2016.09.002>
- Le, H. T. M., Nguyen, T. T., Pham, V. T., & Vo, T. T. (2020). The impacts of CEO age and education level on earnings management: Evidence from listed Vietnamese real estate firms. *Institutions and Economics*, 12(4), 71–91.
- Le, Q. L., & Nguyen, H. A. (2023). The impact of board characteristics and ownership structure on earnings management: Evidence from a frontier market. *Cogent Business and Management*, 10(1), 2159748. <https://doi.org/10.1080/23311975.2022.2159748>
- Muhammad, H., Migliori, S., & Mohsni, S. (2022). Corporate governance and firm risk-taking: the moderating role of board gender diversity. *Meditari Accountancy Research*, 31(3), 706–728. <https://doi.org/10.1108/MEDAR-07-2020-0949>
- Musa, A., Abdul Latif, R., & Abdul Majid, J. (2023). CEO attributes, board independence, and real earnings management: Evidence from Nigeria. *Cogent Business & Management*, 10(1), 2194464. <https://doi.org/10.1080/23311975.2023.2194464>
- Nguyen, H. A., Lien Le, Q., & Anh Vu, T. K. (2021). Ownership structure and earnings management: Empirical evidence from Vietnam. *Cogent Business & Management*, 8(1), 1908006. <https://doi.org/10.1080/23311975.2021.1908006>
- Oussii, A. A., & Klibi, M. F. (2023). Do CEO duality and expertise affect earnings management behavior? The moderating effect of family ownership. *Journal of Family Business Management*, 13(4), 1392–1409. <https://doi.org/10.1108/JFBM-03-2023-0030>
- Peni, E., & Vähämaa, S. (2010). Female executives and earnings management. *Managerial Finance*, 36(7), 629–645. <https://doi.org/10.1108/03074351011050343>

- Putra, A. A., & Setiawan, D. (2024). Do CEO characteristics affect earnings management? *Corporate Governance*, <https://doi.org/10.1108/CG-02-2023-0078>
- Qawasmeh, S. Y., & Azzam, M. J. (2020). CEO characteristics and earnings management. *Accounting*, 6, 1403–1410. <https://doi.org/10.5267/j.ac.2020.8.009>
- Qi, B., Lin, J. W., Tian, G., & Lewis, H. C. X. (2018). The impact of top management team characteristics on the choice of earnings management strategies: Evidence from China. *Accounting Horizons*, 32(1), 143–164. <https://doi.org/10.2308/acch-51938>
- Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics*, 42(3), 335–370. <https://doi.org/10.1016/j.jacceco.2006.01.002>
- Saleh, I., Abu Afifa, M., & Alkhawaja, A. (2023). Internal corporate governance mechanisms and earnings manipulation practices in MENA countries. *Economic Research-Ekonomska Istraživanja*, 36(2), 2134902. <https://doi.org/10.1080/1331677X.2022.2134902>
- Serfling, M. A. (2012). *CEO age, underinvestment, and agency costs*. Eller College of Management, University of Arizona.
- Shayan-Nia, M., Sinnadurai, P., Mohd-Sanusi, Z., Hermawan, A., & Ni, A. (2017). How efficient ownership structure monitors income manipulation? Evidence of real earnings management among Malaysian firms. *Research in International Business and Finance*, 41, 54–66. <https://doi.org/10.1016/j.ribaf.2017.04.013>
- Tayachi, T., Hunjra, A. I., Jones, K., Mehmood, R., & Al-Faryan, M. A. S. (2023). How does ownership structure affect the financing and dividend decisions of firm? *Journal of Financial Reporting and Accounting*, 21(3), 729–746. <https://doi.org/10.1108/JFRA-09-2021-0291>
- Tran, T. T., Hai Do, Y. T., & Kim Vo, N. (2023). The impact of foreign ownership, corporate governance on earning management: Fuzzy-set qualitative comparative analysis. *Cogent Business & Management*, 10(3), 2247869. <https://doi.org/10.1080/23311975.2023.2247869>
- Troy, C., Smith, K. G., & Domino, M. A. (2011). CEO demographics and accounting fraud: Who is more likely to rationalize illegal acts? *Strategic Organization*, 9(4), 259–282. <https://doi.org/10.1177/1476127011421534>
- Uddin, M. H. (2023). The moderating role of COVID-19 pandemic on the relationship between CEO characteristics and earnings management: Evidence from Bangladesh. *Cogent Business & Management*, 10(1), 2190196. <https://doi.org/10.1080/23311975.2023.2190196>
- Vo, X. V., & Chu, T. K. H. (2019). Do foreign shareholders improve corporate earnings quality in emerging markets? Evidence from Vietnam. *Cogent Economics & Finance*, 7(1), 1698940. <https://doi.org/10.1080/23322039.2019.1698940>
- Wang, C., Lok, C. L., & Phua, L. K. (2023). Ownership structure and capital structure: Moderating effect of product market maturity. *SAGE Open*, 13(4), 1–15. <https://doi.org/10.1177/21582440231218787>
- Young, M. N., Peng, M. W., Ahlstrom, D., Bruton, G. D., & Jiang, Y. (2008). Corporate governance in emerging economies: A review of the principal-principal perspective. *Journal of Management Studies*, 45(1), 196–220. <https://doi.org/10.1111/j.1467-6486.2007.00752.x>
- Zouari, Z., Lakhali, F., & Nekhili, M. (2015). Do CEO characteristics affect earnings management? Evidence from France. *International Journal of Innovation and Applied Studies*, 12(4), 801–819. <https://doi.org/10.2139/ssrn.2082009>