

Lund University - Department of Business Administration

MASTER THESIS

Earnings Management and Board Monitoring: Does CEO Power Have a Moderating Role?

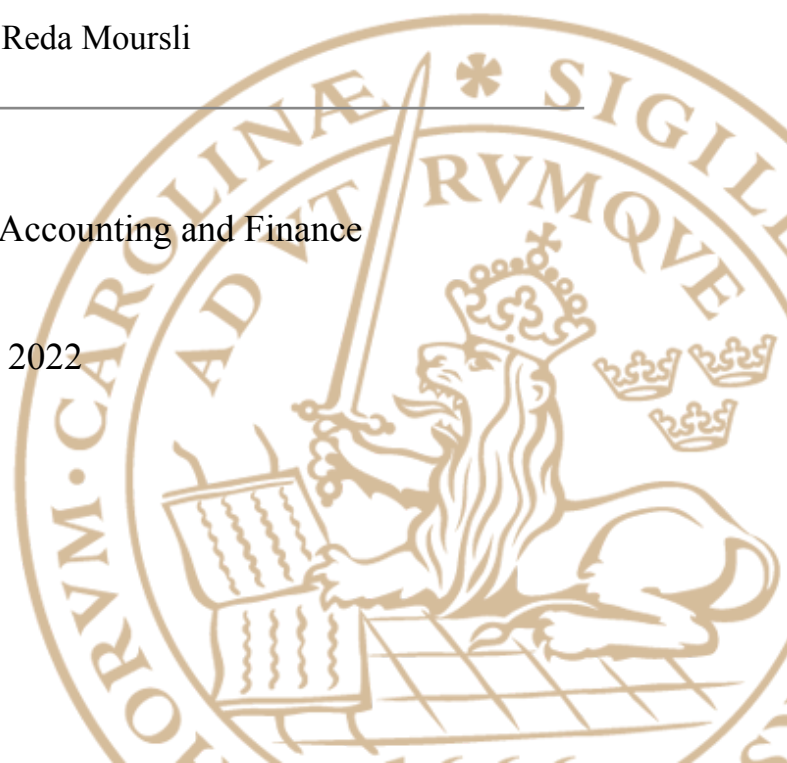
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Lund, May 27, 2022

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Abstract

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Keywords Earnings Management, Board Monitoring, Board Independence, Audit Committee, CEO Power

Purpose The purpose of this study is twofold. The first is to examine the board monitoring's impact on accrual-based earnings management, as reflected by the absolute value of discretionary accruals. The second is to investigate the moderating effect of CEO power on the relationship between board monitoring and accrual-based earnings management.

Methodology The study follows a deductive approach and a quantitative method in analyzing secondary data retrieved from databases and annual reports. Moreover, we use pooled-OLS, fixed-effects, and instrumental variable approach models to test our hypotheses.

Theoretical Perspective From an agency theory perspective, we analyze board monitoring, CEO power, and their respective impacts on accrual-based earnings management. We discuss information asymmetry, moral hazard, risk aversion, and earnings retention, among other theories.

Empirical Foundation The empirical analysis is based on a sample of 400 firms, making up 7,489 observations, included in the S&P 500 index between 2000 and 2021.

Conclusions We conclude that board monitoring, as proxied predominantly by the audit committee, followed by board independence, reduces earnings management. Further, we find that CEO power moderates the relationship between board monitoring and earnings management. More specifically, our results indicate that firms with a dual CEO structure experience less efficient and lower-quality board monitoring.

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Abbreviations

| | | |
|----------|---|---|
| 2SLS | - | Two-Stage Least Squares |
| ABS | - | Absolute Value |
| BoD | - | Board of Directors |
| CEO | - | Chief Executive Officer |
| COVID-19 | - | Common abbreviation for the Coronavirus disease |
| DACC | - | Discretionary Abnormal Cash Flows |
| GLS | - | Generalized Least Squares |
| OCFTA | - | Operating Cash Flow to Total Assets |
| OLS | - | Ordinary Least Square |
| RQ | - | Research Question |
| SEC | - | Securities and Exchange Commission |
| SOX | - | Sarbanes-Oxley Act |
| US | - | United States |

1. Introduction

This chapter covers a background review of this study, followed by a problem discussion highlighting the lack of research within the corresponding research field. We then examine the purpose and research questions of the study and present our main findings. Finally, we discuss our main contributions to the literature and the associated limitations of the study.

1.1. Background

All corporations must grow. It is an imperative that drives organizations to expand their product lines, enter new markets, and move into new countries. As they grow, they inevitably become more complex, opaque, and preoccupied with conflicting interests and agency costs. As a result of this increased complexity, the world has witnessed waves of corporate scandals. The most universally known involve the Enron and Lehman Brothers corporate scandals, which propelled the passage of the 2002 Sarbanes-Oxley Act (SOX) and the 2010 Dodd-Frank Act in the United States. From these corporate governance codes, it appears that regulators share similar opinions about the role of the board of directors in guiding and constraining managers from engaging in self-serving activities that distort shareholder value. A prominent example of such an activity is earnings management.

Earnings management is firms' deliberate use of accounting techniques to produce financial statements that depict their business activities as exceedingly optimistic (Ye, 2007). In return, managers can accrue benefits, such as compensation, job security, and operational flexibility at the expense of shareholders. Although multiple channels to earnings management exist, notable studies suggest that managers typically favor accrual-based techniques (Dechow, Hutton, Kim, & Sloan, 1995; Healy & Wahlen, 1999). The reason is that accrual-based accounting gives managers considerable discretion in determining the actual earnings reported on the financial statements (Xie, Davidson, & DaDalt, 2003). For example, managers can recognize revenues before receiving cash from credit sales or under-provision for doubtful debt, thereby misleading stakeholders about the underlying performance of the firm (Healy & Wahlen, 1999).

In the case of the Wirecard fraud in 2020, its CEO admitted that \$2.1 billion of its cash was missing while simultaneously owing almost \$4 billion to creditors (Schuetze & O'Donnell,

2020). To prevent such scandals and their repercussions from occurring, an effective internal monitoring system, including independent directors, may be used (Beasley, 1996; Klein, 2002; Davidson, Goodwin-Stewart, & Kent, 2005). The premise behind selecting independent directors lies in their ability to make fair judgments, given that they are non-executives and are not associated with the company. However, as it commonly pertains to the United States, the CEO also often holds the chairman position, thereby possessing considerable discretion over decision-making, including decisions made by the board of directors (Fama & Jensen, 1983; Hermalin & Weisbach, 1998). Consequently, both the board of directors and the CEO may impact the efficiency of internal monitoring, i.e., the extent to which fraudulent activities, such as earnings management, are actively mitigated.

1.2. Problem Discussion

Previous empirical studies within the field of earnings management have primarily focused on the composition and structure of the board in examining the impact of internal monitoring on accrual-based earnings management (Byrd & Hickman, 1992; Beasley, 1996; Klein, 2002; Park & Shin, 2004; Xie et al., 2003; Davidson et al., 2005). Findings from the literature divide into three different strands. The first strand suggests intensive board monitoring may adversely affect firm performance (Byrd & Hickman, 1992). In contrast, the second strand proposes that board monitoring, commonly measured using board independence and audit committee, reduces earnings management, as reflected by discretionary accruals (Beasley, 1996; Klein, 2002; Xie et al., 2003). Lastly, the third strand suggests that board monitoring measured using outside directors does not affect earnings management (Park & Shin, 2004). Considering these varying views, other board characteristics, such as the number of board meetings or meeting attendance, are proposed to enhance the governance function of the board. Consequently, there is no consensus in the literature regarding the impact of board monitoring on accrual-based earnings management, providing room for further investigation.

However, studies that demonstrate how the monitoring efficiency of the board is affected by the influence and power of the CEO also exist (Fama & Jensen, 1983; Finkelstein & D'aveni, 1994; Hermalin & Weisbach, 1998). More precisely, they propose that CEO power can exacerbate problems related to information asymmetry across the firm, thus weakening the monitoring efforts of directors. Consequently, the theoretical literature agrees that CEO power, predominantly proxied by CEO duality, may hamper the monitoring efficiency of the board. Also, numerous empirical studies confirm that a negative relationship between the

board's monitoring efficiency and CEO power exists (Beatty & Zajac, 1994; Davidson et al., 2005; Lin & Hwang, 2010). One common argument for this relationship is CEOs' considerable influence of the CEO, along with their desire to avoid and mitigate control, monitoring, and scrutiny.

From the few yet notable studies highlighted, it is apparent that a link between board monitoring and CEO power exists. Nonetheless, to our knowledge, no empirical paper within the earnings management field sets out to investigate this relationship further. Moreover, recent corporate reforms, including the 2010 Dodd-Frank Act in the United States, have given rise to more companies separating the role of the CEO and chairman (Sun, 2019). The movement behind the separation of positions lies in the power of the CEO and how it may hamper the monitoring efficiency of the board, thereby paving the way for self-serving opportunities like earnings management. The reason earnings management is considered a relevant and vital topic relates to the societal and economic impact it may have. For example, earnings management may lead to people losing their jobs or investors and stakeholders having to bear the consequences when a company gets caught cheating or complicit in a money-laundering scheme. Given these reasons, earnings management provides a rich setting to investigate whether CEO power has a moderating role on the board's monitoring efficiency in restraining managers from utilizing their earnings discretion to maximize personal benefits.

1.3. Purpose and Research Question

The purpose of this study is twofold. The first is to examine the board monitoring's impact on accrual-based earnings management, as reflected by the absolute value of discretionary accruals. The second is to investigate whether CEO power, proxied by CEO duality, has a moderating role in the relationship between board monitoring and accrual-based earnings management. Hence, we have formulated the following research questions (RQs) to address the purposes of this study:

RQ1: Does board monitoring have an impact on accrual-based earnings management?

RQ2: Does CEO power have a moderating role in the relationship between board monitoring and accrual-based earnings management?

1.4. Main Findings

This study utilizes a sample of 400 firms, making up 7,489 observations, included in the S&P 500 index between 2000 and 2021. Our statistical method incorporates using fixed-effect regression models, followed by an instrumental variable approach to address potential endogeneity issues in our primary explanatory variable, board monitoring.

Our results indicate that board monitoring, proxied primarily by the audit committee, followed by board independence, lowers the magnitude of earnings management, measured as the absolute value of discretionary accruals. Furthermore, the results indicate that CEO power, proxied by CEO duality, has a moderating role in the relationship between board monitoring and earnings management. More precisely, the presence of the CEO as a chairman on the board reduces the monitoring efficiency and quality of the board and its respective impact on earnings management. The results remain robust to using an alternative proxy of CEO power, namely CEO tenure.

1.5. Contributions

Although various studies have investigated the impact of board monitoring on earnings management, this paper's first contribution is our exploration of this relationship using three proxies for board monitoring. By combining three board monitoring proxies, we provide empirical support for the importance of having multiple monitoring channels in effectively lowering earnings management.

Further, we identify a lack of empirical studies examining the moderating role of the CEO's power in the relationship between board monitoring and earnings management. Also, we observe an increasing number of corporate scandals with significant impact on the economy and society, combined with the latest movement in the United States towards breaking the CEO-chairman structure. Therefore, our second contribution is that we provide empirical evidence that supports theoretical studies and corporate reforms indicating that CEO power moderates the board's monitoring efficiency and quality, including their associated impact on earnings management. Consequently, we believe this study could be valuable for managers, regulators, and scholars in understanding the relationship between the board's internal monitoring devices and CEO power relating to earnings management.

1.6. Limitations

One of the limitations of our study relates to our inability to access detailed board-specific data. While we had access to board meetings per year, we could not capture board attendance by directors. Only capturing meeting frequency may be problematic because it does not provide insight into how many directors attend each meeting, how long each meeting session is, and how each discussion contributes to increased monitoring effectiveness (Cohen, Dey, & Lys, 2008). Had we had access to this information, we could have measured the impact of meeting attendance on earnings management with the possibility of combining board attendance and frequency.

Another potential limitation of our study pertains to executive compensation, such as equity- and options-based compensation and bonus schemes. Even though many earnings management studies include compensation-related data to evaluate and quantify managerial incentives (Beatty & Zajac, 1994; Klein, 2002; Bergstresser & Philippon, 2006; Cohen et al., 2008), we did not have access to that type of information. We acknowledge that our understanding of the topic may have been more profound, thus allowing us to refine our analysis and interpretations had we had access to this information.

2. Theoretical Review

This chapter explains the theoretical ground on which our study lies. We begin by presenting the agency theory of the firm. Then, we discuss the relationship between agency theory, monitoring, earnings management, and CEO power in the outlined order.

2.1. Agency Theory

Agency theory is the analysis of conflicts occurring when one party (the principal) contracts with another party (the agent) to manage their affairs, whereby the principal grants the agent some decision-making authority (Jensen & Meckling, 1976). The theory suggests that both transacting parties are utility-maximizers, indicating the agent does not always have an incentive to act in the principal's best interest. Furthermore, the theory considers the agent to have an information advantage over the principal, which allows the agent to engage in opportunistic behavior. As such, agency problems arise when (i) the goals of the principal and the agent are conflicting and (ii) it is cumbersome for the principal to monitor the agent's behavior due to information asymmetry.

In a corporate setting, agency conflicts result from the separation of ownership and control through which corporate managers act as agents of shareholders (Jensen, 1986). In these situations, predefined contracts govern the relationships between managers and shareholders (Jensen & Meckling, 1976). However, according to Fama and Jensen (1983), these contracts are expensive and difficult to enforce due to agency costs. Among others, agency costs include fees associated with handling the needs and settlement of contracts of managers and shareholders, also referred to as agency risk. Agency conflicts may lead to managers engaging in activities that maximize their self-serving interests at the expense of shareholders of a firm, such as earnings management.

2.2. Agency Theory and Monitoring

A wide range of internal- and external monitoring devices exist that curb agency conflicts. Some of these external monitoring tools range from debt and labor market to potential corporate takeover threats that reduce the likelihood of agency conflict occurring (Jensen, 1986). In contrast to external monitoring measures, internal monitoring devices primarily focus on the governing role of a firm's board of directors to function as a market-induced solution to solving agency problems (Fama, 1980; Fama & Jensen, 1983; Hermelin & Weisbach, 1998; Malenko, 2014). Fama (1980) suggests that a firm's board of directors is the ultimate internal monitor, underscoring the significant role factors, including board composition and structure, play. More recently, Malenko (2014) proposes that the board's monitoring function and decision-making process are more effective when the communication between directors is optimized, highlighting the role of communication in promoting transparency and openness between managers and directors. More specifically, she shows that communication is enhanced when there is high pressure for conformity, increasing the quality of board discussions and monitoring efficiency.

2.2.1. Board of Directors

In large corporations, shareholders tend to be too diffuse, uninformed, and unable to oversee the management directly. Even when majority shareholders have sufficient incentives to monitor, the stage on which they play this role is usually the board itself (Hermelin & Weisbach, 2001). Shareholders appoint- and stock exchanges regulate the board of directors of a firm whose role it is to govern, monitor, and induce control over managers (Hermelin & Weisbach, 2001). Fama and Jensen (1983) contend that the board is an organization's apex of

internal controls that hires, fires, and compensates executive managers, besides ratifying and scrutinizing significant corporate decisions. Consequently, the board of directors is considered the equilibrium solution to the diffused agency conflicts between managers and shareholders (Fama, 1980; Hermelin & Weisbach, 2001).

2.2.2. Board Composition

A firm's board of directors usually includes a combination of outside (independent) and inside (dependent) directors. Various scholars assert that the insider-to-outsider director ratio may dictate the ability to effectively monitor managers (Fama, 1980; Fama & Jensen, 1983; Hermelin & Weisbach, 1998). Independent directors are typically associated with intensified monitoring, explained by three primary reasons: (i) independent directors' non-existent firm affiliation provides them with an incentive for strengthened monitoring (Fama, 1980; Fama & Jensen, 1983), (ii) independent directors are generally expected to prioritize shareholder-value maximization, and firm performance (Fama & Jensen, 1983; Johnson, Hoskisson, & Hitt, 1993), and (iii) independent directors are more likely than insiders to fire CEOs following poor performance (Warner, Watts, & Wruck, 1988; Weisbach, 1988). Hence, agency theory proposes that independent boards have a considerable motivation and incentive to exert efficient monitoring. In an opposite view, Holmstrom (1999) claims that the act of doing the right thing is not the same thing as wanting to be seen doing the right thing. Moreover, Hermelin and Wiesbach (2001) argue that directors who possess a reputation for being easy-going and go well together with CEOs may be valuable. Considering this information, independent directors may not always contribute to increasing monitoring efficiency.

2.2.3. Board Subcommittees

Extending beyond the board of directors, Kesner (1988) highlights the importance of the board's subcommittees in dictating the monitoring quality. Similarly, Vance (1983) suggests that the audit committee is the firm's most influential committee in ensuring monitoring efficiency and financial reporting quality. Man (2013) argues that the audit committee can mitigate and prevent managers' self-serving motives by using its overreaching authority to control agency conflicts. More precisely, he proposes the audit committee functions as a communication bridge between the board, internal and external auditors, public agencies, and the government, thus making it an ideal mediator in going the extra mile to ensure shareholder value maximization. Kesner (1988) claims that the function and legal nature of

the audit committee provide a monitoring function, which enhances the board's governance while simultaneously reducing information asymmetry. Likewise, the committee's structure with specialized roles increases productivity and monitoring while setting clear mandates, which seek to minimize conflicts between managers and shareholders (John and Senbet, 1998).

2.2.4. Board Activity

Besides using board structure as a proxy for estimating monitoring efficiency, Vafeas (1999) and Adams (2003) suggest that the number of board meetings of a firm may be a proxy for monitoring activities. They propose that the more time directors spend together working on strategic planning and advising-related tasks, the better a mediator the board becomes in mitigating and resolving agency conflicts. Moreover, Vafeas (1999) argues boards that meet less frequently are more prone to rubber-stamp managers' plans, giving way for increased managerial discretion. Comparatively, Adams (2003) claims firms that schedule board meetings more regularly have a better ability to provide oversight, insight, and foresight, emphasizing the interest of shareholders.

2.3. Agency Theory and Earnings Management

The nature of the corporate environment gives rise to self-serving opportunities. Firms are affected by agency conflicts, paving the way for managers to engage in fraudulent activities and behaviors. Earnings management directly relates to agency theory, as managers' choice of accounting techniques and earnings manipulation emanates from conflicting interests and information asymmetry (Xie et al., 2003). Prior research within the field of agency theory has identified four fundamental reasons for agency conflicts: (i) moral hazard, (ii) earnings retention, (iii) risk-aversion, and (iv) time horizon, of which all may be underlying factors that give rise to earnings management (McColgan, 2001).

2.3.1. Moral Hazard and Earnings Management

The concept of moral hazard relates to the idea that the agent has not entered into a contract with the principal in good faith, leading to a situation where the incentives of shareholders and managers misalign (Jensen & Meckling, 1976). An issue of moral hazard arises when shareholders cannot oversee the actions of managers, and these actions have a different value to shareholders than to the managers (Jensen & Meckling, 1976). As such, earnings management, a covert action taken by the management to either inflate or deflate earnings,

may be viewed as a moral hazard issue (Xie et al., 2003). In their paper examining managerial behavior, agency cost, and ownership structure, Jensen and Meckling (1976) construct a model that defines the moral hazard of agency conflicts. Their model demonstrates that managers' incentives to engage in personal benefits are inversely related to their ownership stake in the company, indicating a highly diffused ownership structure exacerbates a moral hazard-related issue like earnings management. Hermelin and Weisbach (2001) assert that agency conflicts inherent in most large corporations may contribute to the separation of ownership and control.

2.3.2. Earnings Retention and Earnings Management

Earnings retention relates to the portion of the profit that a firm's management decides to retain or save for later use. Jensen (1986) contends that managers prefer to preserve earnings, while shareholders desire immediate cash distributions. One explanation for these opposite inclinations may relate to the relationship between director remuneration and firm size. Jensen (1986; 1993) propose that directors of more prominent and prosperous firms may enjoy more power, prestige, and board dominance. Thus, if managers' compensation schemes, remuneration plans, and power tie with the financial performance of their firm, managers may be inclined to showcase their firms as good performers through earnings management (Xie et al., 2003). However, when managers use their discretion to retain earnings, they risk damaging their reputation, as earnings management is associated with fraudulent behavior (Healy & Wahlen, 1999).

2.3.3. Time Horizon and Earnings Management

The idea behind a firm's time horizon and planned activities are strongly related to its use of earnings management. A firm's cash flow streams may give rise to conflicts of interest between shareholders and managers depending on when it expects to be received. While shareholders typically favor a long-term growth perspective, managers' may be more inclined to boost short-term revenues since it better aligns with their contracts and personal incentives (McColgan, 2001). For this reason, timing is a factor that significantly affects manager incentives and the likelihood of engaging in earnings manipulation. Healy (1985) suggests that managers may engage in subjective accounting practices to manipulate earnings, favoring short-term accounting return expenditures at the expense of rejecting longer-term positive NPV projects. Conclusively, the notion of timing gives rise to a conflict of interest

between a firm's shareholders and managers, which, in turn, gives rise to earnings management.

2.3.4. Managerial Risk Aversion and Earnings Management

In a business context, risk aversion pertains to the preference for a low probability, high-value outcome versus a high likelihood, low-value result. Given managers and shareholders have unique intrinsic motives, they are likely to maintain different predispositions toward risk (McColgan, 2001). Managers are typically akin to individual investors holding a small number of shares, influencing their risk-taking and tendency to prioritize investments that promote diversification and reputation (Denis & Kruse, 2000). On the contrary, managers' compensation schemes may affect their risk tolerance, driving them to take on risky decisions that go against the will of their shareholders and thus lead them to engage in earnings management (McColgan, 2001). Shareholders generally face limited restrictions in their investment selections and possess greater flexibility to diversify their investment exposure, suggesting they are more willing to take on firm-specific investment risks (Denis & Kruse, 2000). Moreover, when managers' likelihood of getting reappointed directly depends on firm performance, they are more susceptible to engage in earnings management (Xie et al., 2003).

2.4. Agency Theory and CEO Power

The power dynamic between the CEO and corporate board may reduce the monitoring quality of the board, as directors might be less inclined to take on actions that go against managers (Hermalin & Weisbach, 1998). Which decision directors decide on depends on the existing power structure of the firm, either preventing or giving rise to earnings management. The influence and power of the CEO on decision-making processes increases when he/she simultaneously chairs the board (Finkelstein & D'aveni, 1994). According to agency theory, board directors are the ultimate internal monitoring device safeguarding the interest of shareholders (Fame & Jensen, 1983). For this reason, shareholders should primarily be concerned about board independence and executive non-affiliation. Various studies suggest that factors, including composition, structure, and predominantly CEO power, play a significant role in enhancing monitoring effectiveness (Jensen & Meckling, 1976; Herman, 1981; Hermalin & Weisbach, 1998; Klein, 2002).

2.4.1. CEO Power

In the United States, there is typically a connection between CEO power and CEO duality (Finkelstein & D'aveni, 1994). CEO duality entails granting the CEO a chairman role on the board, leading to a situation where the CEO has superior authority over the board's decision-making process, which, in turn, may promote agency conflicts, including managerial entrenchment and ineffective monitoring governance. (Jensen & Meckling, 1976). The CEO's ability to significantly influence the firm's strategic management decisions and its proposed implementation measures results in a situation that gives rise to conflicting interests (Finkelstein & D'aveni, 1994). With the CEO's increased mandate, the likelihood of activities deviating from shareholders' best interest increases while being influenced by managers' self-serving motivations increases (Fama & Jensen, 1983). Nevertheless, Williamson (1985) proposes that CEO participation on the board should not hamper directors' principal functions of the board, including exercising unbiased monitoring and protecting the interest of shareholders. Hence, the degree to which CEO duality prevents the separation of decision-making and control depends on the CEO's impact on directors' monitoring function.

CEO duality affects directors' monitoring role in multiple ways. Besides being an integral part of the firm's everyday operations and strategic planning, a CEO who also chairs the board typically controls the board reappointment process, the board remuneration policy, and board structuring proposal (Berg & Smith, 1978). Moreover, the power granted to individuals who hold an executive and chairman role allows them to select what type of information outside directors and shareholders receive, which gives rise to entrenchment (Jensen, 1993). Finkelstein and D'aveni (1994) argue that a CEO who also holds the role of a chairman can dominate both the content and timing of the board meetings. Consequently, they suggest that directors may find themselves following the decisions proposed by the CEO to ensure conformity, hoping to better their chances of being re-elected in the future. Also, they argue that the CEO's moderating role can give rise to conflicts of interest that could culminate in improved influence and CEO entrenchment regardless of director independence and non-executive affiliation.

2.4.2. CEO Power and Monitoring Efficiency

Numerous factors ranging from the number of board meetings of a firm to its management compensation schemes affect the relationship between the CEO and the firm's board. This

relationship is what shapes the internal firm power dynamic, the board's monitoring effectiveness, and the CEO's assumed mandate. In their paper examining the board's monitoring role of the CEO, Hermalin and Weisbach (1998) demonstrate that a link between board monitoring and CEO power exists. They propose that the board's inclination to retain or replace the CEO is a function of independence and its ability to effectively monitor. Nonetheless, a conflict of interest usually emerges between shareholders, board of directors, and managers when setting the board's level of independence. While the CEO typically prefers a less independent board due to its more lenient monitoring, shareholders and board of directors usually favor autonomy to enhance governance and monitoring. However, Lynall, Golden, and Hillman (2003) suggest that board members and executives may be subject to homophilic tendencies, in which the board composition is subject to path dependence and lock-ins. More precisely, they argue that homophily and favoritism towards expertise and relationships will result in a board filled with CEO-friendly directors with a managerial perspective predisposed to back the position of the CEO. With these considerations in mind, it is clear that CEOs may use their influence to shape the board's monitoring efficiency based on their ulterior motives. Nonetheless, the extent to which the monitoring capability of the board will be affected depends on characteristics, including board composition, relationships, and power dynamics.

3. Empirical Review

This segment links concepts and theories mentioned in the theoretical background, focusing on topics generally acknowledged in previous empirical studies surrounding corporate governance, board monitoring activity, and earnings management.

3.1. Earnings Management

3.1.1. Earnings Management Measurement

Managers utilize different earnings management methods, including accrual-based earnings management and shifts in accounting techniques, to control stock market perception, align reported earnings with compensation plans, bypass regulatory interventions, or decrease the possibility of violating supplier contracts (Healy & Wahlen, 1999). However, most studies find evidence that the accrual-based modified Jones model (1995) provides the most accurate and robust results (Dechow et al., 1995; Healy & Wahlen, 1999; McNichols, 2000; Bergstresser & Philippon, 2006). In their paper examining the effectiveness of different

earnings management models, Dechow et al. (1995) demonstrate that the modified Jones model (1995) presents revenue-based earnings management with fewer errors than comparable models. More specifically, Dechow et al. (1995) suggest that models that use an estimation period while simultaneously excluding anticipation for systematic earnings management offer a superior method for identifying and measuring accrual-based earnings. Nevertheless, Healy and Wahlen (1999) argue that accounting methods used to manipulate reported earnings, factors mitigating earnings management, and earnings management's impact on resource allocation require additional research to get a more comprehensive understanding of managers' use of earnings management.

3.1.2. Earnings Management Incentives

Motivations for why managers utilize earnings management may vary, but a common reason appears to be managers' individualistic and self-promoting rationales. Research in earnings management shows that firms manage earnings to window-dress financial statements to prevent lending contract violations, regulatory-related costs, or benefit from regulatory advantages. In his study investigating managers' likelihood of engaging in earnings manipulation, Roychowdhury (2006) demonstrates that managers manipulate earnings to meet specific earnings targets, underscoring the notion that managers engage in earnings manipulation for their self-incentivized reasons. Similarly, Bergstresser and Philippon (2006) find evidence that firms manage reported earnings to circumvent unfavorable annual forecast errors. Becker, Defond, Jiambalvo, and Subramanyam (1998) propose that managers' motives primarily depend on their earnings discretion and the audit committee's monitoring intensity, underscoring the idea that managers naturally are self-centered. However, even though managers may accrue benefits for themselves, they do not typically overextend their use of earnings management because of the advantages and disadvantages of reporting too low or high figures. Burgstahler and Dichev (1997) claim that firms may be discouraged from reporting too optimistic earnings because they could be subject to union wage negotiations, or stakeholders may bargain for better terms knowing the financial standing.

3.1.3. Factors Contributing to Earnings Management

Managers' decision to engage in earnings management may stem from numerous reasons, including incentive-based motivations, a desire to improve reputation, and shareholder expectations. Nonetheless, many papers discussing earnings management mention specific firm characteristics more often than others. For example, Roychowdhury (2006) suggests that

executive managers use their earnings discretion to avoid reporting losses or missing financial forecasts, emphasizing managers' focus on self-serving motivations and personal benefits. Burgstahler and Dichev (1997) find similar evidence in their paper investigating the relationship between managers and earnings management, demonstrating that managers engage in earnings management to avoid earnings decreases and losses. However, Bergstresser and Philippon (2006) propose that managers are motivated by equity-based executive compensation rather than the potential risk of experiencing losses. Peasnell, Pope, & Young (2005) demonstrate that director independence is associated with less income-increasing earnings management, highlighting board independence's enhanced monitoring effectiveness. On a similar note, Xie et al. (2003) find that audit committee activity plays a central role in deterring managers from engaging in earnings manipulation, underscoring the comprehensive insight, operational understanding, and enhanced internal audit function that comes from more frequent board meetings.

3.2. Earnings Management and Monitoring

3.2.1. Earnings management and Board Independence

The literature agrees with the notion that board independence is one of the most effective barriers to earnings management and managers' ability to engage in earnings manipulation. Dechow et al. (1996) argue that the independence of directors affects the monitoring quality and likelihood of managers engaging in earnings management, underscoring the notion that independent or non-affiliated directors have a greater incentive to ensure managers act in the best interest of the firm and its shareholders. Moreover, in their paper investigating board monitoring's impact on earnings management, Xie et al. (2003) demonstrate that a higher proportion of independent outside directors on the board is associated with lower levels of earnings management. They argue that director independence combined with financial and governance experience may enhance the monitoring function, highlighting directors' capability to influence and mitigate managers from engaging in self-motivated and deceptive actions. Adding to this idea, Davidson et al. (2005) find evidence that non-executive board and audit committee directors are associated with a lower likelihood of earnings management, indicating that the separation of day-to-day management tasks and policymaking and planning exercises may enhance the monitoring function.

3.2.2. Earnings Management, Audit Committees, and Board Meetings

Various studies also find that the audit committee's role and the number of board meetings significantly mitigates earnings manipulation by improving monitoring and the accuracy of the firm's financial statements. In their study examining the relationship between corporate governance and earnings management, Chtorou et al. (2001) argue that the more often the board meets, the better its monitoring efficiency becomes, thus limiting managers from using their earnings discretion. Similarly, Xie et al. (2003) find evidence that more active boards are associated with a lower level of earnings management, highlighting the board's increased ability to devote more time to issues such as earnings management. Likewise, Cornett, McNutt, and Tehranian (2009) assert that a greater level of involvement and oversight by the board, as measured by the number of board meetings per year, leads to more effective monitoring and lower levels of earnings management. However, Adams and Ferreira (2008) claim that the number of board meetings is less relevant when it comprises directors holding multiple directorships since they likely will not be as engaged and able to identify and prevent managerial misconduct.

Moreover, Beasley and Salterio (2001) argue that the audit committee provides a necessary oversight function in identifying potential inconsistencies in the firm's financial reporting process relating to internal and external audits. Klein (2002) also proposes that the audit committee maintains a meaningful role in mitigating managers' willingness to engage in earnings management by administering effective monitoring and ensuring financial statements are accurate and consistent.

3.2.3. Earnings Management and Excessive Monitoring

The concept of excessive board monitoring is grounded in the idea that the board burdens managers to the extent that makes them feel over-conscious about their every decision, thus discouraging motivation, performance, and effectiveness. As the literature suggests, consequences stemming from too intense monitoring may outweigh the benefits accrued from preventing earnings management (Weisbach, 1988; Byrd & Hickman, 1992; Park & Shin, 2004). In their study examining the effect of board monitoring on earnings management, Byrd and Hickman (1992) find evidence that firms in which independent outside directors represent at least 50% of the available seats have a worse firm performance than other firms where the opposite is true. They suggest that too much director independence may decrease productivity and efficiency due to consequences attributed to intensified board monitoring.

Similar to this idea, Wiesbach (1988) demonstrates that a board solely comprising outside directors may adversely affect operational efficiency, arguing that inside participation and executive affiliation can enhance the board's decision-making process. He also finds evidence that CEOs are likely to resign when the firm's board comprises a majority proportion of independent directors, indicating that increased monitoring and limiting of a CEO's earnings discretion may lead to managerial dissatisfaction. In their paper investigating board composition's impact on earnings management, Park and Shin (2004) do not find that earnings management decreases with outside directors' average tenure. They claim that only adding outside directors to a board may not automatically lead to governance improvement alone, underscoring the significance of other factors, besides monitoring, in enhancing the board's governance function.

3.3. CEO Power, Monitoring, and Earnings Management

3.3.1. CEO Power and Monitoring

The role of the CEO comprises much power and flexibility, allowing for significant influence and control over the board of directors and its decision-making processes. Numerous studies suggest that the power dynamic between executives, the board of directors, and the audit committee considerably affect the board's ability to monitor and prevent earnings management (Weisbach, 1998; Chtourou, Bédard, & Courteau, 2001; Lin & Hwang, 2010). In his paper examining the relationship between outside directors and the CEO, Weisbach (1988) proposes CEOs' likelihood of engaging in self-dealing increases with tenure, indicating directors may be less willing to monitor the longer they have served on the board. He also suggests that heightened CEO power may influence the board's activities and decision-making process, making them less inclined to object to unprofitable projects that provide the CEO with utility. Moreover, the difficulty of monitoring management by directors may be enhanced when the CEO simultaneously chairs the board. Chtourou et al. (2001) argue that CEO duality further enhances the CEO's power, making it easier to control monitoring efforts and strategic decisions by participating in board activity. In their study investigating the relationship between internal governance structures and earnings management, Davidson et al. (2005) find evidence that the increased power from CEO duality can lead to conflicts of interest between directors and managers, which, in turn, may significantly weaken the board's monitoring efficiency. Lin and Hwang (2010) suggest that a

CEO with dual positions may directly govern board meetings and oversee the process of hiring, evaluating, and firing executives, emphasizing the conflicting condition.

3.3.2. CEO Power and Earnings Management

The board provides an essential function in mitigating the ability of managers to engage in earnings management by using a combination of monitoring and incentive-based measures. However, these measures may be reduced or limited by managers' influence and power over the board, resulting in less efficient monitoring and enhanced earnings management opportunities. Previous earnings management and governance suggest that too high or too low CEO power could be both beneficial and harmful, underscoring the idea that a moderate power level is ideal in order to balance the power dynamic and mitigate managerial self-interest (Beatty & Zajac, 1994; Bergstresser & Philippon, 2006; Cornett et al., 2009). Beatty and Zajac (1994) propose that the board of directors may govern the trade-off between too little or too high CEO power by using incentive-based measures to prevent managers from using their earnings discretion to benefit themselves. Moreover, Bergstresser and Philippon (2006) demonstrate that managers' probability of engaging in earnings management is higher if their incentives align with the firm's performance and the greater power they hold over the board. However, Cornett et al. (2009) claim that the CEO's authority and discretion increase with the number of board directors as larger boards tend to be more polite and concerned with getting on the good side of the CEO, thus providing her with more room to use her earnings discretion.

4. Hypothesis Development

The board's monitoring function provides crucial protection against opportunistic managerial behavior and activities, mitigating earnings management and ensuring shareholder wealth maximization. Davidson et al. (2005) assert that the effectiveness of the board's monitoring depends on its ability to oversee strategic activities, contribute to valuable policy settings, and hire and fire executive employees. When the board exerts intense monitoring over managers, the opportunity for managers to engage in earnings management substantially diminishes. Prior studies highlight the importance of principal factors contributing to improved monitoring and earnings management mitigation, including director independence, board meeting frequency, and the presence of an audit committee (Weisbach, 1988; Klein, 2002; Xie et al., 2003; Bédard, Chtourou, & Courteau, 2004).

More precisely, Bédard et al. (2004) argue that an audit committee with a clear mandate to oversee the financial reporting processes of the firm mitigates the likelihood of managers engaging in accrual-based earnings management, thus underscoring the committee's governing role. Xie et al. (2003) suggest that the more frequently a board meets, the better directors can stay informed about strategic planning and operational activities, provide monitoring oversight, and intervene in cases of managerial wrongdoings. Klein (2002) demonstrates that a higher proportion of independent directors are associated with lower earnings management, indicating the improved monitoring that outside directors exert to prevent managers from engaging in earnings manipulation. Consequently, the observation that board monitoring could be estimated using various proxies may be acknowledged, in which different monitoring aspects, such as efficiency, quality, or activity, are considered. Therefore, selecting a single factor for capturing board monitoring may result in findings biased towards only one side of monitoring. Hence, for the purpose of this study and the literature discussed, three proxies for board monitoring will be used: board independence, the audit committee, and board meetings.

However, in contrast to the many studies demonstrating intensified board monitoring's effect in mitigating earnings management, too intense monitoring may increase conflicts between directors and managers and the likelihood of the CEO resigning (Faleye, Hoitash, & Hoitash, 2011). They also suggest that boards that exert intense monitoring on management provide weaker strategic advising and diminished corporate innovation, highlighting the idea that more time spent on oversight duties leaves less time for governance-related tasks. Hermelin and Weisbach (1988) propose a similar relationship by suggesting that the marginal cost of monitoring increases the more intensely the board monitors management. Nonetheless, there is a tendency to believe the opposite view also exists, whereby the marginal cost of low to no monitoring is as high, if not higher, as when the board exerts intense monitoring. Taking the above information into consideration leads us to formulate our first hypothesis about board monitoring's relationship with accrual-based earnings management:

H1: Board monitoring reduces accrual-based earnings management.

Nevertheless, to what degree board monitoring reduces accrual-based earnings management is difficult, if not impossible, to determine. Though, what is clear is that the power dynamic between managers and directors sets the agenda for how intensely the board will monitor

managers, thus affecting managers' likelihood of engaging in earnings management. Prior studies suggest that CEOs may use their discretionary power over the board of directors to influence their decisions and monitoring efforts, seeking to use their earnings discretion more freely (Finkelstein & D'Aveni, 1994; Hermalin & Weisbach, 1998; Ryan & Wiggins, 2004). Hermalin and Weisbach (1998) propose that the CEO's power directly influences discussion, decisions, and negotiations between the CEO and the board of directors, highlighting the mediating role the CEO has in affecting the board's level of independence and willingness to monitor. Also, they argue that CEOs' bargaining power comes from their ability relative to replacement, suggesting they can leverage their position so long as he remains in control over the board.

The ability of directors to effectively monitor managers may, however, be affected by the power held by the CEO, especially if the CEO simultaneously chairs the board. Weisbach (1988) asserts that the board of directors has the final say over the amount of discretion the CEO can take in manipulating accrual-based earnings, indicating an interplay of power exists between executives and directors. More specifically, with an increased mandate and heightened power, the CEO can significantly impact the board's monitoring activities, including designing compensation contracts and management hiring and firing recommendations (Finkelstein & D'Aveni, 1994). Similarly, Ryan and Wiggins (2004) suggest that authoritative executives may use their influence to weaken the board's monitoring ability, providing an opportunity to increase their earnings mandate and board control even further. However, they also find that board independence impacts the CEO's influence over the board's monitoring ability, suggesting independent directors wield higher resistance to executive power. Based on the above-highlighted points from previous research, we expect that CEO power holds a moderating role in affecting board monitoring and earnings management:

H2: CEO power has a moderating role in the relationship between board monitoring and accrual-based earnings management.

5. Methodology

This chapter presents our models, an introduction to our sample universe, our statistical model for measuring earnings management, and an elaborate discussion of the variables used in this study.

5.1. Base Models

The field of empirical finance is vast and offers numerous methodological approaches to test research questions. Prior studies within the corporate governance and earnings management domains use a combination of pooled ordinary least square (OLS) regressions and fixed-effects models (Bédard et al., 2004; Cohen et al., 2008; Davidson et al., 2005; Lobo & Zhou, 2006). To determine the most appropriate methodology for our study, we evaluate a range of available alternatives.

5.1.1. Pooled Ordinary Least Square (OLS)

We first use pooled-OLS to estimate the effect of board monitoring on accrual-based earnings management. Consequently, we specify the following model to test for H_1 :

Pooled-OLS (Hypothesis 1)

$$\begin{aligned} \text{Earnings Management}_i = & \beta_0 + \beta_1 \text{Board Monitoring}_i + \beta_2 \text{CEO Duality}_i + \beta_3 \text{Board Controls}_i \\ & + \beta_4 \text{Firm Controls}_i + \beta_5 \text{Year}_t + \beta_6 \text{Industry}_j + \mu_i \quad (\mathbf{1}) \end{aligned}$$

Using *pooled-OLS* entails ignoring the panel structure of the data, resulting in observations pooled across time and cross-sectional units (Woolridge, 2016). One remedy is to include yearly dummy variables to allow for variations in the sample population distribution across periods (Woolridge, 2016). Nonetheless, if unobserved heterogeneity exists, the dependent variable might be affected, generating inconsistent and biased results. More specifically, for pooled-OLS to estimate parameters correctly, the composite error terms ($a_i + u_{i,t}$) must be uncorrelated with the explanatory variable. Thus, even if the idiosyncratic error ($u_{i,t}$) is assumed to be uncorrelated with the explanatory variable, pooled-OLS is inconsistent and biased if the unobserved effect (a_i) and the explanatory variable correlate. This situation can be described as heterogeneity bias and derives from omitting the unobserved effect (a_i) (Woolridge, 2016).

Another issue with using pooled-OLS is the presence of Heteroskedasticity, which entails not having a constant variance between the error term and our explanatory variables, leading to invalid standard errors in the pooled-OLS regression model (Woolridge, 2016). To detect the presence of heteroskedasticity in our models, we will conduct the White tests. If we discover heteroskedasticity, the likelihood that the unit forming the panel would cluster the standard errors is high (we use ISIN-number in our study). As a result, all pooled-OLS regression models must use cluster robust standard errors (Woolridge, 2016).

5.1.2. Fixed-Effect and Random-Effect Models

We have a panel data structure, allowing us to employ several other methodological approaches to examine the board's monitoring impact on accrual-based earnings management. As a result, we specify the following additional model to test for H_1 :

Fixed Effects and Random Effects (Hypothesis 1)

$$\begin{aligned} \text{Earnings Management}_{i,t} = & \beta_0 + \beta_1 \text{Board Monitoring}_{i,t} + \beta_2 \text{CEO Duality}_{i,t} + \beta_3 \text{Board Controls}_{i,t} \\ & + \beta_4 \text{Firm Controls}_{i,t} + \beta_5 \text{Year}_t + a_i + v_{i,t} \quad (2) \end{aligned}$$

The *fixed-effect* model is an alternative model that allows the unobserved effect (a_i) to correlate with the explanatory variable in any period (Woolridge, 2016). It works by time-demeaning the explanatory variables for all units and periods, thus removing all time-constant variables, including the unobserved effect (a_i). Hence, the fixed-effects model generates unbiased and consistent results as long as the main explanatory variables are time-variant and constant across periods. In contrast to the fixed-effect model, the *random-effect model* assumes that the unobserved effect (a_i) does not correlate with each explanatory variable in all periods, allowing for time-constant explanatory variables to exist in all models (Woolridge, 2016). Moreover, the random-effects model uses generalized least squares (GLS) in its estimate to deal with any serial correlation in the composite error term.

Estimates of the fixed-effect and random-effect models may vary in economically significant ways. Therefore, to select the most appropriate model for this study, we will apply both the random- and fixed-effect models and then conduct a test identifying statistically significant coefficient differences in the main explanatory variables. Woolridge (2016) recommends using a Durbin-Wu Hausman test, where the test is performed under the random-effect

assumptions. The null hypothesis suggests that random-effects estimates are more suitable unless rejected by the Hausman test. A failure to reject the null hypothesis implies that estimates of the fixed-effect and random-effect models provide similar results, and it does not matter which model we choose (Woolridge, 2016). In contrast, a rejection by the Hausman test implies that the random-effect assumptions are false and that the fixed-effect model is the best choice.

Using pooled-OLS, test statistics and standard errors are usually invalid because they ignore the composite term's serial correlation. Consequently, if the equation includes good controls and the error term contains serial correlations related to any neglected heterogeneity, the fixed-effect model is more efficient than pooled-OLS (Woolridge, 2016). Also, the fixed-effect model may be more appropriate than the random-effect model as it allows the arbitrary correlation between the unobserved effect and our explanatory variables.

Interaction terms may be used to study the impact of an explanatory variable on the dependent variable based on another explanatory variable (Woolridge, 2016). Hence, to examine whether CEO power has a moderating role in the relationship between board monitoring and accrual-based earnings management, we created interaction terms between *Board Monitoring* and *CEO Duality*. Consequently, we specify the following model to test for H₂:

Fixed Effects and Random Effects (Hypothesis 2)

$$\begin{aligned}
 \text{Earnings Management}_{i,t} = & \beta_0 + \beta_1 \text{Board Monitoring}_{i,t} + \beta_2 \text{CEO Duality}_{i,t} \\
 & + \beta_3 \text{Board Monitoring}_{i,t} \times \text{CEO Duality}_{i,t} + \beta_4 \text{Board Controls}_{i,t} + \beta_5 \text{Firm Controls}_{i,t} \\
 & + \beta_6 \text{Year}_t + a_i + v_{i,t} \quad (3)
 \end{aligned}$$

5.2. Endogeneity

Reverse causality and simultaneity bias are examples of endogeneity problems prevalent in corporate governance research (Bhagat & Black, 2000; Hermalin & Weisbach, 2001). In this study, *Board Monitoring* is classified as an endogenous explanatory variable as it is believed to be reversely correlated with accrual-based earnings management. More specifically, board monitoring may reduce earnings management by curbing agency conflicts, but at the same time, it could work the other way around. For instance, if the company performs well, it will

be under less pressure to alter its board composition and structure (Sun, 2015). As a result, the CEO is most likely to possess the incentive and power to reduce monitoring by decreasing the number of independent directors, vetoing the audit committee, and reducing the number of board meetings. In contrast, if the firm performs poorly and the CEO receives criticism for engaging in earnings management, the board is more likely to elect additional independent directors, add an audit committee, and increase the number of board meetings to enhance monitoring (Sun, 2015).

Consequently, to produce reliable results, endogeneity has to be dealt with by, for instance, including an instrumental variable. This method is referred to as two-stage least squares (2SLS), leaving the unobserved variable in the error term and using an estimation method that recognizes the presence of omitted variables instead of using pooled-OLS (Woolridge, 2016). To find a suitable instrumental variable for the explanatory variable (x), the instrument (z) needs to satisfy two requirements: (i) the instrument (z) is correlated with the explanatory variable (x) (i.e. $\text{Cov}(z,x) \neq 0$) and (ii) the instrument (z) is uncorrelated with the error term (u) (i.e. $\text{Cov}(z,u) = 0$). For the instrument (z) to be exogenous, it should be uncorrelated with the omitted variables and have no partial effect on the dependent variable, following the control for the omitted- and explanatory variables (Woolridge, 2016).

The process of 2SLS involves two-stage regressions. In the first stage, the endogenous variable (x) will be regressed on the instrument and all controls to get an estimated value for \hat{x} . In the second stage, the dependent variable (y) will be regressed on all controls and \hat{x} instead of x (Staiger, 1997). Following these two tests, it is possible to determine the strength of the instrumental variable using the first-stage F statistic, for which an acceptable value is equal to or exceeds 10 (Staiger, 1997; Woolridge, 2016). Consequently, we will conduct a first-stage F-test to examine the strength of our instrumental variables.

Although various instrumental variables for board monitoring exist, we have decided to introduce Industry Monitoring – Industry Board Independence, Industry Audit Committee, and Industry Board Meetings – the mean of the proportion of board monitoring in other firms within the same industry and year. Following prior literature (Yang & Zhao, 2014; Liu, Miletkov, Wei, & Yang, 2015; Sun, 2015), we consider industry monitoring a relevant instrument for board monitoring. First, firms within the same industry are likely to deal with similar regulatory rules, possess comparable business mixes, and have equal investment

opportunities. Secondly, the firm's board composition may look equivalent to peers and other related firms within the same industry (Sun, 2015). However, the industry average is unlikely to correlate with individual firms' earnings management. For these reasons, industry monitoring may be considered an exogenous variable that could explain changes in board monitoring, thereby qualifying as a relevant instrument (Woolridge, 2016). Consequently, to test for endogeneity, we have specified the following models:

First-Stage Least Square Estimation with Fixed-Effect (Hypothesis 1)

$$\begin{aligned} \text{Board Monitoring}_{i,t} = & \alpha_0 + \alpha_1 \text{Industry Monitoring} + \alpha_2 \text{CEO Duality}_{i,t} + \alpha_3 \text{Board Controls}_{i,t} \\ & + \alpha_4 \text{Firm Controls}_{i,t} + \alpha_5 \text{Year}_t + a_i + v_{i,t} \quad (4) \end{aligned}$$

2SLS-Estimation with Fixed-Effects (Hypothesis 1)

$$\begin{aligned} \widehat{\text{Earnings Management}}_{i,t} = & \alpha_0 + \alpha_1 \widehat{\text{Board Monitoring}}_{i,t} + \alpha_2 \text{CEO Duality}_{i,t} + \alpha_3 \text{Board Controls}_{i,t} \\ & + \alpha_4 \text{Firm Controls}_{i,t} + \alpha_5 \text{Year}_t + a_i + v_{i,t} \quad (5) \end{aligned}$$

First-Stage Least Square Estimation with Fixed-Effect (Hypothesis 2)

$$\begin{aligned} \text{Board Monitoring}_{i,t} = & \alpha_0 + \alpha_1 \text{Industry Monitoring} + \alpha_2 \text{CEO Duality}_{i,t} \\ & + \alpha_3 \text{Industry Monitoring}_{i,t} \times \text{CEO Duality}_{i,t} + \alpha_4 \text{Board Controls}_{i,t} + \alpha_5 \text{Firm Controls}_{i,t} \\ & + a_6 \text{Year}_t + a_i + v_{i,t} \quad (6) \end{aligned}$$

2SLS-Estimation with Fixed-Effects (Hypothesis 2)

$$\begin{aligned} \widehat{\text{Earnings Management}}_{i,t} = & \alpha_0 + \alpha_1 \widehat{\text{Board Monitoring}}_{i,t} + \alpha_2 \text{CEO Duality}_{i,t} \\ & + a_3 \widehat{\text{Board Monitoring}}_{i,t} \times \text{CEO Duality}_{i,t} + a_4 \text{Board Controls}_{i,t} + a_5 \text{Firm Controls}_{i,t} \\ & + a_6 \text{Year}_t + a_i + v_{i,t} \quad (7) \end{aligned}$$

5.3. The Sample Universe

Our sample comprises board- and financial data for US firms included in the S&P 500 index between 2000 and 2021. Data used in our sample were retrieved using FactSet and Thomson Reuters Eikon (hereafter “Eikon”). We purposely select board data from Eikon and firm financial data from FactSet because of their respective completeness and accuracy.

Starting with our raw datasets, data from Eikon and FactSet comprised 408 firms and 11,110 firm-year observations. Of these 11,110 observations, we dropped 44 when merging the two sets. Similar to Dechow et al. (1995) and Cohen et al. (2008), we exclude banks and financial industries from our empirical analysis because firms in these industries do not present current assets and current liabilities information and because financial statements follow a different format for these industries. In deciding which firms to include in our dataset, we require them to have at least three years' worth of board and financial-related data, comprising cash and equivalents, capital expenditures, total assets, sales, net income, and operating expenses. Considering most board-related data points were missing from Eikon in the first three years following 2000, we manually retrieved the missing information from the 10-K statement of each respective firm. After adjusting for the conditions outlined above, our final sample dataset consisted of 400 firms and 7,489 firm-year observations between 2000 and 2021.

Table 1 below provides a comprehensive list of our industry-specific firm distribution. As observed in column (3), around 40% of our sample consists of industrial and consumer discretionary firms, whereas firms in the telecommunication and basic material industries only make up 7.4%. The distribution for firms in other industries ranges from 5.5% to 14.4%, implying that our sample distributes unevenly across various sectors, even if it is not by considerable proportions.

Table 1: Industry Distribution

| Industry | (1) Number of Firms | (2) Number of Firm-Year Observations | (3) Percent of Sample |
|------------------------|--------------------------------|---|----------------------------------|
| Basic material | 18 | 336 | 4.50 |
| Consumer discretionary | 84 | 1,574 | 21.00 |
| Consumer staples | 34 | 635 | 8.50 |
| Energy | 22 | 414 | 5.50 |
| Health care | 55 | 1,044 | 13.90 |
| Industrials | 88 | 1,657 | 22.10 |
| Real Estate | 29 | 539 | 7.20 |
| Technology | 58 | 1,076 | 14.40 |
| Telecommunication | 12 | 214 | 2.90 |
| Total | 400 | 7,489 | 100.00 |

5.4. Sample Delimitations

Given that the modified Jones model requires comprehensive accounting-related data to estimate accrual-based earnings management correctly, we experienced some delimitations relating to our data collection process. Our access to more granular board data was limited, which could have enriched our regression models and our related analysis. More precisely, besides being forced to remove a handful of firms for which no board-related data was accessible, we had to retrieve board information from each firm's respective annual 10-K statement, as it was missing from Eikon's database for the period 2000-2003.

Besides the limited data exclusion, the modified Jones model may provide inaccurate or unreliable results because of the potential misspecification inherent in the model. As McNichols (2002) suggests, firms with higher expected earnings growth are more likely to have greater than expected accruals than firms with less than anticipated earnings. Since the modified Jones model uses the current year's sales figures when managing earnings growth, firms with different long-term earnings growth projections are likely to make contrasting working capital investment decisions (McNichols, 2002).

5.5. Statistical Method for Measuring Earnings Management

As discussed in the empirical review, earnings management relates to managers' use of accounting techniques to produce financial statements that excessively exaggerate the firm's financial standing in a favorable and optimistic way. Even though various statistical models exist for estimating earnings management, the modified Jones model is one of the most commonly used methods (Healy & Wahlen, 1999; McNichols, 2002; Bergstresser & Philippon, 2006). In the original and modified Jones models, total accruals serve as the base for measuring discretionary accruals, which are then separated and decomposed into an abnormal (discretionary) and a normal (non-discretionary) component (Dechow et al., 1995). DeAngelo (1986) argues that the discretionary part of total accruals captures a more significant portion of managers' manipulations. Consequently, we use discretionary accruals (DAC) to proxy for management's earnings manipulation in this study.

5.5.1. The Jones Model (1991)

The original Jones model tests whether managers manipulate earnings by shaping accounting numbers to obtain some related benefit. By separating discretionary accruals from total accruals, the model controls the impact of alterations in the firm's economic environment.

Jones (1991) assumes the fluctuations in revenue bring variations in the firm's operating capital, resulting in a change in accruals. Also, the depreciation on fixed assets would decrease the related accruals. Total accruals are measured using the following formula:

$$\frac{TA_{i,t}}{Assets_{i,t-1}} = k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{\Delta REV_{i,t}}{Assets_{i,t-1}} + k_3 \frac{\Delta PPE_{i,t}}{Assets_{i,t-1}} + \varepsilon_{i,t} \quad (8)$$

Where

TA = Total accruals measured as net income less operating cash flow

$Assets_{i,t-1}$ = Lagged total assets at year-end

$\Delta REV_{i,t}$ = Total revenues in year t less total revenues in year $t-1$

$\Delta PPE_{i,t}$ = Total gross property, plant, and equipment in year t less total gross property, plant, and equipment in year $t-1$

k_1, k_2, k_3 = OLS estimates of firm-specific parameters; and

$\varepsilon_{i,t}$ = Error term

The primary limitation of the original Jones model relates to Jones's individual assumption about the revenue aspect of firms. More precisely, she implicitly assumes no exertion of earnings discretion over the firm's revenues in either the event or estimation period (Jones, 1991). For instance, managers may use their discretion to accrue earnings at year-end when customers have not yet settled cash. Given such a scenario, total accruals and revenues increase due to the receivables increase. Nonetheless, the original Jones model orthogonalized total revenues to revenues, thereby extracting this discretionary component of accruals, resulting in biased estimates of earnings management.

5.5.2. The Modified Jones Model (1995)

This study considers the modified version of the Jones model in measuring discretionary accruals. The modification enables discretionary accruals to be estimated without error when management exercises discretion over revenues (Dechow et al., 1995). As a result, the only adjustment relative to the original Jones model is the inclusion of the change in net receivables in the event period. With this logic, managers may exercise their discretion over revenues on credit sales instead of cash sales, thus making it easier to estimate accrual-based earnings (Dechow et al., 1995). Moreover, earnings management will be less biased in

samples where earnings management has occurred through this estimate of revenue recognition. To measure total accruals in this study, we use the following modified Jones model:

$$\frac{TA_{i,t}}{Assets_{i,t-1}} = k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{\Delta REV_{i,t} - \Delta AR_{i,t}}{Assets_{i,t-1}} + k_3 \frac{\Delta PPE_{i,t}}{Assets_{i,t-1}} + \varepsilon_{i,t} \quad (9)$$

Where

$\Delta AR_{i,t}$ = Net receivables in year t less net receivables in year t-1

As highlighted in Equation 9, we calculate discretionary accruals (DAC) by subtracting the predicted level of non-discretionary accruals (NDAP) from total accruals (TA), also known as the residual values. Similar to other prominent studies in the earnings management literature (Warfield, Wild, & Wild, 1995; Klein, 2002; Bergstresser & Philippon, 2006; Marcia, Alan, & Hassan, 2008), we consider the absolute value of discretionary accrual [ABS(DACC)] to estimate the magnitude of earnings management.

5.6. Board Monitoring

Our choice of monitoring variables emanates from prior earnings management and monitoring studies, for which a range of monitoring proxies exist (Becker et al., 1998; Klein, 2002; Xie et al., 2002, Peasnell et al., 2005). We seek to capture the most relevant monitoring aspect relating to earnings management when selecting suitable variables. More specifically, the primary explanatory variable in this study is board monitoring, proxied by board independence as a measure of monitoring efficiency, the audit committee as a measure of monitoring quality, and board meetings as a measure of monitoring activity.

We measure board independence (%) as the proportion of independent directors sitting on the board relative to the size of the board. We collected information used for this variable from Eikon. Any missing data points were manually collected from the corresponding S&P 500-listed firms' 10-K statements. We categorize directors as independent for each firm if the proxy statements display no relationship to the firm other than being part of the board of directors (Xie et al., 2003).

We proxy for monitoring quality using the dummy variable audit committee, indicating whether the firm has an existing audit committee. Most firms disclose this information as part of their proxy statements. Finally, we compute board meetings as the sum of the firm's total annual board meetings, which we then use to measure monitoring activity. We manually collected all missing data points from the corresponding S&P 500-listed firms' 10-K statements. Following Vafeas (1999), we only consider in-person board meetings because board actions emerging from written consent typically involve less director interaction and are likely associated with less effective monitoring.

5.7. CEO Power

5.7.1. Proxies for CEO Power

As discussed in prior studies within the field of corporate governance and earnings management, CEO power may exert a significant impact on accrual-based earnings management. Therefore, we deem it crucial to consider the power of the CEO in our regression models. Furthermore, since it is of interest to examine whether the CEO has a moderating effect on the relationship between board monitoring and accrual-based earnings management, we consequently aim to interact board monitoring with a relevant CEO power proxy to determine the propensity of this interaction. We will investigate the effect of CEO power in this study using the variable CEO duality, following Brickley et al. (1997), Chtourou et al. (2001), and Davidson et al. (2005), among others.

However, it is worth noting that other measures for CEO power exist, such as CEO tenure (Weisbach, 1987; Hermalin & Weisbach, 1998). CEO tenure corresponds to the total number of years the same individual has served as the firm's CEO. Weisbach (1987) proposes that CEOs' likelihood of engaging in self-dealing increases with tenure, indicating that directors may be less willing to monitor the longer they have served on the board. Given this premise, we will perform regressions with CEO tenure instead of CEO duality to alleviate any omitted variable biases and increase the robustness of our findings.

5.7.2. CEO Duality

Predominantly in the United States, one of the most commonly used proxies for CEO power or managerial entrenchment is CEO duality, as emphasized by many corporate governance studies (Brickley et al., 1997; Chtourou et al., 2001; Davidson et al., 2005; Bergstresser &

Philippon, 2006; Cohen et al., (2008). CEO duality is measured using a dummy variable that indicates whether the CEO simultaneously chairs the firm's board. More specifically, we categorize a firm's CEO as holding dual positions when he/she simultaneously possesses the chairman position or vice versa. Data for this variable was primarily collected using Eikon. As for the missing data points, we manually retrieved those entries from each corresponding S&P 500-listed firm's 10-K statement.

5.8. Other Control Variables

In addition to the primary variables highlighted above, our empirical analysis will also comprise other commonly used variables relating to our discretionary accruals estimation. The purpose of including these control variables is to enhance the robustness of our results. We divide our control variables into board and firm controls.

5.8.1. Board Controls

We include board variables, audit committee independence, and board size in our regression models to detect heterogeneity across our firm sample. We measure audit committee independence using the proportion of independent directors sitting on the audit committee relative to its member size. Like board independence, audit committee independence may contribute to enhanced board monitoring (Xie et al., 2003). Board size is a generally used control variable within corporate governance and earnings management studies. We compute Board size using the total number of directors sitting on the firm's board, including employee directors, while simultaneously excluding the CEO if he does not hold a seat on the board (Moursli, 2019).

5.8.2. Firm Controls

As it pertains to firm characteristics, we control for confounding factors, including firm size, leverage, and operating cash flow to total assets (hereafter "OCFTA"). The firm size variable is measured using the natural logarithm of total assets at year-end, whereas the leverage variable is the ratio of long-term debt to total assets. Following Peasnell et al. (2005), we include OCFTA as a control for errors and possible bias in our estimation of discretionary accruals (DAC). In addition, we also add two indicator variable classifications, comprising a two-digit industry variable and a four-digit year variable, to control for industry and year effects. We present a comprehensive variable description overview in Appendix A.

6. Data and Descriptive Statistics

This chapter presents and discusses the descriptive statistics of our variables, followed by a correlation analysis of the data.

6.1. Descriptive Statistics

Table 2 presents summary statistics for the variables used in our study. As Hazarika, Karpoff, and Nahata (2012) propose, accounting variables commonly include outliers, which may influence the results from our regression estimates and their corresponding statistical significance. For this reason, we winsorized the following variables on the 1st and 99th percentile to deal with any potential outliers: ABS(DACC), firm size, leverage, and OCFTA. These adjustments will enhance the accuracy and reliability of our results while also improving the relevance of our inferences.

As shown in Table 2, the dependent variable, ABS(DACC), ranges from a broad span of 0.00% to 0.28% following the winsorization. The average absolute value of discretionary accruals for firms in our sample is 0.05% with a standard deviation and a median of 0.05% and 0.03%, which may be regarded as high when considered a percentage of total assets. Nonetheless, taking the absolute value of discretionary accruals entails shifting the mean of discretionary accruals to the right (Cohen et al., 2008). Moreover, these values align with the values reported by Cohen et al. (2008) and Klein (2002), denoting 0.06% and 0.07%, respectively.

As for the main explanatory variables, board independence, audit committee, and board meetings, 78% of all directors from the firms in our sample are independent. This figure is slightly higher than those presented by Xie et al. (2003) and Brick and Chidabarn (2010),

representing 67% and 70%, respectively. Therefore, we may hypothesize that the number of independent directors for the firms in our sample has increased in recent years. Moreover, 89% of all firms have an established audit committee, which is low considering the SEC's regulation mandating all publicly listed firms in the United States to have an audit committee (SEC, 2007). Nonetheless, this regulatory policy¹ came into effect post-2001, whereas 14% of our sample extends from 2000 to 2002. Finally, the average number of board meetings for our sample firms is 6, of which the sample range between 3 to 18 per year.

Further, 71% of CEOs in our sample simultaneously serve as the chairman of their respective firm's board, underscoring the tendency for US firms to assign CEOs with a dual role. Our findings are slightly lower than what Xie et al. (2003) reported, in which 80% of their sampled firms have CEO duality. The audit committee independence is 82% on average, whereas the average board size consists of 9 directors. From our total number of firm-year observations, the average (median) firm has total assets worth \$24 (\$9.2) billion, while the average leverage ratio is 0.58. Our sampled firms also have an average (median) operating cash flow to total assets (OCFTA) ratio of 0.12 (0.11). Moreover, the industry board independence is 70% on average, whereas 79% of all industries have an audit committee. The average industry board meets six times each year, and CEOs hold their executive position for 6.5 years on average, ranging from one to 30 years.

¹ The Sarbanes-Oxley Act of 2002 in the United States set out to improve the transparency of publicly traded companies. Among other focus areas, it expanded the role of audit committees and emphasized board independence (SEC, n.d.)

Table 2: Summary Statistics

| Variable | N | Mean | SD | Median | Min | Max |
|--------------------------------------|-------|-------|-------|--------|-------|--------|
| ABS(DACC) ¹ | 7,489 | 0.05 | 0.05 | 0.03 | 0.00 | 0.28 |
| Board independence | 7,489 | 77.92 | 21.07 | 75.00 | 13.33 | 93.33 |
| Audit committee ² | 7,489 | 0.89 | 0.46 | 1.00 | 0.00 | 1.00 |
| Board meetings | 7,489 | 6.13 | 3.66 | 6.00 | 3.00 | 18.00 |
| CEO duality ² | 7,489 | 0.71 | 0.45 | 1.00 | 0.00 | 1.00 |
| Audit committee independence | 7,489 | 81.61 | 21.44 | 81.82 | 40.00 | 93.75 |
| Board size | 7,489 | 8.75 | 3.45 | 9.00 | 4.00 | 16.00 |
| Total assets (billions) ¹ | 7,489 | 24.58 | 43.99 | 9.16 | 0.14 | 272.32 |
| Leverage ¹ | 7,489 | 0.58 | 0.22 | 0.57 | 0.10 | 1.30 |
| OCFTA ¹ | 7,489 | 0.12 | 0.08 | 0.11 | -0.11 | 0.35 |
| Industry board independence | 7,489 | 69.92 | 13.45 | 71.33 | 39.03 | 88.46 |
| Industry audit committee | 7,489 | 0.79 | 0.25 | 0.76 | 0.07 | 1.00 |
| Industry board meetings | 7,489 | 6.13 | 1.53 | 6.40 | 2.76 | 11.27 |
| CEO tenure | 7,489 | 6.49 | 5.02 | 7.20 | 1.00 | 29.44 |

Note: Table 2 presents summary statistics for our variables. The variables displayed in the table include: **(a) ABS(DACC)** – Absolute value of discretionary accruals of firm i and year t , estimated as the residual of the modified Jones model **(b) Board independence** – Percentage of independent directors sitting on the board, computed as the number of independent directors scaled by board size **(c) Audit committee** – Dummy variable that is equal to 1 if the firm has an audit committee, 0 otherwise **(d) Board meetings**– Measured as the annual number of board meetings **(e) CEO duality** – Dummy variable that is equal to 1 if the CEO simultaneously chair the board or has been the chairman of the board, alternatively if the chairman also has been the CEO of the firm, 0 otherwise **(f) Audit committee independence** – Percentage of non-executive independent board members sitting on the audit committee **(g) Board size** – Total number of directors sitting on the board **(h) Total assets (billions)** – Book value of total assets at year end in billion USD **(i) Leverage** – Defined as the ratio of long-term debt to total assets **(j) OCFTA** – Operating cash flow to total assets at the beginning of the year **(k) Industry board independence** – the mean of the proportion of independent directors relative to board size in other firms within the same industry in the same year **(l) Industry audit committee** –the mean number of audit committees in different firms within the same industry in the same year **(m) Industry board meetings** –the mean number of board meetings in other firms within the same industry in the same year **(n) CEO tenure** – Number of years the CEO has held the same position. The sample period is from 2000-to 2021.

¹ Winsorized on the 1st and 99th percentile

² Dummy variable

6.2. Correlation Analysis

A correlation table provides a valuable way to identify unexpected signs or magnitudes (Woolridge, 2016). Consequently, Table 3 illustrates Pearson's correlation matrix of variables used in this study. As demonstrated in the table, all variables are significantly correlated with the dependent variable, the absolute value of discretionary accruals (hereafter "Earnings Management"). Also, the anticipated economic impact of board monitoring – proxied by board independence, audit committee, and board meetings – may be observed from the negative correlation between the associated variables and earnings management. Likewise, industry monitoring – proxied by industry board independence, industry audit committee, and industry board meetings – negatively correlates with earnings management. Based on the results for audit committee independence, the board size, firm size, and leverage, we can draw a similar conclusion. As anticipated, board monitoring and industry monitoring significantly correlate with one another, warranting our use of them as instrumental variables. Also, from Table 3, the only variable showing a positive correlation with earnings management is OCFTA.

Unexpectedly, CEO duality and CEO tenure negatively correlate with earnings management. The reason may relate to high collinearity between the outlined variables and board monitoring proxies, displaying correlations above 70. The issue with high correlation relates to multicollinearity, underscoring the possibility of less reliable statistical inferences. However, considering all variables that show high correlation are board-related variables, we expect them to be related. For instance, when a firm demonstrates high board independence, we anticipate similar results from its audit committee. Moreover, the statistical software Stata used to run our regressions automatically drops variables comprising high collinearity, meaning high correlations will not significantly affect our results. For this reason, we perceive all variables included in our regressions to be relevant and value-adding to our models.

Table 3: Pearson's Correlation Matrix

| Variables | (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) | (j) | (k) | (l) | (m) | (n) |
|----------------------------------|-----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------|
| (a) ABS(DACC) ¹ | 1.000 | | | | | | | | | | | | | |
| (b) Board independence | -0.114*** | 1.000 | | | | | | | | | | | | |
| (c) Audit committee ² | -0.097*** | 0.817*** | 1.000 | | | | | | | | | | | |
| (d) Board meetings | -0.041*** | 0.596*** | 0.655*** | 1.000 | | | | | | | | | | |
| (e) CEO duality ² | -0.074*** | 0.788*** | 0.883*** | 0.656*** | 1.000 | | | | | | | | | |
| (f) Audit committee independence | -0.105*** | 0.859*** | 0.864*** | 0.645*** | 0.554*** | 1.000 | | | | | | | | |
| (g) Board size | -0.147*** | 0.721*** | 0.788*** | 0.612*** | 0.445*** | 0.454*** | 1.000 | | | | | | | |
| (h) Firm size ¹ | -0.157*** | 0.473*** | 0.483*** | 0.445*** | 0.373*** | 0.370*** | 0.379*** | 1.000 | | | | | | |
| (i) Leverage ¹ | -0.065*** | 0.105*** | 0.062*** | 0.082*** | 0.137*** | 0.155*** | 0.117*** | 0.058*** | 1.000 | | | | | |
| (j) OCFTA ¹ | 0.054*** | 0.054*** | 0.087*** | -0.036*** | 0.017 | 0.030*** | 0.021* | 0.087*** | 0.115*** | 1.000 | | | | |
| (k) Industry board independence | -0.096*** | 0.638*** | 0.516*** | 0.379*** | 0.479*** | 0.554*** | 0.445*** | 0.373*** | 0.137*** | 0.017 | 1.000 | | | |
| (l) Industry audit committee | -0.083*** | 0.616*** | 0.535*** | 0.380*** | 0.493*** | 0.555*** | 0.454*** | 0.370*** | 0.155*** | 0.030*** | 0.964** | 1.000 | | |
| (m) Industry board meetings | -0.050*** | 0.578*** | 0.486*** | 0.419*** | 0.458*** | 0.518*** | 0.428*** | 0.379*** | 0.117*** | 0.021* | 0.906*** | 0.908*** | 1.000 | |
| (n) CEO tenure | -0.093*** | 0.626*** | 0.722*** | 0.498*** | 0.754*** | 0.700*** | 0.659*** | 0.324*** | -0.008 | 0.115*** | 0.431*** | 0.445*** | 0.407*** | 1.000 |

Note: Pearson's correlation matrix. The variables presented in the table include **(a) ABS(DACC)** – Absolute value of discretionary accruals of firm i and year t , estimated as the residual of the modified Jones model **(b) Board independence** – Percentage of independent directors sitting on the board, computed as the number of independent directors scaled by board size **(c) Audit committee** – Dummy variable that is equal to 1 if the firm has an audit committee, 0 otherwise **(d) Board meetings**– Measured as the annual number of board meetings **(e) CEO duality** – Dummy variable that is equal to 1 if the CEO simultaneously chair the board or has been the chairman of the board, alternatively if the chairman also has been the CEO of the firm, 0 otherwise **(f) Audit committee independence** – Percentage of non-executive independent board members sitting on the audit committee **(g) Board size** – Total number of directors sitting on the board **(h) Firm size** – Defined as natural logarithm of total assets at year-end **(i) Leverage** – Defined as the ratio of long-term debt to total assets **(j) OCFTA** – Operating cash flow to total assets at the beginning of the year **(k) Industry board independence** – the mean of the proportion of independent directors relative to board size in other firms within the same industry in the same year **(l) Industry audit committee** – the mean number of audit committees in other firms within the same industry in the same year **(m) Industry board meetings** – the mean number of board meetings in other firms within the same industry in the same year **(n) CEO tenure** – Number of years the CEO has held the same position. The sample period is from 2000-to 2021. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

¹ Winsorized on the 1st and 99th percentile

² Dummy variable

7. Results and Analysis

This chapter seeks to present our empirical findings, followed by an analysis of the results. We begin by considering the board monitoring's impact on earnings management, followed by an analysis of the CEO power's moderating role in the relationship between board monitoring and earnings management. Lastly, we perform a robustness check using an alternative proxy for CEO power.

7.1. The Impact of Board Monitoring on Earnings Management

7.1.1. Base Models and Diagnostic Tests

Table 4 presents results from Equations (1) and (2), where the dependent variable measures the magnitude of earnings management. The primary explanatory variable, board monitoring, is proxied by board independence, audit committee, and board meetings. We report results for board independence in columns (1) and (2) using pooled-OLS and fixed-effect models, respectively. We observe that the results in both columns are statistically significant at the five-percent level and that a 1% increase in board independence lower, *ceteris paribus*, the magnitude of earnings management by 0.00012%-0.00015%. Comparing these results to the sample mean of 0.05%, we recognize that board independence's impact on earnings management is relatively small.

Further, we report results for the audit committee in columns (3) and (4) using pooled-OLS and fixed-effect models, respectively. Even though the coefficients associated with the audit committee in both models display a negative relationship with earnings management, they show no statistical significance. As for the final proxy of board monitoring, results for board meetings are presented in columns (5) and (6) using pooled-OLS and fixed-effect models. We also observe that board meetings are statistically significant at both models' five-percent level. More precisely, the results indicate that for each additional board meeting the firm adds, the magnitude of earnings management is reduced, *ceteris paribus*, by 0.0004%-0.0005%. This result is slightly higher than that reported by board independence; however, it is still deemed small compared with the mean of 0.05%.

Lastly, we report results for all three proxies of board monitoring simultaneously in columns (7) and (8). As observed, board independence and board meetings dropped to the

ten-percent significance level, which we anticipated given we combined all three variables. Nonetheless, the sign and magnitude of their impact remain relatively stable. Moreover, the audit committee gains a weak statistical significance at the ten-percent level in column (8), while having an audit committee lowers the magnitude of earnings management, *ceteris paribus*, by 0.0006% using fixed effects. Despite its weak statistical significance, we identify the audit committee to have the most impact on earnings management in contrast to board independence and board meetings. Also, combining the effects of all board monitoring proxies on earnings management, we derive an estimated impact of 0.01% (0.0013%+0.062%+0.00047%), underscoring the significant impact of the three combined monitoring instruments on earnings management.

Examining CEO power, as proxied by CEO duality, we detect an unexpected negative relationship with earnings management, even if no statistical significance exists in any of the columns. In terms of other board controls used in this study, all variables are generally statistically significant with the anticipated economic impact. Compared to all board-specific control variables, most firm-related variables except firm size display no significant effect on earnings management.

As for our pooled-OLS regression models outlined in columns (1), (3), (5), and (7), we conduct the White test to detect any linear forms of heteroskedasticity (Table 11). We reject the null hypothesis of constant variance based on the *chi2* statistics (and the *p*-values reported) in Table 11. For this reason, we use the cluster robust standard errors in all our pooled-OLS regression models.

Moreover, our decision to run a Hausman test allows us to select between the fixed- and random-effect models depending on their associated estimates. We display the results for our random-effect regressions in the appendix (Table 9). Similar to what we mentioned before, we may reject the null hypothesis that the random-effect model is the preferred choice and instead select the fixed-effect model based on our *chi2* statistics and the related *p*-values (Table 12). Nonetheless, we deem it necessary to mention that results from our random-effect models provide results of similar magnitude, sign, and significance to that of our fixed-effect models, making us indifferent in our selection.

Table 4: Regression Results for Equations (1) and (2)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|------------------------------|--------------------------|-------------------------|--------------------------|------------------------|--------------------------|-------------------------|--------------------------|------------------------|
| | POLS | Fixed-Effects | POLS | Fixed-Effects | POLS | Fixed-Effects | POLS | Fixed-Effects |
| Dependent variable: | ABS(DACC) | | | | | | | |
| Board independence | -0.00012** (0.00006) | -0.00015** (0.00006) | | | | | -0.00013* (0.00007) | -0.00013* (0.00007) |
| Audit committee | | | -0.00141 (0.00396) | -0.00635 (0.00359) | | | -0.00142 (0.00418) | -0.00620* (0.00370) |
| Board meetings | | | | | -0.00050** (0.00025) | -0.00035** (0.00025) | -0.00055** (0.00025) | -0.00047* (0.00025) |
| CEO duality | -0.00247 (0.00188) | -0.00200 (0.00207) | -0.00246 (0.00193) | -0.00138 (0.00214) | -0.00270 (0.00188) | -0.00235 (0.00207) | -0.00244 (0.00193) | -0.00160 (0.00214) |
| Audit committee independence | -0.00096** (0.00043) | -0.00058 (0.00038) | -0.00098** (0.00043) | -0.00042 (0.00038) | -0.00112*** (0.00043) | -0.00077** (0.00038) | -0.00103** (0.00043) | -0.00045 (0.00038) |
| Board size | -0.00349*** (0.00103) | -0.00410* (0.00248) | -0.00353*** (0.00102) | -0.00383 (0.00246) | -0.00368*** (0.00103) | -0.00433* (0.00247) | -0.00364*** (0.00103) | -0.00396 (0.00247) |
| Firm size | 0.00272 (0.00543) | 0.01898** (0.00779) | 0.00258 (0.00546) | 0.01905** (0.00778) | 0.00272 (0.00544) | 0.01887** (0.00778) | 0.00265 (0.00545) | 0.01874** (0.00778) |
| Leverage | 0.00410 (0.01919) | 0.02039 (0.02202) | 0.00361 (0.01946) | 0.02198 (0.02219) | 0.00452 (0.01921) | 0.01987 (0.02199) | 0.00588 (0.01954) | 0.02304 (0.02210) |
| OCFTA | 0.00015* (0.00008) | 0.00015** (0.00007) | 0.00009 (0.00008) | 0.00013* (0.00007) | 0.00004 (0.00007) | 0.00005 (0.00006) | 0.00013 (0.00008) | 0.00017** (0.00008) |
| Constant | 0.08637*** (0.01337) | 0.06991*** (0.02540) | 0.09577*** (0.01174) | 0.05975** (0.02534) | 0.09738*** (0.01165) | 0.06765*** (0.02537) | 0.08601*** (0.01349) | 0.06474** (0.02524) |
| Industry effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 7,489 | 7,489 | 7,489 | 7,489 | 7,489 | 7,489 | 7,489 | 7,489 |
| R-squared | 0.08790 | 0.08790 | 0.08731 | 0.08731 | 0.08809 | 0.08809 | 0.08885 | 0.08885 |
| Number of Firms | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 |

Note: This table reports estimation results for Equations (1) and (2). The objective is to measure the impact of board monitoring on accrual-based earnings management. The dependent variable is the absolute value of discretionary accruals, estimated as the residual of the modified Jones model. The primary explanatory variable is board monitoring, proxied by board independence, audit committee, and board meetings. Board independence is estimated as the number of independent directors scaled by board size. The audit committee is a dummy variable equal to 1 if the firm has an audit committee and 0 otherwise. Board meetings are measured as the annual number of board meetings. All other variables are defined in Appendix A. Results for regression models using board independence are reported in columns (1) and (2), audit committee in columns (3) and (4), board meetings in columns (5) and (6), and all three variables simultaneously in columns (7) and (8). The models are estimated using pooled-OLS and fixed-effects, respectively.

*Cluster-robust standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01*

7.1.2. Instrumental Variable Analysis and Diagnostic Tests

Table 5 reports two-stage least squares with fixed-effects estimates from Equation (5), where the dependent variable measures the magnitude of earnings management. We also present estimates of α_1 from the first stage (Equation 4) and the F test for the excluded instruments. More precisely, the F-statistic of the excluded instruments is 305.61, 273.86, and 55.77, which indicates that our instrumental variables, industry board independence, industry audit committee, and industry board meetings, are strong based on Woolridge's rule of thumb of $F > 10$ (Woolridge, 2016). α_1 from the first stage is statistically significant and correctly signed in all specifications, suggesting that our instrumental variable accurately predicts our explanatory variables.

Furthermore, we report results for *Board independence*, *Audit committee*, and *Board meetings* in columns (1)-(3), respectively. In column (1), we witness an increase in the impact of board independence on earnings management by 0.00034% (0.00049% - 0.00015%) compared to previous models, significant at the five-percent level. We find a similar result in column (2), where the impact of the audit committee on earnings management increased by 0.00067%, statistically significant at the five-percent level. In other words, using an instrumental variable approach enhances the impact of board independence and the audit committee on earnings management. Even if column (3) displays similar increasing effects, the coefficient associated with board meetings no longer displays statistical significance.

In the last column (4), we report results for *Board independence*, *Audit committee*, and *Board meetings* simultaneously. As observed from the table, board independence dropped to the ten-percent significance level. Although the magnitude of the impact decreased by a slight 0.000013%, it is still higher than the figure presented in previous models (Table 4). In contrast, the effect of the audit committee significantly increased to 0.065%, above the mean of 0.05%. As for board meetings, it continues to have a negative relationship with earnings management while displaying no statistical significance.

From previously displaying a negative correlation with earnings management in all models (Table 4), CEO duality now shows a positive correlation using the two-stage least square regression (Table 5). As suggested by Woolridge (2016), the most probable reason for this is the effect of multicollinearity. The correlation matrix in Table 3 shows that CEO duality

highly correlates with board monitoring-related proxies. However, including industry board monitoring proxies reduces the CEO duality's associated correlation, which, in turn, mitigates problems related to multicollinearity. Nonetheless, even if the industry board monitoring proxies reduce CEO duality's correlation, it is still not statistically significant.

As for our board controls, audit committee independence no longer displays statistical significance, whereas board size shows higher statistical significance than before (Table 5). Finally, the statistical significance increased overall for our firm-specific controls, of which leverage and OCFTA gained the most statistical improvements.

Table 5: Regression Results for Equations (4) and (5)

| | (1) | (2) | (3) | (4) |
|--------------------------------------|-------------------------|--------------------------|-------------------------|-------------------------|
| | 2SLS Fixed-Effects | 2SLS Fixed-Effects | 2SLS Fixed-Effects | 2SLS Fixed-Effects |
| Dependent variable: ABS(DACC) | | | | |
| (a) Second stage | | | | |
| $\widehat{Board\ independence}$ | -0.00049** (0.00024) | | | -0.00036* (0.00026) |
| $\widehat{Audit\ committee}$ | | -0.00689** (0.00361) | | -0.06400** (0.02596) |
| $\widehat{Board\ meetings}$ | | | -0.00716 (0.00507) | -0.00058 (0.00132) |
| CEO duality | 0.00160 (0.00212) | 0.00087 (0.00216) | 0.00298 (0.00413) | 0.00559 (0.00432) |
| Audit committee independence | -0.00030 (0.00042) | -0.00038 (0.00039) | -0.00101 (0.00126) | -0.00212 (0.00132) |
| Board size | -0.00407* (0.00235) | -0.00588*** (0.00171) | -0.00408 (0.00284) | -0.00170 (0.00311) |
| Firm size | 0.02144*** (0.00738) | 0.01863** (0.00747) | 0.02067*** (0.00792) | 0.01998*** (0.00762) |
| Leverage | 0.02146* (0.01217) | 0.02137* (0.01241) | 0.04171 (0.01184) | 0.06273** (0.01335) |
| OCFTA | 0.00033** (0.00016) | 0.00009 (0.00007) | 0.00041 (0.00028) | 0.00087** (0.00037) |
| Constant | 0.04120* (0.02116) | 0.03928* (0.02164) | 0.03300* (0.02412) | 0.05863*** (0.02108) |
| Year effects | Yes | Yes | Yes | Yes |
| Observations | 7,489 | 7,489 | 7,489 | 7,489 |
| R-squared | 0.08790 | 0.08731 | 0.08809 | 0.08885 |
| (b) First stage | | | | |
| Excluded instrument F-stat | 305.61 | 273.86 | 55.77 | - |
| α_1 first stage | 0.52347*** (0.09004) | 0.46616*** (0.08242) | 0.71562*** (0.09116) | - - |
| Number of Firms | 400 | 400 | 400 | 400 |

Note: This table reports estimation results for the instrumental variable approach for Equation (4)₁. The objective is to measure the impact of board monitoring on accrual-based earnings management. The dependent variable is the absolute value of discretionary accruals, estimated as the residual of the modified Jones model. The primary explanatory variable is board monitoring, proxied by board independence, audit committee, and board meetings. Board independence is estimated as the number of independent directors scaled by board size. The audit committee is a dummy variable equal to 1 if the firm has an audit committee and 0 otherwise. Board meetings are measured as the annual number of board meetings. All other variables are defined in Appendix A. Results for regression models using board independence are reported in column (1), audit committee in column (2), board meetings in column (3), and all three variables simultaneously in column (4). The instrumental variables used are industry board independence, industry audit committee, and industry board meetings. The models are estimated using two-stage least squares with fixed-effect. First-stage estimates and F-tests are reported for the excluded instruments.

Cluster-robust standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

7.1.3. Analysis of Results

As the results in column (4) of Table 5 indicate, the magnitude of earnings management is reduced predominantly by the audit committee, followed by board independence. These observations allow us to successfully reject the null hypothesis that board monitoring does not reduce accrual-based earnings management. In other words, firms with an audit committee reduce their absolute value of discretionary accruals by 0.06% on average compared to firms that have no established audit committee. Nonetheless, we do not find board meetings to be an appropriate proxy for board monitoring.

Our results are consistent with recommendations and regulations in the United States dating back to 1998. In September 1998, the SEC, the New York Stock Exchange, and the National Association of Security Dealers summoned a Blue Ribbon Panel. Recommendations in the report focused on the audit committee's role in providing monitoring assistance in an effort to enhance the overall monitoring effectiveness of the firm (Xie et al., 2003). Further, it highlighted the importance of independent directors serving on committees and the board and their roles in actively mitigating earnings management (SEC Press Release, 1998). Later on, corporate scandals in the early 2000s propelled the passage of the Sarbanes Oxley Act, which among other things, also focused on board independence. More recently, the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 further emphasized the inclusion of independent directors in the governance process (SEC, n.d.). Consequently, the common thread running through our results and SEC's regulations is the increased monitoring focus by independent directors and board committees.

As for prior studies, the notion that the audit committee provides an essential audit, financial reporting, and oversight function necessary for the board to govern and monitor managers effectively (Bédard et al., 2004), lines up with our results. Nevertheless, findings by Peasnell et al. (2005) that show the very presence or absence of an audit committee has no perceptible effect on earnings management contradict our results. Ultimately, our findings oppose studies that find no significant association between the presence of an audit committee and the firm's level of earnings management (Klein, 2002; Yang & Krishnan, 2005).

Furthermore, our results partially match findings from previous studies, which assert that board independence lowers the magnitude of earnings management (Klein, 2002; Dechow et

al., 2003; Xie et al., 2003; Peasnell et al., 2005). Our results also align with the proposition that independent directors are better at exerting monitoring efforts due to their higher incentive for prioritizing strengthened monitoring and shareholder value maximization (Fama & Jensen, 1983). Nevertheless, the idea that the push for increased director independence has led to directors serving on multiple boards, thus causing worsened monitoring quality and conflicts between the board's monitoring and counseling responsibilities (Faleye et al., 2011), opposes our findings.

Moreover, we have not identified any regulatory framework specifically targeting or focusing on the minimum number of annual meetings an audit committee or corporate board is obliged to have in the United States. One potential reason for this could be that board meetings, as opposed to director attendance, may not be utilized to measure the board's effectiveness. Another theory behind the impact of board meetings on earnings management may be that the improved relationship-building emerging from multiple board meetings deters directors from exerting monitoring and supervisory efforts (Weisbach, 1988). Nonetheless, aside from the lack of significance in our results, similar findings from other studies suggest that more relevant factors than board meetings may predominantly affect the effectiveness of the board (Bédard et al., 2004; Davidson et al., 2005). Like Bédard et al. (2004), our findings demonstrate that board meetings lower earnings management with no statistical significance, thus highlighting the unsuitability of using board meetings as a proxy.

7.2. The Moderating Role of the CEO

7.2.1. Base Models and Diagnostic Tests

Table 6 presents Equation (3) results, where the regression models are estimated using fixed effects. We display regression results using random effects in the appendix (Table 10). Given the *p*-value presented in the appendix (Table 12), we may reject the null hypothesis that the random-effect model is the preferred choice and select the fixed-effect model.

The objective is to measure the impact of CEO power, proxied by CEO duality, on the relationship between board monitoring and earnings management. In column (1), we report results for board independence, where we find it to remain statistically significant at the five-percent level. However, its impact on earnings management is hampered by CEO duality. In other words, firms with a dual structure witness a 0.00016% (0.00025% -

0.00009%) reduction in earnings management from board independence on average, as opposed to firms that do not have a dual structure (0.00025%).

Moreover, we report results for the audit committee in column (2), where the coefficient associated with the audit committee shows no statistical significance. As for the last proxy of board monitoring, results for board meetings are present in column (3), where we continue to see statistical significance at the five-percent level. Similar to board independence, the results indicate that a dual structure diminishes board meetings' impact on earnings management. More specifically, we can see that earnings management increases by 0.00078% on average from an additional board meeting for firms with a dual-based structure. In contrast, firms that do not have a dual structure witness a 0.00034% reduction in earnings management from an added board meeting. Consequently, a dual-based structure decreases the impact of monitoring activity on earnings management from a positive impact to a negative effect.

Finally, we report results for all three proxies of board monitoring simultaneously in column (4). As observed, board independence increased in statistical significance to the one-percent level, while board meetings remained at the five-percent level. However, the signs and magnitude remain relatively constant. Also, CEO duality's impact on board independence and board meetings is stable compared to previous models, underscoring the notion that CEO duality plays a monitoring role in the relationship between board monitoring and earnings management.

As for our measure of CEO power, CEO duality displays a negative relationship with earnings management at the ten-percent significance level. As discussed in previous sections, we deem this sign an outcome of our sample's multicollinearity. As for the other two board controls used in this study, both variables exhibit a statistical significance with earnings management and depict their anticipated economic impact. Likewise, most firm control variables except OCFTA significantly affect earnings management.

Table 6: Regression Results for Equation (3)

| | (1) | (2) | (3) | (4) |
|----------------------------------|--------------------------|-------------------------|--------------------------|--------------------------|
| | Fixed-Effects | Fixed-Effects | Fixed-Effects | Fixed-Effects |
| Dependent variable: | ABS(DACC) | | | |
| Board independence | -0.00025*** (0.00009) | | | -0.00025*** (0.00008) |
| Audit committee | | -0.00419 (0.00466) | | -0.00344 (0.00509) |
| Board meetings | | | -0.00034** (0.00039) | -0.00032** (0.00042) |
| Board independence × CEO duality | 0.00009* (0.00005) | | | 0.00012** (0.00005) |
| Audit committee × CEO duality | | -0.00462 (0.00729) | | -0.00510 (0.00753) |
| Board meetings × CEO duality | | | 0.00112** (0.00044) | 0.00115** (0.00045) |
| CEO duality | -0.00260* (0.00208) | -0.00271* (0.00721) | -0.01057*** (0.00376) | -0.00632* (0.00712) |
| Audit committee independence | -0.00013* (0.00007) | -0.00011 (0.00008) | -0.00009 (0.00007) | -0.00017** (0.00007) |
| Board size | -0.00079** (0.00040) | -0.00053** (0.00044) | -0.00058** (0.00039) | -0.00064** (0.00045) |
| Firm size | -0.00424* (0.00247) | -0.00389 (0.00244) | -0.00411* (0.00246) | -0.00397 (0.00245) |
| Leverage | 0.01872** (0.00776) | 0.01897** (0.00779) | 0.01882** (0.00777) | 0.01831** (0.00774) |
| OCFTA | 0.01864 (0.02222) | 0.02134 (0.02228) | 0.02135 (0.02198) | 0.02135 (0.02224) |
| Constant | 0.07725*** (0.02507) | 0.06149** (0.02492) | 0.06480** (0.02528) | 0.07319*** (0.02488) |
| Year effects | Yes | Yes | Yes | Yes |
| Observations | 7,489 | 7,489 | 7,489 | 7,489 |
| R-squared | 0.03283 | 0.03232 | 0.03301 | 0.03525 |
| Number of Firms | 400 | 400 | 400 | 400 |

Note: This table reports estimation results for Equation (3). The objective is to measure the moderating effect of CEO power on the relationship between board monitoring and accrual-based earnings management. The dependent variable is the absolute value of discretionary accruals, estimated as the residual of the modified Jones model. The primary explanatory variable is board monitoring, proxied by board independence, audit committee, and board meetings. Board independence is estimated as the number of independent directors scaled by board size. The audit committee is a dummy variable equal to 1 if the firm has an audit committee and 0 otherwise. Board meetings are measured as the annual number of board meetings. All other variables are defined in Appendix A. Results for regression models using board independence are reported in column (1), audit committee in column (2), board meetings in column (3), and all variables simultaneously in column (4). The models are estimated using fixed-effects.

Cluster-robust standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

7.2.2. Instrumental Variable Analysis and Diagnostic Tests

Table 7 reports two-stage least squares with fixed-effects estimates from Equation (7), where the dependent variable measures the magnitude of earnings management. We also present estimates of α_1 from the first stage (Equation 6) and the F test for the excluded instruments. Similar to previous findings, our F-statistics indicate that our instrumental variables are strong. Also, α_1 from the first stage is statistically significant and correctly signed in all specifications, suggesting that our instrumental variable accurately predicts our explanatory variables.

We report results for *Board independence* in column (1), where we observe that board independence remains statistically significant at the five-percent level. However, we identify that the partial impact of CEO duality on board independence and earnings management has increased to 0.00045%. On a similar note, we observe results for *Audit committee* in column (2), where the coefficient associated with the audit committee turned statistically at the five-percent level. More specifically, firms with a dual structure experience, *ceteris paribus*, reduced earnings management by 0.01471% from having an audit committee. The results are lower than estimates in Table 5, underscoring CEO duality's impact.

Furthermore, we report estimates for *Board independence*, *Audit committee*, and *Board meetings* simultaneously in column (4). As seen in the table, board independence and the audit committee maintain a five-percent level of significance, for which the magnitude and sign are also stable. Similar to previous findings in Table 5, we observe the audit committee to have the most significant influence on earnings management; however, the impact diminishes due to CEO duality. As for board meetings, it continues to have a negative relationship with earnings management while displaying no statistical significance.

Comparable with Table 5, CEO duality now shows a positive correlation using the two-stage least squares regression. The results are also statistically significant, indicating that CEO duality increases the magnitude of earnings management. As for our board controls, audit committee independence and board size display statistical significance only in column (1). Finally, the statistical significance increased overall for our firm-specific controls, of which leverage and OCFTA gained the most statistical improvements.

Table 7: Regression Results for Equations (6) and (7)

| | (1) | (2) | (3) | (4) |
|---|-------------------------|-------------------------|-------------------------|-------------------------|
| | 2SLS Fixed-Effects | 2SLS Fixed-Effects | 2SLS Fixed-Effects | 2SLS Fixed-Effects |
| Dependent variable: | ABS(DACC) | | | |
| (a) Second-stage | | | | |
| $\widehat{Board\ independence}$ | -0.00075** (0.00038) | | | -0.00035** (0.00042) |
| $\widehat{Audit\ committee}$ | | -0.03294** (0.02404) | | -0.05130** (0.03067) |
| $\widehat{Board\ meetings}$ | | | -0.00226 (0.00293) | -0.00088 (0.00219) |
| $\widehat{Board\ independence} \times CEO\ duality$ | 0.00030* (0.00017) | | | 0.00031** (0.00023) |
| $\widehat{Audit\ committee} \times CEO\ duality$ | | 0.01822*** (0.00647) | | 0.01848** (0.01604) |
| $\widehat{Board\ meetings} \times CEO\ duality$ | | | 0.00158* (0.00090) | 0.00035 (0.00263) |
| CEO duality | 0.00368* (0.00230) | 0.01566** (0.00708) | 0.00993* (0.00698) | 0.01745* (0.01051) |
| Audit committee independence | -0.00022** (0.00011) | -0.00038 (0.00026) | -0.00016 (0.00017) | -0.00052 (0.00037) |
| Board size | -0.00102** (0.00047) | -0.00049 (0.00101) | -0.00025 (0.00076) | -0.00026 (0.00079) |
| Firm size | -0.00451** (0.00218) | -0.00279 (0.00269) | -0.00463* (0.00240) | -0.00321 (0.00269) |
| Leverage | 0.02061*** (0.00730) | 0.02212*** (0.00726) | 0.02097*** (0.00740) | 0.01902** (0.00758) |
| OCFTA | 0.03632* (0.02197) | 0.04693** (0.02200) | 0.03586 (0.02228) | 0.04736** (0.02127) |
| Constant | 0.10030*** (0.01386) | 0.04339 (0.03286) | 0.07681*** (0.02050) | 0.05629*** (0.02174) |
| Year effects | Yes | Yes | Yes | Yes |
| Observations | 7,489 | 7,489 | 7,489 | 7,489 |
| R-squared | 0.08890 | 0.08500 | 0.08810 | 0.08885 |
| (b) First-stage | | | | |
| Excluded instrument F-stat | 354.96 | 274.60 | 56.56 | - |
| α_1 first stage | 0.35755*** (0.09054) | 0.52922*** (0.08368) | 0.52922*** (0.08368) | - - |
| Number of Firms | 400 | 400 | 400 | 400 |

Note: This table reports estimation results for the instrumental variable approach for Equation (7). The objective is to measure the moderating effect of CEO power on the relationship between board monitoring and accrual-based earnings management. The dependent variable is the absolute value of discretionary accruals, estimated as the residual of the modified Jones model. The primary explanatory variable is board monitoring, proxied by board independence, audit committee, and board meetings. Board independence is estimated as the number of independent directors scaled by board size. The audit committee is a dummy variable equal to 1 if the firm has an audit committee and 0 otherwise. Board meetings are measured as the annual number of board meetings. All other variables are defined in Appendix A. Results for regression models using board independence are reported in column (1), audit committee in column (2), board meetings in column (3), and all variables simultaneously in column (4). The instrumental variables used are industry board independence, industry audit committee, and industry board meetings. The models are estimated using two-stage least squares with fixed-effect. First-stage estimates and F-tests are reported for the excluded instruments. *Cluster-robust standard errors in parentheses* * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

7.2.3. Analysis of Results

Results in column (4) of Table 7 indicate that CEO power, proxied by CEO duality, has a moderating effect on the relationship between board monitoring and earnings management. These observations allow us to successfully reject the null hypothesis that CEO power does not have a moderating role in the relation between board monitoring and earnings management. In other words, firms that operate with a dual CEO structure witness less efficient and lower quality board monitoring. These results explain the latest corporate reforms in the United States, such as The Dodd-Frank Wall Street Reform and Consumer Protection Act, signed into law in 2010. Among other regulations, publicly traded US companies must disclose information regarding their chairman-CEO structure (SEC, n.d). As a result of this reform, investors became more aware of governance issues related to the power of the CEO.

A report by Sun (2019) in the Wall Street Journal revealed that a wave of corporate changes regarding the structure of chairman-CEO had taken place post the reform. He sets out Tesla Inc. as one of the examples, where its CEO, Elon Musk, relinquished his chairmanship in 2018 in response to a lawsuit with the SEC claiming that he was spreading falsified statements on social media. Another example was Renault SA, whose CEO, holding both positions, was arrested after serious allegations of financial fraud in 2018. As a result, the company decided to break its dual chairman-CEO structure post the scandal. Hence, he concludes that the United States is experiencing a rising trend of separating the CEO and chairman roles, bringing US companies closer to their European counterparts.

From the few, though notable examples provided, we observe some of the issues relating to increased CEO power and how it can impact the board's monitoring effectiveness, thereby giving way for earnings management. However, these ideas do not appear as a surprise. Dating back to the 1990s, renowned scholars emphasized the importance of considering the power dynamic between executives and the board of directors and the board's associated effectiveness (Finkelstein & D'Aveni, 1994; Chtourou et al., 2001; Ryan & Wiggins, 2004; Davidson et al., 2005). Like Hermalin and Weisbach (1998) suggest, an underlying reason behind the power conflicts may relate to the CEO's ability to exert power to affect dialogue, mediation, and outcome, between the CEO and board of directors, highlighting the board's mediating and moderating role. However, the notion that directors may control the CEO's

actions through measures, including the choice of accounting policies or executive compensation (Weisbach, 1987), is counter-intuitive to our findings. More precisely, such a proposition would indicate that the board could oversee managerial decisions and potentially limit the CEO's earnings discretion, thus contradicting what we and other papers find.

7.3. Robustness Test: CEO Tenure

Our discussion in section 5.7.1 revealed the existence of other relevant proxies for CEO power, prompting us to introduce CEO tenure instead of CEO duality to evaluate the robustness of our findings. Consequently, Table 8 presents our robustness models. We only include regressions combining all three board monitoring proxies since we used them as a base in our analysis.

To examine the robustness of findings related to hypothesis 1, columns (1) and (2) provide results using fixed-effects and two-stage least squares with fixed effects. In both columns, we can observe that board independence remains statistically significant at the ten- and five-percent levels, respectively. Board independence lowers earnings management with a similar magnitude and sign as previous models (Tables 3 and 4), whereas column (2) provides slightly pronounced effects. The coefficient associated with the audit committee is statistically significant at the five-percent level in column (2), consistent with results in Table 5. However, the audit's committee impact on the magnitude of earnings management increased to 0.07%, which is slightly higher than our previous results (0.06%) and the mean of our sample (0.05%). As for board meetings, it is only statistically significant in column (1), for which the magnitude and sign are on a relatively stable level.

As for hypothesis 2, columns (3) and (4) display regression estimates using fixed-effects and two-stage least squares with fixed effects, respectively. We can observe that board independence remains statistically significant at the one- and five-percent levels in columns (3) and (4), respectively. Consistent with the results in Table 5, we see that the longer the CEO has served on the board, the lower its monitoring efficiency. We can draw a similar conclusion in column (4) for the audit committee. Consequently, the quality of monitoring provided by the committee declines the more extended the CEO's tenure is. Our final proxy for board monitoring, board meetings, also shows a similar result in column (3). The latter indicates that monitoring activity diminishes the more prolonged the CEO has served on the

board. The magnitude of the impacts is relatively consistent with the results in Table 5, warranting our use of CEO tenure as an alternative proxy for CEO duality.

Comparable with CEO duality, CEO tenure displays a negative relationship with earnings management using fixed effects and a positive relationship with earnings management using two-stage least squares with fixed effects. However, in contrast to CEO duality, CEO tenure exhibits no statistical significance in any of the models presented in Table 8. Nonetheless, the overarching findings from the models align with our previous results, which, in turn, lead us to conclude that the robustness check enhanced the reliability of our findings.

Table 8: Regression Results for Robustness Models

| | (1) | (2) | (3) | (4) |
|---------------------------------|-------------------------|-------------------------|--------------------------|-------------------------|
| | Fixed-Effects | 2SLS Fixed-Effects | Fixed-Effects | 2SLS Fixed-Effects |
| Dependent variable: | ABS(DACC) | | | |
| Board independence | -0.00013** (0.00007) | -0.00042* (0.00028) | -0.00032*** (0.00012) | -0.00095** (0.00071) |
| Audit committee | -0.00482 (0.00352) | -0.06989** (0.03230) | -0.00084 (0.00603) | -0.05978** (0.04448) |
| Board meetings | -0.00050** (0.00025) | -0.00042 (0.00142) | -0.00117** (0.00055) | -0.00333 (0.00302) |
| Board independence × CEO tenure | | | 0.00002* (0.00001) | 0.00056** (0.00039) |
| Audit committee × CEO tenure | | | -0.00054 (0.00066) | 0.04277** (0.02012) |
| Board meetings × CEO tenure | | | 0.00008* (0.00006) | 0.00508 (0.00255) |
| CEO tenure | -0.00049 (0.00031) | 0.00087 (0.00093) | -0.00112 (0.00083) | 0.00036 (0.00091) |
| Constant | 0.06200** (0.02499) | 0.02637** (0.03316) | 0.06963*** (0.02571) | 0.06963*** (0.02571) |
| Board controls | Yes | Yes | Yes | Yes |
| Firm controls | Yes | Yes | Yes | Yes |
| Year effects | Yes | Yes | Yes | Yes |
| Observations | 7,489 | 7,489 | 7,489 | 7,489 |
| R-squared | 0.08790 | 0.08731 | 0.08809 | 0.08885 |
| Number of Firms | 400 | 400 | 400 | 400 |

Note: This table reports estimation results using fixed effects and two-stage least squares with fixed effects. The objective is to enhance the robustness of our findings by using CEO Tenure instead of CEO Duality to proxy for CEO Power. The dependent variable is the absolute value of discretionary accruals, estimated as the residual of the modified Jones model. The primary explanatory variable is board monitoring, proxied by board independence, audit committee, and board meetings. Board independence is estimated as the number of independent directors scaled by board size. The audit committee is a dummy variable equal to 1 if the firm has an audit committee and 0 otherwise. Board meetings are measured as the annual number of board meetings. All other variables are defined in Appendix A. Results for regression models using board independence are reported in column (1), audit committee in column (2), board meetings in column (3), and all variables simultaneously in column (4). The instrumental variables used are industry board independence, industry audit committee, and industry board meetings.

*Cluster-robust standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01*

8. Conclusion

As organizations become more complex and opaque, they contribute to sustained agency conflicts that give rise to managerial opportunities such as earnings management. This phenomenon poses a threat to the well-being of firms and the global economy, which continues to grow stronger by the day. This study has examined the impact of board monitoring on accrual-based earnings management, as reflected by the absolute value of discretionary accruals from 2000 to 2021. More specifically, it has investigated whether these effects are associated with the CEO's dual role as chairman, highlighting CEO power. The methodological approach included fixed-effect regression models combined with an instrumental approach to deal with endogeneity issues in our primary explanatory variable, board monitoring. Our findings suggest that board monitoring, proxied by the audit committee, followed by board independence, reduces the magnitude of earnings management. In other words, an increase in monitoring efficiency and quality may reduce managers' likelihood of engaging in earnings management.

Moreover, we interacted our primary explanatory variable, board monitoring, with our measure of CEO power, CEO duality, to capture the CEO power's moderating impact on the relationship between board monitoring and accrual-based earnings management. Our findings suggest that CEO power has a moderating role in the relationship between board monitoring, as proxied by board independence and audit committee, and accrual-based earnings management. More precisely, we find that firms whose CEO also chairs the board experience lower monitoring efficiency and quality, which, in turn, increases the likelihood of managers engaging in earnings management. Even after replacing CEO power with an alternative proxy, CEO tenure, our results remain significant and intact.

Conclusively, our empirical findings support a new wave of corporate reforms in the United States, focusing on breaking the dual structure of the CEO rather than solely pushing for greater director independence. The study's main takeaway is that director independence, board committees, and CEO power concurrently should be considered when examining CEO power's moderating impact. The board may experience more efficient and higher quality monitoring from the power dynamic holding all three factors balanced.

Our findings may be valuable for various stakeholders in better understanding the internal power dynamics within firms, such as regulators and policymakers stipulating law that focuses on the audit committee and board independence. Nonetheless, understanding the connection between board monitoring and CEO power is essential to successfully assess the efficiency and quality of the monitoring provided by the board. As a result, we believe that our findings may present new details about hidden factors that impact the board's monitoring efficiency. Furthermore, we contribute to the corporate governance literature by providing evidence for the impact board composition and structure have on mitigating the opportunity for managers to engage in self-serving incentives, such as earnings management.

For future research, a potential direction could be to extend the scope of our study by including additional variables that may impact the power dynamics within the firm. A few examples may be the CEO's educational background, compensation contract, and association with other firms and related stakeholders. Another possible focus could be to examine whether growth firms are more likely to engage in earnings management during times of crisis, where the global financial crisis or COVID-19 may be good candidates. More precisely, one may research these two examples in conjunction with the CEO power's partial impact on the relationship between board monitoring and earnings management.

References

- Adams, R.B. (2003). What Do Boards Do? Evidence from Board Committee and Director Compensation Data, Available at SSRN: <https://ssrn.com/abstract=397401> or <http://dx.doi.org/10.2139/ssrn.397401> [Accessed 01 May 2022]
- Adams, R. B., & Ferreira, D. (2008). Do directors perform for pay? *Journal of Accounting and Economics*, vol.46, no.1, pp.154–171, Available at: <https://doi.org/10.1016/j.jacceco.2008.06.002> [Accessed 01 May 2022]
- Beatty, R.P., & Zajac, E.J. (1994). Top management incentives, monitoring, and risk bearing: a study of executive compensation, ownership, and board structure in initial public offerings, *Administrative Science Quarterly*, vol.39, no2, pp.313-335
- Beasley, M.S. (1996). An Empirical Analysis of the Relation between the Board of Director Composition and Financial Statement Fraud, *The Accounting Review*, vol.71, no.4 , pp.443-465
- Beasley, M.S., & Salterio, S. (2001). The Relationship between Board Characteristics and Voluntary Improvements in Audit Committee Composition and Experience, Available at SSRN: <https://ssrn.com/abstract=272590> or <http://dx.doi.org/10.2139/ssrn.272590> [Accessed 04 May 2022]
- Becker, C.L., & Defond, M.L., & Jiambalvo, J., & Subramanyam, K.R. (1998). The Effect of Audit Quality on Earnings Management, *Contemporary Accounting Research*, vol.15, no.1, pp.1-99
- Bédard, J., & Chtourou, S.M., & Courteau, L. (2004). The effect of Audit Committee expertise, independence, and activity on aggressive earnings management, *AUDITING: A Journal of Practice & Theory*, vol.23, no.2, pp.13-35, Available at: <https://doi.org/10.2308/aud.2004.23.2.13> [Accessed 13 April 2022]
- Bergstresser, D., & Philippon, T. (2006). CEO incentives and earnings management, *Journal of Financial Economics*, vol.80, no.3, pp.511-529, Available at: <https://doi.org/10.1016/j.jfineco.2004.10.011> [Accessed 13 April 2022]
- Berg, S.V., & Smith, S.K. (1978). ‘CEO and Board Chairman: A Quantitative Study of Dual vs. Unitary Board Leadership’, *Directors and Boards*, vol.3, pp.34-39
- Brick, I.E., & Chidambaran, N.K. (2010). Board meetings, committee structure, and firm value, *Journal of corporate finance*, vol.16, no.4, pp.533-553
- Burgstahler, D., & Dichev, I. (1997). Earnings management to avoid earnings decreases and losses, *Journal of Accounting and Economics*, vol.24, no.1, pp.99-126

- Byrd, J.W., & Hickman, K.A. (1992). Do outside directors monitor managers? *Journal of Financial Economics*, vol.32, no.2, pp.195-221, Available at: [https://doi.org/10.1016/0304-405x\(92\)90018-s](https://doi.org/10.1016/0304-405x(92)90018-s) [Accessed 13 April 2022]
- Chtourou, M.S, & Bédard, J., & Courteau, L. (2001). Corporate Governance and Earnings Management, Available at SSRN: <https://ssrn.com/abstract=275053> or <http://dx.doi.org/10.2139/ssrn.275053> [Accessed 07 May 2022]
- Cohen, D.A., & Dey, A., & Lys, T.Z. (2008). Real and accrual-based earnings management in the pre-and Post-Sarbanes Oxley periods, *SSRN Electronic Journal*, Available at: <https://doi.org/10.2139/ssrn.813088> [Accessed 14 April 2022]
- Cornett, M. M., McNutt, J. J., & Tehranian, H. (2009). Corporate governance and earnings management at large U.S. bank holding companies, *Journal of Corporate Finance*, vol.15, no.4, pp.412-430, Available at: <https://doi.org/10.1016/j.jcorpfin.2009.04.003> [Accessed 01 May 2022]
- Davidson, R., & Goodwin-Stewart, J., & Kent, P. (2005). Internal Governance Structures and earnings management, *Accounting and Finance*, vol.45, no.2, pp.24-267, Available at: <https://doi.org/10.1111/j.1467-629x.2004.00132.x> [Accessed 13 April 2022]
- DeAngelo, L.E. (1986). Accounting Numbers as Market Valuation Substitutes: A Study of Management Buyouts of Public Stockholders, *The Accounting Review*, vol. 61, no.3, pp.400-420
- Dechow, P., & Hutton, A., & Kim, J., & Sloan, R. (1995). Detecting Earnings Management: A New Approach, *SSRN Electronic Journal*, Available at: <https://doi.org/10.2139/ssrn.1735168> [Accessed 13 April 2022]
- Denis, D.J., & Kruse, T.A. (2000). Managerial Discipline and Corporate Restructuring following Performance Declines, *Journal of Financial Economics*, vol.55, pp.391-424
- Faleye, O., & Hoitash, R., & Hoitash, U. (2011). The costs of intense board monitoring, *Journal of Financial Economics*, no.101, pp.160-181
- Fama, E.F. (1980). Agency Problems and the Theory of the Firm, *Journal of Political Economy*, vol.88, no.2, pp.288-307
- Fama, E.F., & Jensen, M.C. (1983). Separation of Ownership and Control, *Journal of Law and Economics*, vol.88, no.2, pp.301-325
- Finkelstein, S., & D'aveni, R. (1994). CEO Duality as a Double-Edged Sword: How Boards of Directors Balance Entrenchment Avoidance and Unity of Command, *Academy of Management Journal*, vol.37, no.5, pp.1079-1108
- Hazarika, S., & Karpoff, J.M., & Nahata, R. (2012). Internal corporate governance, CEO turnover, and earnings management, *Journal of Financial Economics*, vol.104, pp.44-69
- Healy, P. (1985). The Effect of Bonus Schemes on Accounting Decisions, *Journal of Accounting and Economics*, vol.7, pp.85-108

- Healy, P., & Wahlen, J.M. (1999). A Review of the Earnings Management Literature and its Implications for Standard Setting, Available at [SSRN: https://ssrn.com/abstract=156445](https://ssrn.com/abstract=156445) or <http://dx.doi.org/10.2139/ssrn.156445> [Accessed 14 April 2022]
- Hermalin, B., & Weisbach, M. (1998). Endogenously Chosen Boards of Directors and their Monitoring of the CEO, *American Economic Review*, vol.88, pp.96-118
- Hermalin, B., & Weisbach, M. (2001). Boards of Directors as an Endogenously Determined Institution: A Survey of the Economic Literature; No 8161, NBER Working Papers, National Bureau of Economic Research, Inc
- Holmstrom, B. (1999). Managerial Incentive Problems: A Dynamic Perspective,” *Review of Economic Studies*, vol.66, no.1, pp.169-182
- Jensen, M.C., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs, and capital structure, *Journal of Financial Economics*, vol.3, pp.305-360
- Jensen, M.C. (1986). Agency Costs of Free Cash Flow, Corporate Finance and Takeovers, *American Economic Review*, vol.76, no.2, pp.323-329.
- Jensen, M.C. (1993). The Modern Industrial Revolution, Exit and the Failure of Internal Control Systems, *Journal of Finance*, no.48, pp.831-880
- John, K., & Senbet, L. W. (1998). Corporate governance and board effectiveness, *Journal of Banking & Finance*, vol.22, no.4, pp.371-403. Available at: [https://doi.org/10.1016/s0378-4266\(98\)00005-3](https://doi.org/10.1016/s0378-4266(98)00005-3) [Accessed 17 May 2022]
- Johnson. R. A., & Hoskisson, R. E., & Hitt. M. A. (1993). Board of director involvement in restructuring: The effects of board versus managerial controls and characteristics, *Strategic Management Journal*, vol.14 (special summer issue), pp.33-50
- Jones, J.J. (1991). Earnings During Import Relief Investigations, *Journal of Accounting Research*, vol. 29, no.2, pp.193-228, Available at: <https://www.jstor.org/stable/2491047> [Accessed 19 April 2022]
- Kesner, I.F. (1988). Directors’ characteristics and committee membership: an investigation of type, occupation, tenure, and gender, *Academy of Management Journal*, vol.31, pp.66-84
- Klein, A. (2002). Audit committee, board of director characteristics, and earnings management, *SSRN Electronic Journal*, Available at: [https://doi.org/10.1016/S0165-4101\(02\)00059-9](https://doi.org/10.1016/S0165-4101(02)00059-9) [Accessed 14 April 2022]
- Lin, J.W., & Hwang, M.I. (2010). Audit Quality, Corporate Governance, and Earnings Management: A Meta-Analysis, *International Journal of Auditing*, vol.14, no.1, pp.57-77
- Liu, Y., Miletkov, M. K., Wei, Z., & Yang, T. (2015). Board independence and firm performance in China, *Journal of Corporate Finance*, vol.30, pp.223-244

- Lobo, G. J., & Zhou, J. (2006). Did conservatism in financial reporting increase after the Sarbanes-Oxley Act? Initial evidence, *Accounting Horizons*, vol.20, no.1, pp.57–73, Available at: <https://doi.org/10.2308/acch.2006.20.1.57> [Accessed 14 April 2022]
- Lynall, M. D., Golden, B. R., & Hillman, A. J. (2003). Board Composition from Adolescence to Maturity: A Multitheoretic View, *The Academy of Management Review*, vol.28, no.3, pp.416-431, Available at: <https://doi.org/10.2307/30040730> [Accessed 21 May 2022]
- Malenko, N. (2014). Communication and Decision-Making in Corporate Boards. *Review of Financial Studies*, vol.27, no.5, pp.1486–1532, Available at: <https://doi.org/10.1093/rfs/hht075> [Accessed 21 May 2022]
- Man, C. (2013). Corporate Governance And Earnings Management: A Survey Of Literature, *The Journal of Applied Business Research*, vol.29, no.2, pp.391-418
- Marcia, M.C., & Alan, M. J., & Hassan, T. (2008). Corporate governance and pay-for-performance: The impact of earnings management, *Journal of Financial Economics*, vol.87, pp.357-373
- McColgan, P. (2001). Agency theory and corporate governance: a review of the literature from a UK perspective, Department of Accounting and Finance working paper, Citeseer, Available at: <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.202.286&rep=rep1&type=pdf> [Accessed 13 April 2022]
- McNichols, M. F. (2000). Research design issues in earnings management studies. *Journal of Accounting and Public Policy*, vol.19, no.4-5, pp.313-345. Available at: [https://doi.org/10.1016/s0278-4254\(00\)00018-1](https://doi.org/10.1016/s0278-4254(00)00018-1) [Accessed 13 April 2022]
- McNichols, M.F. (2002). The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors: Discussion, *The Accounting Review*, vol.77, pp.61-69
- Moursli, M.R. (2020). The effects of board independence on busy directors and firm value: Evidence from regulatory changes in Sweden, *Corporate Governance: an international review*, vol.28, no.1, pp:23-46
- Park, Y. W., & Shin, H. H. (2004). Board composition and earnings management in Canada, *Journal of Corporate Finance*, vol.10, no.3, pp.431-457, Available at: [https://doi.org/10.1016/s0929-1199\(03\)00025-7](https://doi.org/10.1016/s0929-1199(03)00025-7) [Accessed 14 April 2022]
- Peasnell, K. V., Pope, P. F., & Young, S. (2005). Board monitoring and Earnings Management: Do Outside Directors Influence Abnormal Accruals? *SSRN Electronic Journal*, Available at: <https://doi.org/10.2139/ssrn.249557> [Accessed 13 April 2022]
- Roychowdhury, S. (2006). Earnings management through real activities manipulation, *Journal of Accounting and Economics*, vol.42, no.3, pp.335-370
- Ryan, H. E., & Wiggins, R. A. (2004). Who is in whose pocket? Director compensation, board independence, and barriers to effective monitoring, *Journal of Financial Economics*, vol.73, no.3, pp.497–524. Available at: <https://doi.org/10.1016/j.jfineco.2003.11.002> [Accessed 14 April 2022]

Schuetze, A., & O'Donnell, J. (2020). 'The money's gone': Wirecard collapses owing \$4 billion, Reuters, Available at: <https://www.reuters.com/article/us-wirecard-accounts-idUSKBN23W176> [Accessed 20 May 2022]

SEC. (2007). Audit Committees and Auditor Independence, Available at: <https://www.sec.gov/info/accountants/audit042707.htm> [Accessed 17 May 2022]

SEC. (n.d.). The Laws That Govern the Securities Industry, Available at: <https://www.investor.gov/introduction-investing/investing-basics/role-sec/laws-govern-securities-industry#sox2002> [Accessed 17 May 2022]

SEC Press Release (1998). SEC, NYSE and NASD announce Blue Ribbon Panel to improve corporate audit committee, Available at: <https://www.nyse.com/index>

Staiger, D. (1997). Stock instrumental variables regression with weak instruments, *Econometrica*, vol.65, no.3, pp.557-586, Available at: <https://www.jstor.org/stable/2171753?seq=1> [Accessed 18 April 2022]

Sun, D. (2015). Does board independence affect firm performance? A perspective from China, Amsterdam Business School, Available at: <https://www.coursehero.com/file/104370617/Sun-Danni-10707565-MSc-BEpdf/> [Accessed 18 April 2022]

Sun, M. (2019). More U.S. Companies Separating Chief Executive and Chairman Roles, *The Wall Street Journal*, Available at: <https://www.wsj.com/articles/more-u-s-companies-separating-chief-executive-and-chairman-roles-11548288502> [Accessed 23 May 2022]

Vafeas, N. (1999). Board meeting frequency and firm performance, *Journal of Financial Economics*, vol.53, pp.113-142

Vance, S.C. (1983). *Corporate Leadership: Boards, Directors, and Strategy* McGraw-Hill, New York

Warfield, T.D., & Wild, J.J., & Wild, K.L. (1995). Managerial ownership, accounting choices, and informativeness of earnings, *Journal of Accounting and Economics*, vol.20, pp.61–91

Warner, J.b., & Watts, R., & Wruck, K.H. (1988). Stock prices and top management changes, *Journal of Financial Economics*, vol. 20, no.1-2, pp.461-492

Weisbach, M.S. (1988). Outside directors and CEO turnover, *Journal of Financial Economics*, vol.20, pp.431-460

Williamson, O.E. (1985). *The Economic Institutions of Capitalism*. The Free Press, New York.

Woolridge, J. (2016). *Introductory Econometrics*. 6th ed. Boston: Cengage Learning

Xie, B., & Davidson, W.N., & DaDalt, P.J. (2003). Earnings Management and Corporate Governance: The Role of the Board and the Audit Committee, *Journal of Corporate Finance*, vol.9, no.3, pp.295–316

Yang, J. S., & Krishnan, J. (2005). Audit Committees and Quarterly Earnings Management. *International Journal of Auditing*, vol.9, no.3, pp.201–219. Available at: <https://doi.org/10.1111/j.1099-1123.2005.00278.x> [Accessed 13 May 2022]

Yang, T., & Zhao, S. (2014). CEO duality and firm performance: Evidence from an exogenous shock to the competitive environment. *Journal of Banking & Finance*, vol.49, pp.534-552

Ye, J. (2007). Accounting Accruals and Tests of Earnings Management, Available at SSRN: <https://ssrn.com/abstract=1003101> or <http://dx.doi.org/10.2139/ssrn.1003101> [Accessed 13 May 2022]

Tables

Table 9 – Regression Results for Equation (2) using Random-Effects

| | (1) | (2) | (3) | (4) |
|------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | Random-Effects | Random-Effects | Random-Effects | Random-Effects |
| Dependent variable: | ABS(DACC) | | | |
| Board independence | -0.00015** (0.00006) | | | -0.00014** (0.00006) |
| Audit committee | | -0.00403 (0.00345) | | -0.00406 (0.00358) |
| Board meetings | | | -0.00051** (0.00023) | -0.00061*** (0.00023) |
| CEO duality | -0.00244 (0.00188) | -0.00214 (0.00194) | -0.00287 (0.00187) | -0.00234 (0.00193) |
| Audit committee independence | -0.00015** (0.00007) | -0.00010 (0.00007) | -0.00003 (0.00006) | -0.00015** (0.00007) |
| Board size | -0.00072** (0.00036) | -0.00066* (0.00035) | -0.00093*** (0.00036) | -0.00071** (0.00035) |
| Firm size | -0.00438*** (0.00137) | -0.00437*** (0.00135) | -0.00462*** (0.00136) | -0.00450*** (0.00136) |
| Leverage | 0.00991* (0.00599) | 0.00970 (0.00600) | 0.00981* (0.00596) | 0.00950 (0.00598) |
| OCFTA | 0.02289 (0.01971) | 0.02337 (0.01987) | 0.02265 (0.01965) | 0.02500 (0.01976) |
| Constant | 0.08107*** (0.01419) | 0.07506*** (0.01389) | 0.07890*** (0.01410) | 0.07985*** (0.01374) |
| Industry effects | Yes | Yes | Yes | Yes |
| Year effects | Yes | Yes | Yes | Yes |
| Observations | 7,489 | 7,489 | 7,489 | 7,489 |
| R-squared | 0.08790 | 0.08731 | 0.08809 | 0.08885 |
| Number of Firms | 400 | 400 | 400 | 400 |

Table 10 – Regression Results for Equation (3) using Random-Effects

| | (1) | (2) | (3) | (4) |
|----------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | Random-Effects | Random-Effects | Random-Effects | Random-Effects |
| Dependent variable: | ABS(DACC) | | | |
| Board independence | -0.00029*** (0.00008) | | | -0.00029*** (0.00008) |
| Audit committee | | -0.00014 (0.00462) | | -0.00019 (0.00507) |
| Board meetings | | | -0.00013** (0.00036) | -0.00027** (0.00039) |
| Board independence × CEO duality | 0.00012** (0.00005) | | | 0.00013*** (0.00004) |
| Audit committee × CEO duality | | -0.00858 (0.00710) | | -0.00851 (0.00730) |
| Board meetings × CEO duality | | | 0.00104** (0.00041) | 0.00124*** (0.00043) |
| CEO duality | 0.00012* (0.00007) | 0.00007 (0.00008) | 0.00007 (0.00006) | 0.00013* (0.00007) |
| Audit committee independence | -0.00324* (0.00189) | -0.00552 (0.00699) | -0.01052*** (0.00354) | -0.00469 (0.00684) |
| Board size | -0.00098*** (0.00037) | -0.00085** (0.00041) | -0.00077** (0.00037) | -0.00097** (0.00041) |
| Firm size | -0.00441*** (0.00137) | -0.00437*** (0.00135) | -0.00459*** (0.00135) | -0.00446*** (0.00135) |
| Leverage | 0.00983* (0.00595) | 0.00972 (0.00598) | 0.00951 (0.00597) | 0.00915 (0.00591) |
| OCFTA | 0.02091 (0.01986) | 0.02235 (0.01995) | 0.02401 (0.01964) | 0.02318 (0.01984) |
| Constant | 0.08898*** (0.01384) | 0.07698*** (0.01359) | 0.07814*** (0.01400) | 0.08920*** (0.01357) |
| Industry effects | Yes | Yes | Yes | Yes |
| Year effects | Yes | Yes | Yes | Yes |
| Observations | 7,489 | 7,489 | 7,489 | 7,489 |
| R-squared | 0.03283 | 0.03232 | 0.03301 | 0.03525 |
| Number of Firms | 400 | 400 | 400 | 400 |

Table 11 – Heteroskedasticity Test

| Heteroskedasticity test | H0 | Test Statistic | <i>p</i> | Decision | Heteroskedasticity? |
|---|------------------|----------------|----------|----------|---------------------|
| Test : White test | | | | | |
| Stata Test (Chi-Squared) - Equation (1) board independence | Homoscedasticity | 573.82 | 0.0000 | Reject | Yes |
| Stata Test (Chi-Squared) - Equation(1) audit committee | Homoscedasticity | 600.23 | 0.0000 | Reject | Yes |
| Stata Test (Chi-Squared) - Equation(1) board meetings | Homoscedasticity | 599.93 | 0.0000 | Reject | Yes |
| Stata Test (Chi-Squared) - Equation(1) all variables | Homoscedasticity | 609.93 | 0.0000 | Reject | Yes |

Table 12 – Hausman Test

| Hausman Test | H0 | Test Statistic | <i>p</i> | Decision | Random effects? |
|---|--------------------------------------|----------------|----------|----------|-----------------|
| Test: Durbin-Wu-Hausman Chi-square test | | | | | |
| Equation (2) – board independence | Preferred model is random effects | 69.36 | 0.0000 | Reject | No |
| Equation (2) – audit committee | Preferred model is random effects | 67.86 | 0.0000 | Reject | No |
| Equation (2) – board meetings | Preferred model is random effects | 71.20 | 0.0000 | Reject | No |
| Equation (2) – all variables | Preferred model is random effects | 70.79 | 0.0000 | Reject | No |
| Equation (3) – board independence | Preferred model is random effects | 68.34 | 0.0000 | Reject | No |
| Equation (3) – audit committee | Preferred model is random effects | 66.76 | 0.0000 | Reject | No |
| Equation (3) – board meetings | Preferred model is random effects | 72.32 | 0.0000 | Reject | No |
| Equation (3) – all variables | Preferred model is random effects | 71.69 | 0.0000 | Reject | No |

Appendix

Appendix A – Variable Description

| Variables | Description | Source/Origin |
|-------------------------------------|--|---------------|
| Discretionary accruals [ABS(DACC)] | Absolute value of discretionary accruals of firm i and year t , estimated as the residual of the modified Jones model | (a) |
| Board independence (%) | Percentage of independent directors sitting on the board, computed as the number of independent directors scaled by board size | (b) |
| Audit committee | Indicator variable that is equal to 1 if the firm has an audit committee, 0 otherwise | (b) |
| Board meetings | Measured as the annual number of board meetings | (b) |
| Other Variables | | |
| CEO duality | Indicator variable that is equal to 1 if the CEO simultaneously chairs the board, 0 otherwise | (b) |
| CEO tenure | The length of an individual in the role of CEO in years | (b) |
| Audit committee independence (%) | Percentage of non-executive independent board members on the audit committee | (b) |
| Board size | Total number of directors sitting on the board | (b) |
| Firm size | Natural logarithm of total assets at year-end | (a) |
| Leverage | Ratio of long-term debt scaled by total asset at year-end | (a) |
| Operating cash-flow to total-assets | Current period operating cash flow scaled by average total assets | (a) |

Source: (a) FactSet; (b) Thomson Reuters Eikon

Period: 2000-01-01 to 2021-12-31