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Does the board of directors play a role in mitigating real and accrual-based earnings management in the MENA context?

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Abstract

Purpose – In light of the key role attributed to the board of directors as a monitoring tool to constrain earnings management practices, this study examines the effect of some board attributes on accrual-based earnings management and real earnings management in the MENA context, whose institutional, economic, and legal environment is markedly different from that of most OECD countries.

Design/methodology/approach – We selected a sample of 161 non-financial companies from nine MENA countries between 2014-2021 (corresponding to an unbalanced data panel of 486 observations). We used the generalized least squares regression (GLS) test to examine the relationship between board attributes and earnings management.

Findings – We found that three board attributes (size, independence, and gender diversity) have no effect on both types of earnings management practices, while CEO duality has no effect on accrual-based earnings management but has a significant and negative effect on real earnings management. Overall, the results suggest that most board attributes do not play a crucial role in reducing earnings management.

Originality/value – This is the first study to examine the effect of various board characteristics on both types of earnings management practices in the MENA context. It also provides the first empirical evidence of the relationship between board gender diversity and earnings management in the MENA region.

Research implications – The results provide valuable insights into the universal role of corporate governance mechanisms and raise questions about the role of the board of directors in improving reporting quality in the MENA context.

Practical implications – Regulators should adapt corporate governance mechanisms to the characteristics of the institutional context in which they are inserted.

Keywords: earnings management, discretionary accruals, board of directors, corporate governance, MENA countries.

Paper type Research paper

1. Introduction

Managers can utilize earnings management (EM) as an opportunistic exercise of discretion to misrepresent or mask the firm's true economic performance in order to benefit

themselves at the expense of shareholders. They may use two main strategies: accrual-based earnings management (AEM), which consists of manipulating earnings figures using discretion and judgment regarding accounting options (Schipper, 1989), and real earnings management (REM), by adjusting real transactions, for example by scheduling investments or financing decisions, overproducing to reduce the cost of sold goods, reducing discretionary expenditures, or applying aggressive sales price reductions and flexible credit terms (Roychowdhury, 2006; Badertscher, 2011; Habib *et al.*, 2022).

Managers tend to show a preference for using REM over AEM, as the former is less visible and therefore less risky (Graham *et al.*, 2015; El Diri *et al.*, 2020; Habib *et al.*, 2022). Nevertheless, recent studies provide evidence that, in fact, managers use both EM strategies (AEM and REM) as substitutes (Badertscher, 2011; Zang, 2012; Sanad *et al.*, 2022), documenting a negative association between them (Cohen *et al.*, 2008; Enomoto *et al.*, 2015). Studies show that firm characteristics, such as political connection and corporate governance structure (Braam *et al.*, 2015; Ding *et al.*, 2018), as well as the country's institutional and legal environment (Leuz *et al.*, 2003; Razaque *et al.*, 2016), affect managers' preference for using one or the other type of EM strategy. Thus, in those countries where the legal system is stronger, firms tend to engage less in AEM and, conversely, engage more in REM (Francis *et al.*, 2016).

Corporate governance (CG) mechanisms stand out as one of the key solutions to ensure the integrity and quality of financial reporting and mitigate agency problems. They provide a structure to ensure a greater monitoring and control of management, promoting transparency and accountability (García-Meca and Sánchez-Ballesta, 2009; Lin and Hwang, 2010). In particular, the board of directors (BD) is considered a key element of a firm's internal governance structure (Fama and Jensen, 1983). It plays an important role in restricting EM, broadening the oversight of management activities and limiting opportunistic managers' behavior, thereby ensuring the reliability and relevance of financial reporting (Klein, 2002).

To the extent that managers have to submit their investment and operational decisions to the board for approval (Osma, 2008; Srinidhi *et al.*, 2011; Kang and Kim, 2012), the board monitoring role also extends to REM actions. However, research attention has mainly focused on the effectiveness of the board in deterring AEM (Attia *et al.*, 2022), while REM have not been analyzed as much (Al-Haddad and Whittington, 2019), despite the fact that their effects can potentially be more harmful, damaging firm value in the long term (Braam *et al.*, 2015). According to Ge and Kim (2014), strong board monitoring could have two opposite effects on REM. On the one hand, it could increase the likelihood that REM practices are detected and

constrained (Visvanathan, 2008; Kang and Kim, 2012) and, therefore, strong board monitoring would be negatively associated with REM. On the other hand, as, compared to AEM, the likelihood of detecting REM activities is lower (Graham *et al.*, 2005; Ding *et al.*, 2018), strong board monitoring could lead managers to engage in REM activities and, consequently, would be positively associated with REM (El Diri *et al.*, 2020).

Research has shown that the effect of the BD on AEM is influenced by its characteristics, such as its size, activity, and composition (Abdul Rahman and Ali, 2006; García-Meca and Sánchez-Ballesta, 2009; Sáenz-González and García-Meca, 2014). Although, at first glance, it might be expected that, just as AEM practices are affected by board attributes, these characteristics also affect REM (Ge and Kim, 2014), considering that both EM strategies are negatively associated (Cohen *et al.*, 2008), it is difficult to reliably predict whether and how board attributes affect REM. Accordingly, it is unclear whether those board characteristics that are effective in constraining AEM are equally capable of limiting REM (Visvanathan, 2008; Ge and Kim, 2014).

Many studies have examined the board's role in restricting EM, although most have been largely orientated towards Anglo-Saxon countries and Western European countries (Francis *et al.* 2016), which limits the potential generalizability of the findings to developing markets, where the institutional, economic, and legal environment is markedly different, affecting the monitoring role of the BD. Indeed, it has been shown that the effectiveness of CG mechanisms is affected by the country's institutional environment (García-Meca and Sánchez-Ballesta, 2009; Bao and Lewellyn, 2017), legal system, and cultural background (Leuz *et al.*, 2003; Han *et al.*, 2010; Francis *et al.*, 2016; Attia *et al.* 2022). In this regard, recent studies indicate that Western CG systems may be ineffective in developing countries due to their different institutional environment, characterized by high ownership concentration, weak enforcement of the rule of law, and less transparency in financial reporting (Sarkar *et al.*, 2008; Sáenz-González and García-Meca, 2014; Aguilera *et al.*, 2019; Attia *et al.* 2022; Ghaleb *et al.* 2022).

In addition, while there are notable differences in institutional, economic, legal, and cultural environments between developed and developing countries that affect the effectiveness of the BD as a monitoring tool (Bao and Lewellyn, 2017), there are also some salient differences among developing countries, which warrant further study. In this regard, in a recent review on CG research in the Middle Eastern and North African (MENA) countries by Farah

et al. (2021) to identify topics that deserve further attention, the authors wondered about the effectiveness of board monitoring in such a different institutional and cultural setting.

This paper aims to fill this gap in literature by analyzing the effect of various characteristics of the BD (size, independence, CEO duality, and gender diversity) on both AEM and REM in the MENA context. Specifically, we seek to answer the following research questions: (1) Do board attributes play the same role in constraining both types of EM practices? and (2) Can the same differences that exist between developed and developing countries in terms of the effect of board attributes on AEM also be expected to exist in the REM context?

To answer these questions, we examine a sample of 161 non-financial companies from nine MENA countries between 2014-2021 (corresponding to an unbalanced data panel of 486 firm-year observations). We focus on the MENA context for several reasons. First, although a growing stream of research has provided empirical evidence on the effectiveness of the BD in deterring EM practices in developing countries, such studies have mainly focused on the Asia-Pacific region. In contrast, the MENA area has received comparatively less research attention (Fainshmidt *et al.*, 2018; Farah *et al.*, 2021; Almarayeh *et al.*, 2022). Second, while the MENA region encompasses highly diverse economies with varying economic structures (Piesse *et al.*, 2012; World Economic Forum, 2018; Farah *et al.*, 2021), all countries in the MENA region share some distinctive characteristics to a greater or lesser extent. These include highly concentrated ownership structure dominated by families and the state, bank-oriented financial systems, small and inefficient stock markets, lower levels of investor protection, and a weaker rule of law (Al-Najjar and Clark, 2017; Elghuweel *et al.*, 2017; Al-Bassam *et al.*, 2018; Sarhan and Ntim, 2018). In addition, the MENA context has unique cultural characteristics, such as strong hierarchical social structures, strong influence of family relations and personal trust on business operations, a strong influence of Islamic religion values on business activity and corporate practices, and low presence of women in top management positions and on corporate boards (Piesse *et al.*, 2012; Sarhan and Ntim, 2018; Sarhan *et al.*, 2019; Farah *et al.*, 2021). All these factors, which are very different from most OECD countries (Amico, 2014), influence national governance quality which, in turn, affects MENA firms' compliance with the provisions of national corporate governance codes (CGC) (Sarhan and Ntim, 2018). As a result, Arab countries have been among the worst performers globally on issues such as governance quality and minority shareholder protection (World Economic Forum, 2018), a condition that

has not significantly improved following the wave of changes experienced since the Arab Spring (Sarhan and Ntim, 2018; Farah *et al.*, 2021).

Overall, our findings suggest that most board attributes do not play a crucial role in mitigating EM, which raises questions about the role of this CG mechanism in improving reporting quality within the MENA context. Specifically, the results indicate that board size, board independence, and board gender diversity do not have a significant effect on either type of EM. However, the impact of CEO duality varies depending on the type of EM under consideration. It has no effect on AEM, while it exerts a significant and negative effect on REM, indicating that CEO duality may offer advantages in constraining REM in MENA countries.

Our research contributes to the literature in several ways. Firstly, it extends the available empirical evidence on the effectiveness of CG mechanisms in emerging countries by providing data from the MENA context. This is particularly valuable because empirical evidence in this context is relatively limited (Sarhan and Ntim, 2018; Farah *et al.*, 2021), especially regarding the impact of board characteristics on REM (Al-Haddad and Whittington, 2019). Furthermore, our research differs from most previous studies on the effect of board attributes on EM in the MENA context, as we offer a novel approach to this topic by considering both types of EM practices (AEM and REM) rather than just one of them. As far as we are aware, our study is the first to empirically examine the effect of various board characteristics on both types of EM in the MENA context. Therefore, our results provide valuable insights for a better understanding of the universal role of CG mechanisms. Moreover, while previous studies focused on a single country (e.g., Al-Haddad and Whittington, 2019), we conducted a multi-country study using a larger dataset spanning eight countries and a longer period (2014-2021), which provides updated data.

Second, this paper contributes to the literature on the effect of board gender diversity (BGD) on earnings quality by providing evidence from a context where the status of women in top corporate positions differs significantly from that in Western countries. To the best of our knowledge, our study provides the first empirical evidence of the relationship between BGD and EM in the MENA region, a context in which the effects of BGD have been under-researched (Sarhan *et al.* 2019; Farah *et al.*, 2021). Third, from a theoretical viewpoint, this study offers support for the institutionalized agency theory perspective (Bao and Lewellyn, 2017). It demonstrates that the monitoring role of the board is affected by the particularities of the institutional and cultural environment in MENA countries, thereby providing a new

theoretical basis for developing the research hypotheses and interpreting the results regarding the effectiveness of internal CG mechanisms in constraining EM in emerging countries.

This paper contains six sections. Following this introduction, the second section outlines the characteristics of CG in MENA countries. The third section reviews the literature and presents the development of the research hypotheses. The fourth section sets out the study's empirical framework. The fifth section summarises and discusses the results. Finally, the last section presents the main conclusions and implications of the study, its limitations, and future extensions.

2. The corporate governance environment in MENA countries

Over the past two decades, along with other reforms to promote corporate transparency and accountability, MENA countries went down the path of reforming their CG systems by publishing and amending their national CGCs (Koldertsova, 2011; Piesse *et al.*, 2012; Sarhan *et al.*, 2019). These codes are mainly based on the framework and principles of CG developed by the Organization for Economic Cooperation and Development (OECD). However, they emphasize different dimensions and their statutes vary. In some countries (e.g., Algeria, and Tunisia) the codes are voluntary, while in others (e.g., Egypt, Jordan, Oman, Qatar, and Saudi Arabia) they follow a “comply-or-explain” approach (OECD 2011). Table I provides an overview of the main characteristics of the MENA countries' CGCs. Notably, all these codes include provisions related to the composition and functions of the BD.

[Table I here]

However, the main problem with CGCs is the lack of enforcement, which conditions their effectiveness. Moreover, as in other developing countries, to a large extent, the adoption of good CG standards in MENA countries has been chiefly driven by international demands rather than by a genuine interest of firms in improving CG (Young *et al.*, 2008; Goh and Rasli, 2014). Consequently, they have been adopted mainly for signaling purposes and “exist only on paper” (Amico, 2014, p. 46).

3. Theoretical background and hypotheses

3.1 Theoretical framework

Millar et al. (2005) proposed an “international triad” of business systems (Anglo-Saxon, communitarian, and emerging) that reflect the differences among countries from each bloc in terms of institutional, economic, and cultural factors, as well as investor protection regimes. Unlike the Anglo-Saxon and the communitarian systems, the emerging system can be described as a relationship-based model, typical of most emerging economies. In this model the monitoring role of CG mechanisms is considered less necessary, and governance structures are determined by the families that own the firms. According to García-Meca and Sánchez-Ballesta (2009), the differences among these three business systems moderate the relation between CG mechanisms and EM. Specifically, they argue that the arguments supporting the way in which CG mechanisms affect EM in Anglo-Saxon countries’ firms may not be valid in emerging countries, which would explain the disparate results obtained by empirical studies.

From a theoretical viewpoint, previous studies have used agency theory to interpret managers’ motivations to manipulate earnings and explain the need for efficient CG mechanisms to constrain such behaviors (Fama and Jensen, 1983; Daily *et al.*, 2003). Agency theorists present the BD as a mechanism to mitigate agency conflicts and protect shareholders from managers’ opportunistic behavior (Daily *et al.*, 2003). However, as Bao and Lewellyn (2017) point out, when the institutional environment differs significantly from the Anglo-Saxon model, as is the case in emerging countries, the role of CG mechanisms in restraining EM cannot be adequately explained by the traditional agency theory perspective. This is because the main agency problem to be addressed by such mechanisms is different from that in Anglo-Saxon countries. They propose integrating agency theory with institutional theory, creating an “institutionalized agency theory perspective” to explain why and how the monitoring role of CG mechanisms is affected by the particularities of the institutional environment in emerging countries, characterized by weak investor protection and concentrated ownership structures.

3.2. Literature review and hypotheses development

In this section we review the literature examining the relationship between some attributes of the BD and EM and propose a set of testable hypotheses in which we take into account the influence of the MENA environment. In general, our research hypotheses postulate the lack of significance of the BD in constraining EM. This is justified by several arguments: (1) the size of the BD in MENA companies not only does not allow synergies to be achieved,

but also increases costs (Arayssi and Jizi, 2019), (2) in MENA firms the appointment of directors is often based on family relationships with the owners of the firms without taking into account issues such as their educational background (e.g., accounting and finance expertise) and experience, which may limit directors' capability to deter EM practices (Al-Haddad and Whittington, 2019), (3) the presence of independent and female directors on the board may be hereditary and purely symbolic (Arioglu, 2020; Farah *et al.*, 2021), and (4) the monitoring role of directors may be compromised by management dominance that may be exerted over the board in MENA firms (Abdul Rahman and Ali, 2006).

3.2.1. Board size and earnings management

From an agency theory's perspective, the board's size affects its ability to monitor management's activities, although there are different views on what the optimal size of the board should be to fulfill its oversight role effectively (Jensen, 1993; Yermack, 1996; Abdul Rahman and Ali, 2006; Attia *et al.*, 2022). Board size (BS) varies across countries, and in the MENA region, most boards of listed firms have between six and ten members (OECD 2011).

The association between BS and AEM has been analyzed with mixed findings. Some studies have documented a negative association, supporting the argument that larger boards are more efficient in monitoring financial reporting quality (Hashim and Devi, 2008). Based on a sample of 282 US firms, Xie *et al.* (2003) found that BS was negatively correlated with AEM. In the same context, Chtourou *et al.* (2001) documented a lower probability of income-increasing accruals when firms have a large board. These findings were recently confirmed in the European context by Triki Damak (2018) and Saona *et al.* (2020), who also found a negative association between BS and AEM in France and Spain respectively, while Kyaw *et al.* (2015) and Harakeh *et al.* (2019) obtained the opposite result (i.e., a positive association) for a sample of 20 European countries and the UK, respectively.

In their meta-analysis of 35 empirical studies examining the relation between CG and AEM, García-Meca and Sánchez-Ballesta (2009) found that a negative association between BS and discretionary accruals remained in Anglo-Saxon countries but not in emerging economies. In fact, as far as developing markets are concerned, most authors have found a positive connection between BS and AEM. For example, in a sample of 97 Malaysian companies, Abdul Rahman and Ali (2006) found that BS was positively associated with AEM. The same result was obtained by Kao and Chen (2004) and Sarkar *et al.* (2008) for Taiwanese and Indian firms, respectively. In Hong Kong, a country characterized by the predominance of family-owned

firms, [Ching et al. \(2006\)](#) found that firms with larger boards show a higher degree of AEM around seasoned equity offerings. In a similar vein, [Santiago and Brown \(2009\)](#) also found a positive relation between BS and AEM for 97 firms from Brazil, Chile, and Mexico and [Sáenz-González and García-Meca \(2014\)](#) obtained a similar result for a sample of listed Latin American firms. More recently, [Githaiga et al. \(2022\)](#) also found a positive association between BS and AEM in the East African Community.

However, other studies offer opposite results, for example, [Ye \(2014\)](#) documents a negative association between BS and AEM in China. Similar findings were reported by [Orazalin \(2020\)](#) for Kazakhstan, [Quoc Thinh and Tan \(2019\)](#) and [Cho and Chung \(2022\)](#) for Vietnam. In contrast [Waweru and Prot \(2018\)](#) for Eastern Africa, [Firnanti et al. \(2019\)](#) and [Agustia et al. \(2022\)](#) for Indonesia, [Chatterjee \(2020\)](#) and [Chatterjee and Rakshit \(2023\)](#) for India, [Sial et al. \(2019\)](#) for China, and [Le and Nguyen \(2023\)](#) for Vietnam did not find a significant association between BS and AEM.

Regarding MENA countries, a few studies analyzed the effect of BS on AEM with mixed results. In the Saudi context, [Al-Abbas \(2009\)](#) found no empirical support for a statistically significant association between BS and AEM, while more recently [Habbash \(2019\)](#) documented a significant negative association between them in the same context. [Alareeni \(2018\)](#) and [Kahlil and Ozkan \(2016\)](#) also reported a negative relationship between BS and AEM in Bahraini and Egyptian firms, respectively. [Abed \(2012\)](#) and [Alzoubi \(2016\)](#) found the same result (i.e., a negative relationship) in the Jordanian context, while [Bataineh et al. \(2018\)](#) and [Al-Haddad and Whittington \(2019\)](#) did not find a statistically significant association between BS and AEM in that context. Finally, [Türegün \(2018\)](#) documents a positive association between BS and AEM in Turkey, while [Charfeddine et al. \(2013\)](#), [Elghuweel et al. \(2017\)](#), [Arioglu et al. \(2020\)](#), and [Binashour et al. \(2021\)](#) found no significant effect of BS on AEM in Tunisian, Omani, Turkish, and UAE firms, respectively.

As regards REM, [Visvanathan \(2008\)](#) and [Garven \(2015\)](#) found no significant relationship between BS and REM in the US context. Evidence from emerging countries is provided by [Kang and Kim \(2012\)](#), who, based on a sample of Korean listed firms, document a negative association between BS and REM, while [Oh and Jeon \(2017\)](#) found the opposite result (i.e., a positive association) in the same context. Finally, [Sial et al. \(2019\)](#), [Rajeevan and Ajward \(2020\)](#), and [Ghaleb et al. \(2022\)](#) do not find a significant association in listed firms from China, Sri Lanka, and Malaysia, respectively. In the MENA context, [Chouaibi et al. \(2018\)](#) found a negative association between BS and REM in Tunisian firms. In contrast, Al-

Haddad and Whittington (2019) and Shahwan and Almubaydeen (2020) found a significant and positive association between BS and REM in Jordanian firms, while Aleqab and Ighnaim (2021) did not find a significant association in the same context. For a sample of 78 Egyptian listed firms, Attia *et al.* (2022) failed to obtain a significant association between BS and REM.

In spite of these mixed findings, given that most studies focused on MENA countries do not document any association between BS and EM and considering that in a relationship-based model typical of most emerging economies, the monitoring role of CG mechanisms is considered less crucial (García-Meca and Sánchez-Ballesta 2009), we expect BS to have a negligible effect in terms of reducing both types of EM. Consequently, we propose the following hypotheses:

H1a: There is no association between BS and AEM

H1b: There is no association between BS and REM.

3.2.2. Board independence and earnings management

Independent directors play a key role in monitoring management (Fama and Jensen, 1983). Previous studies argue that the presence of independent directors on the board leads to more reliable financial statements (Brennan and McDermott, 2004). In the Anglo-Saxon context, most studies have found a negative relation between board independence (BI) and AEM, indicating that a higher proportion of independent directors on the board increases its ability to deter these practices (Klein, 2002; Xie *et al.*, 2003; Davidson *et al.*, 2005; Niu, 2006). In the European context, Triki Damak (2018) and Sanoa *et al.* (2020) confirmed this negative association between BI and AEM in France and Spain, respectively. In contrast, Kjærland *et al.* (2018) obtained the opposite result (i.e., a positive association), in the case of Norway. Additionally, Kyaw *et al.* (2015) and Harakeh *et al.* (2019) found no significant association between BI and AEM in a sample of 20 European countries and the UK, respectively.

As García-Meca and Sánchez-Ballesta (2009) point out, the negative association between BI and AEM may be due to the legal and institutional framework in Anglo-Saxon countries (strong investor protection and a strong tradition of independent boards with a consolidated role as a monitoring mechanism). Consequently, in a significantly different economic and institutional environment, the effect of BI on AEM could vary (insignificant or positively associated).

In the context of emerging markets, most studies have not found a significant impact of independent directors on AEM (Abdul Rahman and Ali, 2006; Bradbury *et al.*, 2006; Sarkar *et*

al., 2008; Jaggi *et al.*, 2009; Ye, 2014; Chatterjee, 2020; Orazalin, 2020; Le and Nguyen, 2023) or even a positive relationship between them (Bao and Lewellyn, 2017; Waweru and Prot, 2018; Cho and Chung, 2022). As a possible explanation for these results, some authors suggest that, in emerging countries, director independence is more a façade than a genuine stance (Sáenz-González and García-Meca 2014), as independent directors may not be truly independent from those who appointed them (García-Meca and Sánchez-Ballesta, 2009). Indeed, directors are habitually appointed by the owner families or are members of such families, so their independence is likely to be compromised (Jaggi *et al.*, 2009; Al-Haddad and Whittington, 2019; Arioglu, 2020).

In the MENA context, Al-Najjar and Clark (2017) provide empirical evidence that the presence of independent directors on the board does not improve its monitoring ability because their appointment tends to favor personal relationships over qualifications and expertise. Previous empirical studies' findings report divergent evidence. In Saudi Arabia, Al-Abbas (2009) found no significant relationship between BI and AEM, while Habbash (2019) documents a negative association between them. Alzoubi (2016) also reports a significant negative association between BI and AEM in Jordanian firms, while in the same country Al-Haddad and Whittington (2019) obtained the opposite result (i.e., a positive association) and Abed (2012) found no significant association between BI and AEM. Similarly, Alareeni (2018) also found a positive effect of BI on AEM in Bahraini firms, while Khalil and Ozkan (2016), and Binashour *et al.* (2021) found no significant relationship between BI and AEM in Egypt and UAE, respectively. Finally, Türegüin (2018) documents a negative effect of BI on AEM in Turkish firms, while Arioglu (2020) found no significant association between BI and AEM in the same context.

As regards REM, in the Anglo-Saxon context, Osmá (2008) investigated the association between BI and the manipulation of research and development expenses in UK firms and found that those firms with more independent boards were less involved in such practices. Similar findings were obtained by Visvanathan (2008), who, employing USA data, also found a negative association between BI and REM practices. However, also in the USA context, Garven (2015) found no significant relationship between BI and REM. Evidence from emerging countries is provided by Kang and Kim (2012), Chouaibi *et al.* (2018), Sial *et al.* (2019), Rajeevan and Ajward (2020), and Aleqab and Ignaim (2021). They found a negative association between BI and REM in Korean, Tunisian, Chinese, Sri Lankan, and Jordanian firms, respectively. Conversely, Al-Haddad and Whittington (2019) documented a significant

positive association between BI and REM in the Jordanian context. The same result (i.e., a positive association) was obtained by Oh and Jeon (2017), Attia *et al.* (2022), and Ghaleb *et al.* (2022) in Korea, Egypt, and Malaysia, respectively.

Considering that in the MENA context the appointment of independent directors is mainly determined by “favors networking and firm connections” (Al-Najjar and Clark, 2017, p.12) and, therefore, they may not have adequate technical knowledge or incentives to identify EM activities, we expect BI to have a negligible effect from the perspective of reducing both types of EM and therefore hypothesize the following:

H2a: There is no association between BI and the level of AEM

H2b: There is no association between BI and the level of REM.

3.2.3. CEO duality and earnings management

According to the agency theory’s tenets, CEO duality (i.e., when the same person holds the positions of CEO and chairman of the BD) can increase information asymmetry problems, since the CEO may conceal information from the other directors, hindering their monitoring function. Accordingly, several authors advocate the separation of both figures (CEO and chairman) to deter EM (Dechow *et al.*, 1996; Abdul Rahman and Ali, 2006; Chen and Liu, 2010; Chi *et al.*, 2015). In a similar vein, most CGCs recommend splitting the CEO and chairman positions. Following this overall trend, CGCs in MENA countries prevent the combination of roles between the chairman of the board and any other executive position in the company (see Table I).

Nevertheless, most empirical studies have not revealed a significant relationship between CEO duality and AEM in both developed (Xie *et al.*, 2003; Davidson *et al.*, 2005; Ghosh *et al.*, 2010; Kyaw *et al.*, 2015; Harakeh *et al.* 2019) and developing countries (Kao and Chen, 2004; Bradbury *et al.*, 2006; Chatterjee and Rakshit, 2023; Le and Nguyen, 2023). This result is supported by meta-analyses carried out by García-Meca and Sánchez-Ballesta (2009) and Lin and Hwang (2010). An exception to this general trend is the study by Bao and Lewellyn (2017), who analyzed companies from 24 emerging countries and found a negative association between CEO duality and AEM, and Sial *et al.* (2019), who document a positive association in the case of Chinese firms. In addition, Triki Damak (2018) and Saona *et al.* (2020) documented a positive effect of CEO duality on AEM in the case of French and Spanish firms, respectively.

In the MENA context, Al-Abbas (2009) –in Saudi Arabia–, Alareeni (2018) –in Bahrain–, and Abed (2012), Bataineh *et al.* (2018), and Al-Haddad and Whittington (2019) –

in Jordan— found no significant relationship between CEO duality and AEM. The only exception to this general rule is the positive association between CEO duality and AEM obtained by Khalil and Ozkan (2016) for Egyptian companies and by Gaviious *et al.* (2012) for Israeli high-tech firms as well as the negative association documented by Charfeddine *et al.* (2013) for Tunisian firms.

As regards REM, again, studies found no empirical support for a statistically significant association between CEO duality and REM in the USA context (Visvanathan, 2008; Garven, 2015) nor in developing countries (Chouaibi *et al.*, 2018). However, Al-Haddad and Whittington (2019), Sial *et al.* (2019), and Rajeevan and Ajward (2020) depart from this general trend and find a significant and positive association between CEO duality and REM in Jordan, China, and Sri Lanka, respectively. On the contrary, Attia *et al.* (2022) document a significant and negative association between CEO duality and REM in Egyptian listed firms.

Based on the above findings and considering that the monitoring role of the board can be jeopardized by management dominance (Abdul Rahman and Ali, 2006), we assume that CEO duality has no effect on both types of EM and, therefore, the following hypotheses are stated:

H3a: There is no association between CEO duality and the level of AEM.

H3b: There is no association between CEO duality and the level of REM.

3.2.4. Gender diversity and earnings management.

From the perspective of both agency theory and behavioural theories, the presence of female directors on the board is considered a good mechanism to mitigating earnings management (Al Hajjar *et al.*, 2021). Several authors (e.g., Labelle *et al.*, 2010; Zalata *et al.*, 2019) have highlighted the favourable impact of diversity on the board's ability to monitor and control managerial behaviour. Some arguments support the view that the presence of female directors on boards improves their effectiveness in terms of monitoring and preventing opportunistic managerial behaviour (Huse and Solberg, 2006; Gaviious *et al.*, 2012). Female directors are more sensitive to reputational risks than male directors (Srinidhi *et al.*, 2011) and, consequently, are inclined to adopt more conservative accounting policies and financial reporting practices (Arun *et al.*, 2015). In addition, female directors tend to be more sensitive to ethical concerns (Labelle *et al.*, 2010) and less permissive of opportunistic behaviour (Krishnan and Parsons, 2008). These arguments suggest that, although both female and male directors have similar ability to detect earnings manipulation, their response to such

irregularities may differ, with female directors tending to be more reluctant to overlook them (Gavious *et al.*, 2012; Gull *et al.*, 2018), so that their presence on the board will be associated with higher financial reporting quality (Labelle *et al.*, 2010).

In a recent study, Mensah and Onumah (2023) analyzed 9 Sub-Saharan African countries and showed that board gender diversity (BGD) plays a moderating role in the relationship between firm performance and EM. Most studies document a negative association between BGD and EM (Srinidhi *et al.*, 2011; Arun *et al.*, 2015; Kyaw *et al.*, 2015; Harakeh *et al.*, 2019; Gull *et al.*, 2018; Triki Damak, 2018; Harakeh *et al.* 2019; Zalata *et al.* 2019; Saona *et al.*, 2020). However, such studies are based on data from developed countries. In the context of emerging markets, Ye *et al.* (2010) found that BGD has no effect on earnings quality in Chinese firms and Kukah *et al.* (2016) found no evidence of a significant effect of BGD on AEM in Ghana. Abdullah and Ismail (2016), in Malaysia, and Le and Nguyen (2023), in Vietnam, also failed to obtain a significant association between BGD and AEM. Nevertheless, Sial *et al.* (2019) and Orazalin (2020) documents a negative association between BGD and AEM in the case of China and Kazakhstan, respectively. The same result was obtained by Debnath and Roy (2019), in India, and Githaiga *et al.* (2022), in the East African Community. As for the MENA context, Elghuweel *et al.* (2017), Arioglu (2020), and Binashour *et al.* (2021) found no significant effect of BGD on AEM in Omani, Turkish, and UAE firms, respectively, while Gavious *et al.* (2012) document a negative association between BGD and AEM in Israeli high-tech firms. As regards REM, Luo *et al.* (2017) and Sial *et al.* (2019) document a negative association between BGD and REM in Chinese firms. The opposite result (i.e., a positive association) is reported by Debnath *et al.* (2019) in Bangladeshi firms.

Gull *et al.* (2018) found that the relationship between gender diversity and earnings management is affected by the statutory and demographic attributes of female directors. In this regard, Zalata *et al.* (2022) argue that board gender diversity, by itself, does not affect earnings quality, but that it is necessary for female directors to have a financial background in order for their presence on the board to improve earnings quality. Other authors (Konrad *et al.*, 2008; Elstad and Ladegard, 2012) focus on the proportion of women on the board and argue that “a critical mass” is needed for female directors to exert significant influence (Elstad and Ladegard, 2012, p. 598). Recent literature also shows that the impact of BGD is affected by institutional factors at the country level (Byron and Post, 2016; Sarhan *et al.*, 2019). In this regard, Kyaw *et al.* (2015) found that the impact of BGD depends on the level of gender equality in the country, so that BGD is negatively associated with EM only in those countries

characterized by high gender equality, such as Scandinavian countries. In the MENA context, cultural traditions and beliefs have driven gender discrimination, negatively affecting the presence of women in top management positions and on corporate boards (Sarhan *et al.*, 2019). Indeed, although many MENA countries have implemented reforms to increase female representation on boards (Salloum *et al.*, 2019) and, as a result, women's board participation rates have shown gradual growth (Sarhan *et al.*, 2019), the fact remains that the majority of MENA listed companies' boards of directors still consist mainly of men (Al Hajjar *et al.*, 2021). Moreover, female directors tend to play a symbolic role (Arioglu 2020; Farah *et al.*, 2021) and their appointment is often based on family relationships (Al Hajjar *et al.*, 2021). This situation could explain why Sarhan and Ntim (2018) did not find a significant relationship between BGD and the extent of voluntary CG disclosures by MENA firms.

Based on the above discussion and considering that female directors on boards are a particular issue within the role of women in the labor market in MENA countries, we presume BGD does not have a significant influence on EM and, hence, the following hypotheses are stated:

H4a: There is no significant relationship between BGD and AEM.

H4b: There is no significant relationship between BGD and REM.

Table II summarizes prior studies' findings on the association between board characteristics and EM and Figure 1 depicts the study's research model.

[Table II here]

[Figure 1 here]

4. Research design

4.1. Sample and data collection

The target population was selected as the non-financial listed companies belonging to MENA countries whose information is available on the Thompson Reuters EIKON database. Financial companies were excluded from this study due to their different nature (Almarayeh *et al.*, 2020, 2022; El Dirir *et al.*, 2020; Agustia *et al.*, 2022; Attia *et al.*, 2022). Our initial sample was composed of 855 firm-year observations from 8 different countries. However, 369

observations were eliminated due to three reasons: (i) lack of board data, (ii) lack of data for the calculation of EM proxies, and (iii) lack of data regarding control variables.

As a result, the final sample corresponds to an unbalanced data panel consisting of 486 firm-year observations from 161 MENA companies belonging to eight countries (namely, Egypt, Kuwait, Morocco, Oman, Qatar, Saudi Arabia, Turkey, and United Arab Emirates) for the period 20014-2021. The sample companies operate in different sectors, including wholesale and retail trade, chemicals and mining, engineering and construction, manufacturing, communication, transportation, and agriculture. The number of industries from each country represented in the sample ranges from three to seven. [Table III](#) shows the distribution of observations by country. Turkish companies have a larger presence in the sample than the rest of the countries. These biases will be methodologically corrected by including country variables.

[Table III here]

4.2. Variable measurement

4.2.1. Dependent variables: Earnings management proxies

Accrual-based earnings management (AEM): Consistent with previous literature, we employ the absolute value of discretionary accruals (DAC) as a proxy for the dependent variable AEM ([Klein, 2002](#); [Abdul Rahman and Ali, 2006](#); [Sáenz-González and García-Meca, 2014](#); [Almarayeh et al., 2020, 2022](#)). Discretionary accruals were estimated by using the cross-sectional variation of the performance adjusted model of [Kothari et al. \(2005\)](#). To decrease heteroscedasticity problems and harmonize differences in firm size, [Kothari et al. \(2005\)](#) use assets as deflators. Thus, apart from the constant, all variables in Equation 1 are deflated by the total assets at the end of the previous year.

$$TA_{i,t}/A_{i,t-1} = \alpha_{0,t} + \alpha_{1,t}(1/A_{i,t-1}) + \alpha_{2,t}(\Delta(\text{SALES} - \text{REC})_{i,t}/A_{i,t-1}) + \alpha_{3,t}(PPE_{i,t}/A_{i,t-1}) + \alpha_{4,t}(\text{ROA}_{i,t}/A_{i,t-1}) + \varepsilon_t \text{ [Equation1]}$$

where $TA_{i,t}$ are the total accruals; $A_{i,t-1}$ reflects the total assets; $\Delta(\text{SALES} - \text{REC})_{i,t}$ represents the change in sales less accounts receivable; $PPE_{i,t}$ is the property, plant and equipment; and $ROA_{i,t}$ is the return on assets. The subscripts i and t refer to the firm and the period, respectively.

To compute the non-discretionary accruals (NDAC), the coefficients in Equation 2 are substituted for those from Equation 1:

$$\text{NDAC}_{i,t} = a_{0,t} + a_{1,t} (1/A_{i,t-1}) + a_{2,t} (\Delta(\text{SALES} - \text{REC})_{i,t} / A_{i,t-1}) + a_{3,t} (\text{PPE}_{i,t} / A_{i,t-1}) + a_{4,t} (\text{ROA}_{i,t} / A_{i,t-1}) + \varepsilon_t \text{ [Equation 2]}$$

As depicted in Equation 3, DAC are calculated by subtracting NDAC (Equation 2) from the total accruals (Equation 1).

$$\text{DAC}_{it} = \text{TA}_{it} - \text{NDAC}_{it} \text{ [Equation 3]}$$

Real earnings management (REM): Due to data availability, we use abnormal discretionary expenses as a proxy for REM. Following [Roychowdhury \(2006\)](#), we estimate the normal level of discretionary expenses (DISEXP) by using the following regression (Equation 4) in which all variables, apart from the constant, are scaled by the total assets at the end of the previous year.

$$\text{DISEXP}_{i,t} / A_{i,t-1} = \alpha_0 + \alpha_1 (1/A_{i,t-1}) + \alpha_2 (\text{SALES}_{i,t} / A_{i,t-1}) + \varepsilon_t \text{ [Equation 4]}$$

where: $\text{DISEXP}_{i,t}$ is the sum of advertising expenses, research and development expenses and Selling, General, and Administrative expenses; $\text{SALES}_{i,t}$ are the total sales; and $A_{i,t-1}$ reflects the total assets. The subscripts i and t refer to the firm and the period, respectively.

Abnormal discretionary expenses (A_DISEXP) are estimated as the difference between the actual discretionary expenses and DISEXP.

4.2.2. Independent variables

We use four explanatory variables representing board attributes. Board size (BRDSIZE) is measured as the total number of board members. Board independence (BRDIND) is calculated as the proportion of independent directors to the total number of directors on the board. CEO duality (BRDDUAL) is defined as a dummy variable that equals 1 if the CEO is also the chairman of the board and 0 otherwise. Finally, board gender diversity (GENDIV) is calculated as the percentage of female directors on the board.

4.2.3. Control variables

In line with previous studies on CG and EM ([Abdul Rahman and Ali, 2006](#); [Almarayeh et al., 2020](#); [Ghaleb et al., 2022](#); [Le and Nguyen, 2023](#)), we include several control variables to avoid biased results. We include firm size (SIZE), as the natural logarithm of total assets; firm leverage (LEVERG), as the ratio of total debt to total equity; firm growth opportunities (GROW), as the ratio of the difference in sales between period t and period $t-1$. Cash flow (CFO) denotes the cash flow from operations performed during period t ; the economic profitability of corporate assets (ROA) is measured by dividing the firm's net income by its

total assets, and earnings per share (EPS), is calculated as income before extraordinary items divided by the total number of shares outstanding at the end of period t. Detailed definitions of all variables are shown in Table IV.

[Table IV here]

4.2.4. Models and analysis technique

The proposed hypotheses will be tested using the empirical models depicted in Equation 5 and Equation 6, which refer to AEM and REM, respectively.

$$\begin{aligned} \text{DAC}_{i,t} = & \beta_0 + \beta_1 \text{BRDSIZE}_{i,t} + \beta_2 \text{BRDIND}_{i,t} + \beta_3 \text{BRDDUAL}_{i,t} + \beta_4 \text{GENDIV}_{i,t} + \beta_5 \\ & \text{LEVERG}_{i,t} + \beta_6 \text{GROW}_{i,t} + \beta_7 \text{CFO}_{i,t} + \beta_8 \text{SIZE}_{i,t} + \beta_9 \text{ROA}_{i,t} + \beta_{10} \text{EPS}_{i,t} + \beta_{11} \text{Year} + \beta_{12} \\ & \text{Country} + \varepsilon_{i,t} \end{aligned} \quad [\text{Equation 5}]$$

$$\begin{aligned} \text{DISEXP}_{i,t} = & \beta_0 + \beta_1 \text{BRDSIZE}_{i,t} + \beta_2 \text{BRDIND}_{i,t} + \beta_3 \text{BRDDUAL}_{i,t} + \beta_4 \text{GENDIV}_{i,t} + \beta_5 \\ & \text{LEVERG}_{i,t} + \beta_6 \text{GROW}_{i,t} + \beta_7 \text{CFO}_{i,t} + \beta_8 \text{SIZE}_{i,t} + \beta_9 \text{ROA}_{i,t} + \beta_{10} \text{EPS}_{i,t} + \beta_{11} \text{Year} + \beta_{12} \\ & \text{Country} + \varepsilon_{i,t} \end{aligned} \quad [\text{Equation 6}]$$

In these equations, subscript i denotes the firm and subscript t denotes the year. Two different panel regression models were constructed using Stata 13.

5. Results

5.1. Descriptive statistics

Table V reports the descriptive statistics of the dependent variables. Regarding AEM, the variable “DAC” shows a mean value around 0.154 (± 0.161). Turkish firms have the highest mean discretionary accruals (0.234), while firms from UAE and Morocco have the lowest (0.095 and 0.099, respectively). With respect to REM, the mean value of the DISEXP variable for the sample is 0.050 (± 0.058). In this case, Turkish firms also obtained the highest mean of abnormal discretionary expenditures (0.065), while firms from Morocco obtained the lowest mean (0.014). Comparing the mean values of DAC and DISEXP for the whole sample, it appears that managers of MENA firms prefer to manage earnings through accruals rather than real activities.

[Table V here]

Table VI provides the descriptive statistics of the independent and control variables. It shows that the mean BS is 11.98. On average, 16.7% of the board members are independent. In 31.25% of the cases, the CEO is also the chairman of the board and the average percentage of female directors on the board is 7.93%.

[Table VI]

Table VII shows the Pearson correlations matrix and the variance inflation factors (VIF) values. Although there are statistically significant correlations between some variables, all correlation coefficients are below the crucial threshold of 0.8 (Bananuka and Nkundabanyanga, 2022). Furthermore, VIF values are in the range of 1.03 and 1.63, considerably below the critical value of 10, which means that our analysis is free of multicollinearity problems (Attia et al. 2022).

[Table VII here]

5.2. Regression Results

We use the GLS random effects method to estimate the model parameters. Diagnostic testing of the model has been performed to validate the accuracy of its specification. Using a modified Wald test for group heteroscedasticity, the results indicate that heteroskedasticity is a problem ($\chi^2 = 3.40$, $p = 0.002$). Therefore, to eliminate this problem, we use the GLS model which is more appropriate than the Ordinary Least Squares (OLS) model.

We also perform the Hausman test to determine whether it makes more sense for our data to apply fixed or random effects. Given the existence of several time-invariant variables (country and industry), fixed-effects regression is not adequate, so random-effects regression is the best approximation, as indicated by the results of the Hausman test ($p > 0.05$ in all models).

Table VIII reports the findings regarding the effect of board attributes on both types of EM (AEM –panel A– and REM –panel B) for the two GLS regression models.

As regards BS, findings in Panel A and Panel B show that the estimated coefficients of BRDSIZE have a negative sign but are statistically insignificant, suggesting that BS does not have a significant effect on the restraint of both types of EM. Therefore, hypotheses H1a and H1b are supported. In the case of AEM, this result is in line with those obtained by Jaggi *et al.* (2009), Waweru and Prot (2018), Chatterjee (2020), Firnanti *et al.* (2019), Sial *et al.* (2019), Agustia *et al.* (2022), Chatterjee and Rakshit (2023), and Le and Nguyen (2023) in emerging

countries, as well as by the majority evidence from the MENA context (Al-Abbas, 2009; Gavius *et al.*, 2012; Charfeddine *et al.*, 2013; Elghuweel *et al.*, 2017; Bataineh *et al.*, 2018; Al-Haddad and Whittington, 2019; Arioglu, 2020; Binashour *et al.*, 2021). Regarding REM, our result is consistent with Visvanathan (2008) and Garven (2015) as well as by Sial *et al.* (2019), Rajeevan and Ajward (2020), Aleqab and Ighnaim (2021), Attia *et al.* (2022), and Ghaleb *et al.* (2022) in Chinese, Sri Lankan, UAE, Egyptian, and Malaysian firms. However, our finding contradicts other evidence from emerging countries, which reports a negative association between BS and REM (Kang and Kim, 2012; Chouaibi *et al.*, 2018), as well as the positive association obtained by Al-Haddad and Whittington (2019) and Shahwan and Almubaydeen (2020) in the Jordanian context.

With reference to BI, the estimated coefficients of BRDIND are insignificant, suggesting that the presence of independent directors on the board does not improve its monitoring ability. Thus, as hypotheses H2a and H2b state, there is no association between BI and the level of AEM and REM, respectively. In other words, a high proportion of independent directors on the board has no effect on reducing both types of EM. Regarding AEM, our result is consistent with the existing evidence in developing countries (Abdul Rahman and Ali, 2006; Bradbury *et al.*, 2006; Sarkar *et al.*, 2008; Jaggi *et al.*, 2009; Sáenz-González and García-Meca, 2014; Ye 2014; Chatterjee, 2020; Orazalin, 2020; Le and Nguyen, 2023) and with the findings obtained by Al-Abbas (2009), Abed (2012), Khalil and Ozkan (2016), Arioglu (2020), and Binashour *et al.* (2021) in the MENA context. With regard to REM, we confirm the findings obtained in the USA context by Garven (2015). However, our results contradict other findings from emerging and MENA countries, documenting a positive (Oh and Jeon, 2017; Al-Haddad and Whittington, 2019; Attia *et al.*, 2022; Ghaleb *et al.*, 2022) or negative (Kang and Kim, 2012; Chouaibi *et al.*, 2018; Sial *et al.*, 2019; Rajeevan and Ajward 2020; Aleqab and Ighnaim 2021) relationship between BI and EM.

With regard to CEO duality, interestingly, while Panel A shows that the coefficient of BRDDUAL is negative and statistically insignificant, Panel B shows that the coefficient of BRDDUAL is negative and significant. These results indicate that as hypothesis H3a proposes, CEO duality has no effect on AEM, which is consistent with most previous studies that have also found no significant relationship between AEM and CEO duality in emerging countries (Kao and Chen, 2004; Bradbury *et al.*, 2006; Hashim and Devi, 2008; Agustia *et al.* 2022; Githaiga *et al.*, 2022; Chatterjee and Rakshit, 2023) and MENA countries (Al-Abbas, 2009; Abed, 2012; Bataineh *et al.*, 2018; Alareeni, 2018; Al-Haddad and Whittington, 2019).

Nevertheless, the significant negative sign of the coefficient in Panel B seems to indicate that, contrary to the claims of hypothesis H3b, in the MENA context CEO duality could provide several advantages for constraining REM. This result is in line with that obtained by Chouaibi *et al.* (2008) and Attia *et al.* (2022) in Tunisia and Egypt, respectively; however, it contradicts the evidence obtained in emerging and MENA countries by Rajeevan and Ajward (2020), Al-Haddad and Whittington (2019), and Sial *et al.* (2019) regarding a positive association between CEO duality and REM.

Finally, the findings in Table VIII show that the estimated coefficients of GENDIV are insignificant, implying that, as proposed by hypotheses H4a and H4b, BGD does not have a significant effect on both types of EM practices. In the case of AEM, this result is in line with the findings obtained by Ye *et al.* (2010), Abdullah and Ismail (2016), Kukah *et al.* (2016), and Le and Nguyen (2023) in emerging countries as well as with the results obtained by Elghuweel *et al.* (2017) in Omani firms, Arioglu (2020) in Turkish firms, and Binashour *et al.* (2021) in UAE firms. It also confirms the evidence provided by Sarhan and Ntim (2018) regarding the lack of effect of BGD on the extent of voluntary CG disclosures by MENA firms and is attributable to the low female representation on boards (Sarhan *et al.*, 2019; Al-Hajjar *et al.*, 2021). As regards REM, our finding contradicts prior evidence from emerging countries (Luo *et al.*, 2017; Debnath *et al.*, 2019; Sial *et al.*, 2019).

As for the control variables, in the case of AEM, the coefficient of firm size (SIZE) has a negative sign and is highly significant, supporting the argument that larger firms are less likely to participate in AEM. This finding is consistent with preceding literature in other developing nations and MENA countries (Abdul Rahman and Ali, 2006; Sáenz-González and García-Meca, 2014; Chi *et al.*, 2015; Al-Haddad and Whittington, 2019; Cho and Chung, 2022). Moreover, we find a negative association between ROA and AEM, indicating that firms with lower performance are more likely to participate in AEM. This finding is in line with the result obtained by Cho and Chung (2022) in Vietnam, although it contrasts with the result obtained by Al-Haddad and Whittington (2019), who found no significant association between ROA and both types of EM. Finally, the remaining control variables (LEVERG, GROW, CFO, and EPS) do not show any significant influence on the absolute value of DAC. These findings are in line with some prior studies. In relation with leverage (LEVERG), Agustia *et al.* (2020) found no significant association between leverage and AEM, while Le and Nguyen (2023) failed to obtain a significant relation between growth opportunities and AEM, as well as between CFO and AEM. However, as regards EPS, our findings contrast with the results

obtained by Alareeni (2018), who documented a negative and significant association between EPS and AEM.

In the case of REM, as shown in Panel B of Table VIII, most control variables have statistically significant effects. Similar to AEM, both SIZE and ROA have a negative effect. The negative effect of SIZE aligns with the findings of [Razzaque et al. \(2016\)](#), while the negative effect of ROA is consistent with the results obtained by [Kang and Kim \(2012\)](#) in the Korean context and [Ghaleb et al. \(2022\)](#) in Malaysia. This contradicts the results obtained by [Al-Haddad and Whittington \(2019\)](#) and [Attia et al. \(2023\)](#), who reported a positive and significant association between ROA and REM in Jordanian and Egyptian firms, respectively. Furthermore, [Razzaque et al. \(2016\)](#) found that, in the case of Bangladeshi family firms, ROA is positively associated with some types of REM practices (abnormal cash flows from operations and abnormal discretionary expenses). GROW, CFO, and EPS also have a positive effect. In the case of GROW, our findings contrast with those obtained by [Rajeevan and Ajward \(2020\)](#), who found no significant effect of growth opportunities on abnormal discretionary expenses as a proxy for REM. The only control variable with no significant effect on REM is leverage, a finding consistent with [Al-Haddad and Whittington \(2019\)](#) and [Attia et al. \(2023\)](#), but that contrasts with [Rajeevan and Ajward \(2020\)](#), who found a positive and significant association.

[Table VIII here]

5.3. Robustness check

To ensure the strength of the findings, we conducted various additional tests. First, two original models were re-estimated by including a sub-model to check the robustness of the GLS results. Second, we ran instrumental variables (IV) two-stage least squares (2SLS) regression analysis to address endogeneity concerns. Endogeneity in an econometric model happens when an explanatory (independent) variable is correlated with the residuals ([Lu et al., 2018](#)).

5.3.1. Sub-models of the original model.

Following [Bajra and Čadež \(2018\)](#), we repeat the main analysis by including a sub-model for each of the two original models (AEM and REM). Model 1 (Panel A of Table IX) and Model 3 (Panel B of Table IX) only include control variables, while Model 2 (Panel A of Table IX) and Model 4 (Panel B of Table IX) contain those variables related to the characteristics of the BD without control variables. Overall, the findings are similar to those in Table VIII (main analysis).

[Table IX here]

5.3.2 Controlling for endogeneity

Endogeneity problems may cause a major methodological concern for this type of analysis, given that some causal inferences drawn from our regression model could be incorrect (Abdallah *et al.*, 2015). Recognizing this possibility, we employ instrumental variables (IV) two-stage least squares (2SLS) regression analysis, which corrects for simultaneity, omitted variables, or measurement errors using lagged values of endogenous variables as instruments (Cameron and Trivedi, 2005). In the analysis, all board variables are treated as endogenous. The Durbin-Wu-Hausman test was performed for each variable examined in both models to detect the existence of any endogeneity bias for the independent variables. The Durbin-Wu-Hausman test yields an insignificant p-value for both models, thus demonstrating the absence of endogeneity problems. As can be seen in Table X, the results of the two-stage least squares (2SLS) regression for both models appear to remain stable and constant compared to the GLS results reported previously.

[Table X here]

6. Conclusions

In light of the crucial role attributed to the BD as a monitoring tool in constraining EM practices, we examined the extent to which some board attributes affect EM in the MENA context, whose institutional, economic, and legal environment is markedly different from that of most OECD countries (Farah *et al.*, 2021). We found no evidence that most of the analyzed attributes influence board effectiveness in constraining EM. In fact, three attributes (size, independence, and gender diversity) have no effect on either type of EM, while CEO duality has no effect on AEM, but a significant and negative effect on REM. Thus, in the MENA context, CEO duality could offer several advantages in constraining REM.

Overall, our findings suggest that, despite the intended benefit of enacting CGCs in the MENA region, CG mechanisms are not able to play the same role as in developed countries (Aguilera *et al.*, 2019), confirming the conclusions of Bao and Lewellyn (2017), Attia *et al.* (2022), and Grada (2022) that CG reforms may be ineffective because they are not adapted to the emerging countries' institutional environment. Moreover, to the extent that the adoption of CG reforms may not be driven by firms' interest in improving CG (Young *et al.*, 2008; Goh and Rasli, 2014), the BD lacks a real role and thus may be ineffective as a monitoring tool. In

this regard, the findings support the argument that there is still a long way to go to achieve effective implementation of CG mechanisms in the MENA context.

6.1. Theoretical contribution

From a theoretical viewpoint, we contribute to CG-related research by showing that the effect of board attributes on EM is affected by the national institutional and cultural environment. Our findings are consistent with the argument that in an institutional context characterized by concentrated ownership, resulting in low levels of agency costs between owners and managers and low demand for highly effective CG mechanisms, the BD may not be an effective internal monitoring mechanism. This negligible role of the BD in restricting EM in MENA countries seems to contradict the agency theory's tenets and was explained by Abdul Rahman and Ali (2006) by arguing that, according to the managerial hegemony theory, in such settings, control by firm management on board composition and performance prevents the board from adequately performing its monitoring functions. In addition, in MENA firms, senior managers are often (or represent) the owners of the company, thus directly fulfilling the supervisory role which diminishes the BD functions (Bao and Lewellyn, 2017).

In this sense, our findings confirm that the institutionalized agency theory is a valid theoretical framework to explain the monitoring role of CG mechanisms in MENA countries (Bao and Lewellyn, 2017). Thus, our results support the conclusions of previous studies that question the transferability of CG mechanisms and norms developed in the Anglo-Saxon context to emerging countries due to the influence of the institutional environment on their appropriateness and actual implementation (García-Meca and Sánchez-Ballesta, 2009; Farah *et al.*, 2021).

6.2. Implications for policy makers and managers

In terms of the practical implications of the study, the findings may be useful for regulators to improve CG rules in emerging countries. In particular, our findings highlight the need to adapt CG mechanisms to the characteristics of the institutional context in which they are embedded (Attia *et al.*, 2023). As Park and Shin (2004) point out, when the ownership structure is concentrated, increasing the proportion of independent directors on the board, as recommended by most CGC, may not be sufficient in itself to increase the effectiveness of board monitoring (Grada, 2022). Thus, our empirical evidence can contribute to the ongoing debate on the effectiveness of CG mechanisms in MENA countries as well as on the convenience of the "comply or explain" approach in such countries.

Indeed, the “comply or explain” approach may lead firms to adopt a “box ticking” behavior by signaling their compliance with the CGCs’ recommendations even if this does not correspond to the truth (Almarayeh *et al.*, 2022). Therefore, regulators should be aware of this problem when addressing new CG reforms in MENA countries. Moreover, some key characteristics, such as board independence and directors’ financial expertise, seem to be undervalued by MENA firms (Amico, 2014; Arioglu, 2020), in contrast to the notable role given to them by the CGCs. This is important because reforms in CG practices are still being introduced in MENA countries and, given that EM practices can threaten foreign investment in them (Bao and Lewelly, 2017), our findings could help regulators to strengthen CG mechanisms. This is important because, according to Zweig (2019), EM practices are widespread in emerging markets, which may harm their growth opportunities.

6.3. Limitations of the study

Despite the findings’ interest and usefulness, this study has several limitations that should be taken into account. Firstly, the findings’ validity is conditioned by the EM proxies. In this sense, we have analyzed one type of REM (i.e., abnormal discretionary expenses) and, therefore, the results could differ when considering other REM practices (e.g., abnormal cash flows from operations and the abnormal production costs). Secondly, there are other board attributes that can potentially restrict EM that have not been considered. Finally, the results may also be somewhat conditioned by the small sample size. This small sample size could be a possible reason for the deviations of our findings from those of previous research, which underlines the desirability of extending the study using a larger sample set to explore these differences.

Future studies could extend the research to other MENA countries and expand the analysis by considering other board attributes. Lastly, future research could conduct a more in-depth analysis of board effectiveness in mitigating EM using qualitative research methods.

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Table I. Main characteristics of MENA countries' national corporate governance codes

Country	Date of issuance	Approach	Board attributes					Board committees
			Size	Independence	Separation of Chairman/CEO	N° meetings per year	Gender diversity	
Bahrain	2010 (updated in 2018)	Comply or explain	≤ 15 & ≥ 5	At least one-third	YES	At least 4 times	Not stipulated	<ul style="list-style-type: none"> • Audit committee • Nomination & Remuneration committee • Governance committee
Egypt	2006 (updated in 2016)	Comply or explain	≥ 5	At least two-third	YES	At least 4 times	Recommended	<ul style="list-style-type: none"> • Audit committee • Nomination & Remuneration committee • Governance committee • Risk management committee
Kuwait	2010 (updated in 2013)	Comply or explain	≥ 5	At least one-third	YES	At least 6 times	Not stipulated	<ul style="list-style-type: none"> • Audit committee • Nomination & Compensation committee • Governance committee • Risk management committee
Morocco	2008	Comply or explain	Not stipulated	At least 2	YES	Not stipulated	Not stipulated	<ul style="list-style-type: none"> • Audit committee • Nomination & Compensation committee
Oman	2002 (updated in 2015)	Comply or explain	Not stipulated	At least one-third	YES	At least 4 times	Not stipulated	<ul style="list-style-type: none"> • Audit committee • Nomination & Compensation committee
Qatar	2009 (updated in 2016)	Comply or explain	Not stipulated	At least one-third	YES	At least 6 times	Not stipulated	<ul style="list-style-type: none"> • Audit committee • Nomination & Compensation committee
Saudi Arabia	2006 (updated in 2017)	Comply or explain	≤ 11 & ≥ 3	At least one-third	YES	At least 4 times	Not stipulated	<ul style="list-style-type: none"> • Audit committee • Nomination & rewards committee

								<ul style="list-style-type: none"> • Risk management committee
Turkey	2003 (updated in 2014)	Comply or explain	≥ 5	At least one-third	YES	Not stipulated	$\geq 25\%$	<ul style="list-style-type: none"> • Audit committee • Nomination & Remuneration committee • Corporate governance committee • Early detection of risks committee
United Arab Emirates (UAE)	2009 (updated in 2016)	Mandatory	≤ 11 & ≥ 3	At least one-third	YES	At least 6 times	$\geq 20\%$	<ul style="list-style-type: none"> • Audit committee • Nomination & Remuneration committee

Source: Elaborated by authors

Table II. Prior studies’ findings on board characteristics and EM

Panel A: Board characteristics and AEM			
Board Feature	Positive association	Negative association	No significant association
BS	Developed countries		
	Kyaw et al. (2015) – EU Harakeh et al. (2019) – UK	Chtourou et al. (2001) – US Xie et al. (2003) – US Triki Damak (2018) – France Saona et al. (2020) – Spain	Alhadab & Clacher (2018) – UK
	Emerging countries		
	Kao & Chen (2004) – Taiwan Abdul Rahman & Ali (2006) – Malaysia Ching et al. (2006) – Hong Kong Sarkar et al. (2008) – India Santiago & Brown (2009) – Latin America Sáenz-González & García-Meca (2014) – Latin America Wan Mohammad et al. (2016) – Malaysia Githaiga et al. (2022) – East African Community	Ye (2014) – China Quoc Thinh & Tan (2019) – Vietnam Orazalin (2020) – Kazakhstan Cho & Chung (2022) – Vietnam	Jaggi et al. (2009) – Hong Kong Waweru & Prot (2018) – Kenya and Tanzania Chatterjee (2020) – India Firnanti et al. (2019) – Indonesia Sial et al. (2019) – China Agustia et al. (2022) – Indonesia Chatterjee & Rakshit (2023) – India Le & Nguyen (2023) – Vietnam
MENA countries			
Türegün (2018) – Turkey	Abed (2012) – Jordan Alzoubi (2016) – Jordan Khalil & Ozkan (2016) – Egypt Alarecini (2018) – Bahrain Habbas (2019) – Saudi Arabia	Al-Abbas (2009) – Saudi Arabia Gavious et al. (2012) – Israel Chafeddine et al. (2013) – Tunisia Elghuweel et al. (2017) – Oman Bataineh et al. (2018) – Jordan Al-Haddad & Whittington (2019) – Jordan Binashour et al. (2021) – UAE Arioglu (2020) – Turkey	
BI	Developed countries		

	Kjærland et al. (2018) – Norway	Klein (2002) – US Xie et al. (2003) – US Davidson et al. (2005) – Australia Niu (2006) – Canada Triki Damak (2018) – France Saona et al. (2020) – Spain	Kyaw et al. (2015) – EU Alhadab & Clacher (2018) – UK Harakeh et al. (2019) – UK
	Emerging countries		
	Bao & Lewellyn (2017) – 24 countries Waweru & Prot (2018) – Kenya and Tanzania Cho & Chung (2022) – Vietnam	Kao & Chen (2004) – Taiwan Suyono & Farooque (2018) – Indonesia Sial et al. (2019) – China Agustia et al. (2022) – Indonesia Githaiga et al. (2022) – East African Community Chatterjee & Rakshit (2023) – India	Abdul Rahman & Ali (2006) – Malaysia Bradbury et al. (2006) – Singapore and Malaysia Sarkar et al. (2008) – India Jaggi et al. (2009) – Hong Kong Ye (2014) – China Chatterjee (2020) – India Orazalin (2020) – Kazakshtan Le & Nguyen (2023) – Vietnam
	MENA countries		
	Alarecini (2018) – Bahrain Al-Haddad & Whittington (2019) – Jordan	Alzoubi (2016) – Jordan Türegüin (2018) – Turkey Habbas (2019) – Saudi Arabia	Al-Abbas (2009) – Saudi Arabia Abed (2012) – Jordan Khalil & Ozkan (2016) – Egypt Arioglu (2020) – Turkey Binashour et al. (2021) – UAE
	Developed countries		
CEO duality	Triki Damark (2018) – France Saona et al. (2020) – Spain		Xie et al. (2003) – USA Davidson et al. (2005) – Australia Ghosh et al. (2010) – USA Kyaw et al. (2015) – UE Alhadab & Clacher (2018) – UK Harakeh et al. (2019) – UK
	Emerging countries		
	Sarkar et al. (2008) – India Ye (2014) - China		Kao & Chen (2004) – Taiwan Bradbury et al. (2006) – Singapore and Malaysia

	Bao & Lewellyn (2017) – 24 countries Sial et al. (2019) – China Chatterjee (2020) – India		Hasim & Devi (2008) – Malaysia Chatterjee & Rakshit (2023) – India Le & Nguyen (2023) – Vietnam
	MENA countries		
	Gavious et al. (2012) – Israel Khalil & Ozkan (2016) - Egypt	Charfeddine et al. (2013) - Tunisia	Al-Abbas (2009) – Saudi Arabia Abed (2012) – Jordan Alarecini (2018) – Bahrain Bataineh et al. (2018) – Jordan Al-Haddad & Whittington (2019) – Jordan
	Developed countries		
		Srinidhi et al. (2011) – USA Arun et al. (2015) – UK Kyaw et al. (2015) – UE Harakeh et al. (2019) – UK Gull et al. (2018) – France Triki Damak (2018) – France Harakeh et al. (2019) – UK Saona et al. (2020) – Spain	
	Emerging countries		
BGD	Waweru & Prot (2018) – Kenya and Tanzania	Debnath & Roy (2019) – India Sial et al. (2019) – China Orazalin (2020) – Kazashtan Githaiga et al. (2022) – East African Community	Ye et al. (2010) – China Abdullah & Ismail (2016) – Malaysia Kukah et al. (2016) – Ghana Luo et al. (2017) – China Le & Nguyen (2023) – Vietnam
	MENA countries		
		Gavious et al (2012) – Israel	Elghuweel et al. (2017) – Oman Arioglu (2020) – Turkey Binashour et al. (2021) – UAE
Panel B: Board characteristics and REM			
Board Feature	Positive association	Negative association	No significant association
BS	Developed countries		

			Visvanathan (2008) – USA Garven (2015) – USA Alhadab & Clacher (2018) – UK
	Emerging countries		
	Oh & Jeon (2017) – Korea	Kang & Kim (2012) – Korea Rajeevan & Ajward (2020) – Sri Lanka	Sial et al. (2019) – China Rajeevan & Ajward (2020) – Sri Lanka Ghaleb et al. (2022) – Malaysia
	MENA countries		
	Al-Haddad & Whittington (2019) – Jordan Shahwan & Almubaydeen (2020) – Jordan	Chouaibi et al. (2008) – Tunisia	Aleqab & Ighnaim (2021) – Jordan Attia et al. (2022) – Egypt
BI	Developed countries		
	Alhadab & Clacher (2018) – UK	Oasma (2008) – UK Visvanathan (2008) – USA	Garven (2015) – USA
	Emerging countries		
	Oh & Jeon (2017) – Korea Ghaleb et al. (2022) – Malaysia	Kang & Kim (2012) – Korea Sial et al. (2019) – China Rajeevan & Ajward (2020) – Sri Lanka	
	MENA countries		
	Al-Haddad & Whittington (2019) – Jordan Attia et al. (2022) – Egypt	Chouaibi et al. (2008) – Tunisia Aleqab & Ighnaim (2021) – Jordan	
CEO Duality	Developed countries		
			Visvanathan (2008) – USA Garven (2015) – USA Alhadab & Clacher (2018) – UK
	Emerging countries		
	Rajeevan & Ajward (2020) – Sri Lanka	Sial et al. (2019) – China	
	MENA countries		
	Al-Haddad & Whittington (2019) – Jordan	Attia et al. (2022) – Egypt	Chouaibi et al. (2008) – Tunisia
BGD	Developed countries		
	Emerging countries		

	Debnath et al. (2019) – Bangladesh	Luo et al. (2017) – China Sial et al. (2019) – China	
	MENA countries		

Source: Elaborated by authors

Table III. Number of observations by country

Country	Unique firms	Observations
Egypt	17	48
Kuwait	4	29
Morocco	2	4
Oman	4	18
Qatar	16	49
Saudi Arabia	26	74
Turkey	69	211
United Arab Emirates	23	53
Global	161	486

Source: Elaborated by authors

Table IV. Variable definition			
Name	Abbreviation	Definition	Expected sign
AEM proxy	$ \text{DAC} _{i,t}$	The absolute value of discretionary accruals for firm <i>i</i> in year <i>t</i> , computed according to Kothary (2005) model	
REM proxy	$\text{DISEXP}_{i,t}$	The abnormal levels of discretionary expenses for firm <i>i</i> in year <i>t</i> , computed according to Roychowdhury (2006) model	
Board size	$\text{BRDSIZE}_{i,t}$	Number of directors on the board for firm <i>i</i> in year <i>t</i>	–
Board independence	$\text{BRDIND}_{i,t}$	Proportion of independent directors on the board for firm <i>i</i> in year <i>t</i>	No
CEO duality	$\text{BRDDUAL}_{i,t}$	A dummy variable that takes the value 1 if the CEO is also Chairman and 0 otherwise	No
Gender diversity	$\text{GENDIV}_{i,t}$	Proportion of female directors on the board for firm <i>i</i> in year <i>t</i>	No
Firm leverage	$\text{LEVERG}_{i,t}$	The ratio of total debt to total assets for firm <i>i</i> in year <i>t</i>	+
Growth	$\text{GROW}_{i,t}$	The ratio of the difference in sales and sales of the previous period of firm <i>i</i> in year <i>t</i>	+
Cash flow	$\text{CFO}_{i,t}$	The cash flow from operations for firm <i>i</i> in year <i>t</i>	+
Firm size	$\text{SIZE}_{i,t}$	The natural log of total assets for firm <i>i</i> in year <i>t</i>	–
Firm performance	$\text{ROA}_{i,t}$	The return on assets ratio for firm <i>i</i> in year <i>t</i>	+
	$\text{EPS}_{i,t}$	The ratio of income before extraordinary items divided by total number of shares outstanding for firm <i>i</i> at the end of the fiscal year <i>t</i>	+
$\varepsilon_{i,t}$	$\varepsilon_{i,t}$	The error term	

Source: Elaborated by authors

Table V. Descriptive statistics of discretionary accruals and abnormal discretionary expenses.

Country	N°	EM proxies	Mean	Std. Dev.	P 25	Median	P 75
Egypt	48	DAC	0.154	0.161	0.039	0.104	0.203
		DISEXP	0.040	0.036	0.019	0.033	0.043
Kuwait	29	DAC	0.174	0.176	0.038	0.103	0.284
		DISEXP	0.041	0.049	0.006	0.023	0.051
Morocco	4	DAC	0.099	0.025	0.018	0.029	0.041
		DISEXP	0.014	0.009	0.008	0.015	0.021
Oman	18	DAC	0.190	0.217	0.059	0.127	0.210
		DISEXP	0.040	0.026	0.020	0.037	0.055
Qatar	49	DAC	0.153	0.241	0.017	0.061	0.149
		DISEXP	0.034	0.029	0.010	0.031	0.044
Saudi Arabia	74	DAC	0.146	0.163	0.026	0.078	0.190
		DISEXP	0.041	0.077	0.009	0.017	0.042
Turkey	211	DAC	0.234	0.388	0.041	0.108	0.268
		DISEXP	0.065	0.064	0.023	0.049	0.081
UAE	53	DAC	0.095	0.093	0.025	0.058	0.150
		DISEXP	0.040	0.036	0.018	0.029	0.048
Global	486	DAC	0.183	0.290	0.034	0.094	0.213
		DISEXP	0.050	0.058	0.015	0.033	0.061

Source: Elaborated by authors

Table VI. Descriptive Statistics

Variables†	Statistics	Egypt	Kuwait	Morocco	Oman	Qatar	Saudi Arabia	Turkey	UAE	Global
	N	48	29	4	18	49	74	211	53	486
Continuous variables (full sample, N = 486)										
BRDSIZE	mean	11.979	6.862	11.250	9.278	9.061	9.662	9.393	8.340	9.401
	Std. Dev.	10.009	1.613	2.278	0.731	2.660	3.273	2.931	2.214	4.235
BRDIND	mean	16.678	11.786	6.944	61.083	21.886	42.823	32.828	71.556	35.453
	Std. Dev.	13.870	6.523	12.028	33.319	22.706	11.665	10.674	21.385	22.519
GENDIV	mean	6.083	5.891	1.923	4.321	0.843	0.642	14.651	5.242	8.244
	Std. Dev.	7.935	7.063	3.331	6.562	2.838	2.392	13.261	7.781	11.416
LEVERG	mean	2.415	1.057	0.730	0.414	0.729	0.372	1.784	1.198	1.359
	Std. Dev.	12.641	1.760	0.389	0.379	2.777	1.267	5.588	5.393	5.844
GROW	mean	0.228	-0.010	-0.056	0.102	0.246	0.092	0.088	0.139	0.117
	Std. Dev.	0.746	0.186	0.088	0.309	0.876	0.417	0.362	0.489	0.502
CFO	mean	0.079	0.135	0.234	0.139	0.071	0.114	0.111	0.066	0.103
	Std. Dev.	0.088	0.117	0.036	0.093	0.048	0.088	0.090	0.087	0.091
SIZE	mean	21.103	21.897	22.071	20.896	21.776	22.741	21.184	21.681	21.566
	Std. Dev.	1.171	0.973	0.504	1.233	1.408	1.960	1.245	1.523	1.512
ROA	mean	0.063	0.075	0.134	0.046	0.045	0.063	0.076	0.039	0.065
	Std. Dev.	0.086	0.044	0.029	0.053	0.050	0.085	0.084	0.090	0.080
EPS	mean	0.041	0.098	1.257	0.095	0.095	0.418	0.256	0.058	0.215
	Std. Dev.	0.145	0.034	1.132	0.121	0.100	0.559	0.551	0.225	0.473
Dichotomous variables										
BRDDUAL	0	33 (68.75%)	29 (100%)	4 (100%)	18 (100%)	48 (97.96%)	71 (95.95%)	191 (91%)	48 (90.57%)	442 (90.95%)
	1	15 (31.25%)	0 (0%)	0 (0%)	0 (0%)	1 (2.04%)	3 (4.05%)	20 (9%)	5 (9.43%)	44 (9.05%)

Source: Elaborated by authors

Table VII. Pearson's correlation matrix and VIF values

Variables†	DAC	DISEXP	BRDSIZE	BRDIND	BRDDUA	GENDIV	LEVERG	GROW	CFO	SIZE	ROA	EPS	VIF
DAC	1	0.170**	-0.034	-0.085	-0.002	0.093*	0.091*	-0.025	0.048	-0.233**	-0.041	-0.009	
DISEXP	0.170**	1	-0.006	0.019	-0.050	0.161**	0.118**	0.098*	0.099*	-0.204**	-0.005	0.100*	
BRDSIZE	-0.034	-0.006	1	-0.121**	0.067	-0.036	-0.042	-0.055	0.051	0.105*	0.015	0.088	1.043
BRDIND	-0.085	0.019	-0.121**	1	-0.086	-0.038	0.012	0.000	-0.111*	0.006	-0.114*	-0.037	1.039
BRDDUA	-0.002	-0.050	0.067	-0.086	1	0.118**	-0.004	-0.037	0.030	-0.080	0.108*	-0.054	1.053
GENDIV	0.093*	0.161**	-0.036	-0.038	0.118**	1	0.059	0.006	-0.001	-0.246**	0.133**	-0.008	1.094
LEVERG	0.091*	0.118**	-0.042	0.012	-0.004	0.059	1	0.124**	0.036	-0.258**	0.001	-0.042	1.091
GROW	-0.025	0.098*	-0.055	0.000	-0.037	0.006	0.124**	1	-0.047	-0.064	0.048	-0.019	1.031
CFO	0.048	0.099*	0.051	-0.111*	0.030	-0.001	0.036	-0.047	1	-0.003	0.416**	0.267**	1.239
SIZE	-0.233**	-0.204**	0.105*	0.006	-0.080	-0.246**	-0.258**	-0.064	-0.003	1	-0.095*	0.053	1.164
ROA	-0.041	-0.005	0.015	-0.114*	0.108*	0.133**	0.001	0.048	0.416**	-0.095*	1	0.505**	1.630
EPS	-0,009	0,100*	0,088	-0,037	-0,054	-0,008	-0,042	-0,019	0,267**	0,053	0,505**	1	1,405

* Significant at the 0.05 level (2-tailed) ** Significant at the 0.01 level (2-tailed) *** Significant at the 0.001 level (2-tailed).

† Please see Table IV for variable definitions.

Source: Elaborated by authors

Table VIII. GLS regression results

Variables †	Panel A					Panel B				
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
	DAC	DAC	DAC	DAC	DAC	DISEXP	DISEXP	DISEXP	DISEXP	DISEXP
BRDSIZE	-0.0003 (0.0029)				-0.0004 (0.0029)	-0.0001 (0.0006)				-0.0001 (0.0006)
BRDIND		-0.0007 (0.0007)			-0.0007 (0.0007)		0.0002 (0.0001)			0.0002 (0.0001)
BRDDUA			-0.0244 (0.0435)		-0.0275 (0.0465)			-0.0160* (0.0090)		-0.0144* (0.0097)
GENDIV				0.0003 (0.0012)	0.0004 (0.0012)				0.0000 (0.0002)	0.0000 (0.0002)
LEVERG	0.0014 (0.002087)	0.0015 (0.0020)	0.0014 (0.0020)	0.0012 (0.0021)	0.0013 (0.0021)	0.0006 (0.0004)	0.0005 (0.0004)	0.0005 (0.0004)	0.0006 (0.0004)	0.0005 (0.0004)
GROW	0.0013 (0.0246)	0.0014 (0.0245)	0.0007 (0.0245)	0.0023 (0.0247)	0.0009 (0.0249)	0.0113** (0.0051)	0.0114** (0.0050)	0.0108** (0.0051)	0.0111** (0.0052)	0.0106** (0.0052)
CFO	0.2364 (0.1556)	0.2227 (0.1557)	0.2419 (0.1557)	0.2204 (0.1611)	0.2162 (0.1624)	0.1191*** (0.0323)	0.1225*** (0.0323)	0.1228*** (0.0323)	0.1202*** (0.0339)	0.1270*** (0.0340)
SIZE	-0.0520*** (0.0098)	-0.0522*** (0.0098)	-0.0520*** (0.0098)	-0.0561*** (0.0104)	-0.0560*** (0.0105)	-0.0071*** (0.0020)	-0.0071*** (0.0020)	-0.0070*** (0.0020)	-0.0071*** (0.0022)	-0.0069*** (0.0022)
ROA	-0.4932*** (0.1867)	-0.4944*** (0.1864)	-0.4814*** (0.1876)	-0.5446*** (0.1956)	-0.5391*** (0.1966)	-0.1442*** 0.038862	-0.1431*** (0.0387)	-0.1365*** (0.0389)	-0.1455*** (0.0411)	-0.1413*** (0.0412)
EPS	0.0363 (0.0309)	0.0360 (0.0308)	0.0341 (0.0310)	0.0377 (0.0327)	0.0359 (0.0330)	0.0149** (0.0064)	0.0148** (0.0064)	0.0134** (0.0064)	0.0148** (0.0068)	0.0142** (0.0069)
Constant	1.2001*** 0.2518	1.2087*** (0.2517)	1.1977*** (0.2517)	1.2838*** (0.2749)	1.2922*** (0.2758)	0.1532*** 0.052415	0.1496*** (0.0523)	0.1516*** (0.0522)	0.1602*** (0.0578)	0.1584*** (0.0578)
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Industry effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.268	0.270	0.269	0.272	0.274	0.202	0.205	0.207	0.199	0.206
N	463	463	463	463	463	463	463	463	463	463

* Significant at the 0.05 level (2-tailed) ** Significant at the 0.01 level (2-tailed) *** Significant at the 0.001 level (2-tailed).

† Please see Table IV for variable definitions.

Source: Elaborated by authors

Table IX. Sub-models of the original model.

Variables †	Panel A		Panel B	
	MODEL 1 DAC	MODEL 2 DAC	MODEL 3 DISEXP	MODEL 4 DISEXP
BRDSIZE		-0.0015 (0.0030)		-0.0002 (0.0006)
BRDIND		-0.0006 (0.0008)		0.0001 (0.0001)
BRDDUA		-0.0357 (0.0478)		-0.0166* (0.0100)
GENDIV		0.0005 (0.0013)		0.0000 (0.0002)
LEVERG	0.0014 (0.0020)		0.0006 (0.0004)	
GROW	0.0015 (0.0245)		0.0114** (0.0051)	
CFO	0.2353 (0.1551)		0.1185*** (0.0322)	
SIZE	-0.0521*** (0.0098)		-0.0071*** (0.0020)	
ROA	-0.4925*** (0.1864)		-0.1438*** (0.0387)	
EPS	0.0360 (0.0307)		0.0147** (0.0064)	
Constant	1.1993*** (0.2515)	0.1217 (0.1644)	0.1527*** (0.0523)	0.0282 (0.0346)
Year effect	Yes	Yes	Yes	Yes
Country effect	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes

R2	0.268	0.209	0.202	0.129
N	486	463	486	463

*Significant at the 0.05 level (2-tailed) **Significant at the 0.01 level (2-tailed) ***Significant at the 0.001 level (2-tailed).

† Please see Table IV for variable definitions.

Source: Elaborated by authors

Table X. Instrumental variables (2SLS) regression

Variables†	MODEL 1	MODEL 2
	DAC	DISEXP
BRDSIZE	-0.0005 (0.0029)	-0.0001 (0.0006)
BRDIND	-0.0009 (0.0008)	0.0002 (0.0002)
BRDDUA	-0.0299 (0.0437)	-0.0157* (0.0091)
GENDIV	0.0008 (0.0012)	0.0003 (0.0003)
LEVERG	0.0017 (0.0021)	0.0005 (0.0004)
GROW	-0.0050 (0.0245)	0.0098* (0.0051)
CFO	0.2458 (0.1568)	0.1323*** (0.0328)
SIZE	-0.0488***	-0.0061***

	(0.0096)	(0.0020)
ROA	-0.0046**	-0.0014***
	(0.0019)	(0.0004)
EPS	0.0296	0.0149**
	(0.0309)	(0.0065)
Constant	1.3787***	0.1660***
	(0.2031)	(0.0425)
Year effect	Yes	Yes
Country effect	Yes	Yes
Industry effect	Yes	Yes
R2	0.266	0.190
N	486	486

* Significant at the 0.05 level (2-tailed) ** Significant at the 0.01 level (2-tailed) *** Significant at the 0.001 level (2-tailed).

† Please see Table IV for variable definitions.

Source: Elaborated by authors

Figure 1. Research model

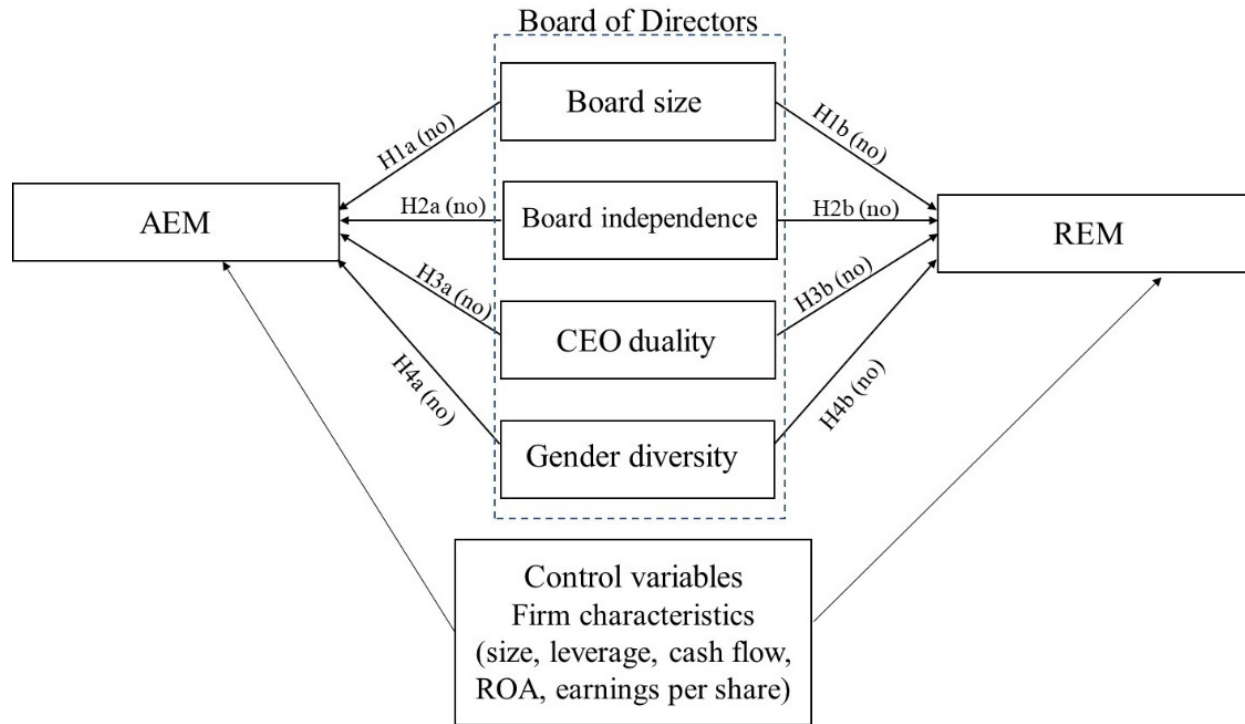


Figure 1. Source: Elaborated by authors