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ARE CFOS (CHIEF FINANCIAL OFFICERS) VALUABLE OR POWERFUL?

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To: Dean William Hardin
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This dissertation, written by Dasol Sim, and entitled Are CFOs (Chief Financial Officers) Valuable or Powerful?, having been approved in respect to style and intellectual content, is referred to you for judgment.

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DEDICATION

For the greater glory of God.

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ABSTRACT OF THE DISSERTATION

ARE CFOS (CHIEF FINANCIAL OFFICERS) VALUABLE OR POWERFUL?

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This dissertation argues that chief financial officers (CFOs) may also act as agents of the principal or be responsible for helping achieve shareholders' long-term goals. It examines the validity of this premise in three different settings.

First, the dissertation hypothesizes that CFOs should be held accountable for poor firm performance if they are acting as agents. Consistent with this hypothesis, the dissertation demonstrates that the likelihood of CFO dismissal increases with poor firm performance in S&P 1500 firms. This finding is not a result of scapegoating. Additionally, the study shows that CFO power, which is expected from agents, does not negatively moderate the primary relationship of interest, contrary to predictions from managerial power theory. However, in line with disruption and strategic human capital theories, the likelihood of dismissal following poor firm performance is reduced when the CFO's strategic importance increases.

Second, if CFOs are also acting as agents, it could impact CEO dismissals in two ways. On the one hand, powerful CFOs, in accordance with power circulation theory, can push the CEO out, especially when firm performance is poor. This hypothesis is supported by data on CEO succession in S&P 1500 firms. On the other hand, when CFOs

possess high levels of human capital, boards of directors may be less inclined to dismiss the CEO. However, contrary to predictions, CFO expertise is negatively correlated with CEO dismissal, suggesting that expert CFOs help CEOs retain their positions. Moreover, CFO expertise is found to moderate the negative impact of poor firm performance on CEO dismissal, indicating that CEOs with a more expert CFO are more likely to be given the benefit of the doubt in case of underperformance.

Finally, the dissertation argues that CFO succession, if CFOs are acting as agents, will impact the stock market price. The dissertation provides evidence supporting the theory that when CFOs depart and no replacement is announced or only an interim CFO is announced, the stock market reacts negatively. However, this uncertainty dissipates when an internal successor is announced, resulting in a positive market reaction. No significant stock market reaction is observed when the incoming CFO is external. Additionally, the dissertation finds a significant moderating impact of the presence of other internal financial experts on the stock market reaction in interim and external succession, but no significant moderating effect is found in other scenarios.

In conclusion, this dissertation emphasizes the importance of CFOs and the need to study them. It suggests that studies focusing on the C-suite that ignore the CFO may be incomplete or misspecified.

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I. ARE CFOS ALSO AGENTS OF THE PRINCIPAL?

INTRODUCTION

Early agency theory discusses the agent in the singular form. For example, Jensen and Meckling (1976) defined the agency relationship as “a contract under which one or more persons (the principal(s)) engage *another person* (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent” (p. 308). The assumption of a single agent is also prevalent in much of the C-suite research focusing on chief executive officers (CEOs), reflecting the popular view of the CEO as the *chief* executive responsible for strategy (e.g., Hambrick & Finkelstein, 1987) and accountable for firm performance (e.g., Jensen & Meckling, 1976).

The assumption of a single agent has encountered direct challenges (Nilakant & Rao, 1994; Shapiro, 2005) and increasing indirect questioning in research that emphasizes the importance of non-CEO executives (e.g., Chen, Meyer-Doyle, & Shi, 2018; Datta & Iskandar-Datta, 2014; Menz, 2012). Management theorists have also recognized that CEOs function within multiple CEO-centered dyads instead of working independently (Hambrick, 2007; Jackson, 1992), which complicates the attribution of effort solely to the CEO (Alchian & Demsetz, 1972). Furthermore, key governance laws in the U.S., and increasingly in other countries, consider CEOs and chief financial officers (CFOs) as equals (Nelson, 2006).

In line with these observations, prior research has demonstrated a higher likelihood of CFO dismissals following instances of financial manipulation and misconduct, as well as, more generally, where firms exhibit poor financial reporting quality (e.g., Arthaud-Day, Certo, Dalton, & Dalton, 2006; Curtis, Donelson, & Hopkins,

2019; Li, Sun, & Ettredge, 2010; Wang, 2010). This literature highlights the fiduciary duty of CFOs in the context of financial reporting.

In addition, this study argues that if CFOs contribute significantly to the strategy formulation and implementation of firms, such as that of CEOs, they should also be responsible for the adverse outcomes associated with strategy choice or implementation. While this possibility was suggested in a descriptive research by Mian (2001), it has not been formally explored. Thus, by extending the research on CFOs' breach of fiduciary duty and CEOs' breach of strategic duties, this study hypothesizes that as co-agents, CFOs will be held accountable for firm performance and, as a result, will be more likely to be dismissed following poor firm performance. Furthermore, the study argues that CFOs, as agents, may possess power and become entrenched (Shleifer & Vishny, 1989). Hence, CFO power is proposed to negatively moderate the relationship between poor firm performance and CFO dismissal. Finally, considering the disruption potential (Grusky, 1960, 1963; Schepker, Kim, Patel, Thatcher, & Campion, 2017) and the loss of strategic human capital (Becker, 1964; Dess & Shaw, 2001), boards of directors will be reluctant to dismiss strategically important CFOs. Therefore, the likelihood of CFO dismissal following poor performance decreases as their strategic importance increases.

These hypotheses are tested using CFO dismissal information in Standard & Poor's (S&P) 1500 firms from 2010 to 2019. The study results support the hypothesis that CFOs are more likely to be dismissed following poor firm performance. This finding is consistent even when alternative measures of poor firm performance are considered. Furthermore, the strategic importance of CFOs negatively moderates the relationship between poor firm performance and CFO dismissal. However, no evidence of a negative

moderating effect of power is found using board membership and other alternate measures to capture power. Further analyses also suggest that these dismissals are not due to scapegoating, as CFOs are less likely to be dismissed for poor performance when CEOs are powerful.

This study provides significant theoretical and empirical contributions to various areas of research, including agency theory, theories of executive disruption, strategic human assets, C-suite, and executive succession research. First, it offers a co-agency view, reaffirming the likelihood of agents other than CEOs and the need for their further exploration (Hambrick, 2007; Jackson, 1992; Nilakant & Rao, 1994; Shapiro, 2005). The primary finding of the study contrasts with much of agency theory and CEO-focused research that ignores the role of other potential agents or co-agents. Furthermore, it adds to mounting research documenting an increased likelihood of CFO dismissal due to financial manipulation and wrongdoing (Arthaud-Day et al., 2006; Hennes, Leone, & Miller, 2008). The study shows that CFOs are not only held accountable for their traditional responsibilities, financial strategy, and the quality of firm financials but also for overall firm performance, which is traditionally associated with the CEO. Consequently, this study contributes to the conversation regarding the importance of CFOs (Chen et al., 2018; Menz, 2012; Zorn, 2004). The findings that CFOs are held accountable for poor firm performance align with prior studies suggesting that CFOs contribute to firm-level outcomes, such as strategy and performance (Bertrand & Schoar, 2003; Mian, 2001).

Second, the study provides evidence of CFO utilizing their power for entrenchment. This finding extends power theories from the main agent of focus

(Bebchuk & Fried, 2004; Boeker, 1992), the CEO, to the CFO. Thus, the study joins prior research that has examined the role of CFO power (Baker, Lopez, Reitenga, & Ruch, 2019; Finkelstein, 1992). While some research has suggested that CFOs may have limited or no power in certain contexts (Friedman, 2014; Leone & Liu, 2010), others have shown that CFOs do possess power (Bedard, Hoitash, & Hoitash, 2014).

Moreover, the study highlights the potential strategic importance of CFOs. These findings contribute to the growing research on strategic human capital within firms and the C-suite (e.g., Barney & Wright, 1998). It supports recent claims regarding the importance of functional managers in firm performance and strategy (Menz, 2012). Furthermore, the study broadens our understanding of the actions taken by boards of directors in response to poor firm performance. Contrary to the accepted views (Boivie, Bednar, Aguilera, & Andrus, 2016), it suggests that boards may not necessarily be ineffective if they refrain from dismissing the CEO following poor firm performance. Instead, the board of directors, either independently or in collaboration with the CEO, may consider dismissing other individuals within the firm. Moreover, they may be reluctant to dismiss strategically important actors due to long-term uncertainties.

In conclusion, these studies suggest that C-suite research and agency theory may require reevaluation in light of potential co-agency or multiple agencies rather than adhering to the established view of a single agent to the principal. Moreover, CEO-focused empirical research can be underspecified if other agents or co-agents are not considered. These fundamental issues should be further investigated. More specifically, this study suggests a need to comprehend the circumstances when boards dismiss CEOs as opposed to other agent-like executives.

The study is organized as follows. First, it provides an overview of the existing research on CEO dismissal and poor firm performance. This research is also summarized in Quadrant I of Table 1, which illustrates the main contributions of the study vis-a-vis prior research. The study then briefly presents the research on poor financial reporting quality and executive dismissals, which has considered both CEOs and CFOs, as shown in Quadrants II and III of Table 1. Thereafter, the study expands into the antecedent of CFO agency and provides evidence of such agency before presenting the theory and hypotheses of the study, which are highlighted in Quadrant IV of Table I. The subsequent sections of the study follow a traditional structure, including a description of the study methods, findings, and a discussion of the results.

[Insert Table 1 Here]

FIRM PERFORMANCE AND CEO DISMISSAL

Research on the relationship between firm performance and executive dismissal primarily draws on agency theory (Fama, 1980; Jensen & Meckling, 1976). Some key underlying tenets of this theory are as follows: managers, who are responsible for running the firm, are considered agents of the principal(s). While executive agents act on behalf of owners/principals, they may also pursue their self-interests rather than those of the owners or shareholders (Dalton, Hitt, Certo, & Dalton, 2007; Eisenhardt, 1989). Employment contracts are utilized to minimize potential conflicts of interest between managers and owners, optimizing executive effort (Diamond & Verrecchia, 1982; Eisenhardt, 1989; Fama, 1980; Holmström, 1979, 1982; Jensen & Meckling, 1976;

Lambert & Larcker, 1985; Walsh & Seward, 1990). Finally, board members are appointed to monitor executive agents and observe their efforts (Bosse & Phillips, 2016; Fama & Jensen, 1983).

In reality, managerial efforts and ability are not fully observable (Bertrand & Mullainathan, 2001; Eisfeldt & Kuhnen, 2013; Jenter & Kanaan, 2015; Wiersema & Zhang, 2011), especially by the bounded rationality of the members of the board of directors (Puffer & Weintrop, 1991; Seborá & Kesner, 1996; Vinkenburg, Jansen, Dries, & Pepermans, 2014). To reduce information asymmetry between directors and executives, directors must determine the appropriate performance metrics to evaluate the agent (Holmström, 1979; Newman, Tyler, & Dunbar, 2001). Directors often choose noisy output measures, such as firm performance indicators, to determine the efforts and abilities of executives rather than hard-to-measure input metrics (Lambert, Larcker, & Weigelt, 1993). When firm performance falls below acceptable levels, the board of directors is expected to dismiss executives, as they would be viewed as not exerting sufficient effort or lacking ability (e.g., Coughlan & Schmidt, 1985; Daily & Dalton, 1995; Ertugrul & Krishnan, 2011; Farrell & Whidbee, 2003; Li, 2018; Weisbach, 1988), although sometimes they may be used as scapegoats to pacify external constituencies (Boeker, 1992). In addition, executive change may be necessary to facilitate firm adaptation and major strategic change (Boeker, 1997; Chen & Hambrick, 2012; Khurana, 2001; Tushman, Virany, & Romanelli, 1985; Wiersema & Bantel, 1993). Some argue that executive dismissal is also important as a form of punishment.

Studies on executive succession have concluded that empirical research has consistently demonstrated higher turnover when firms experience poor accounting or

stock price performance, as well as low financial reporting quality or other adverse firm events (Berns & Klarner, 2017; Cragun, Nyberg, & Wright, 2016; Giambatista, Rowe, & Riaz, 2005; Habib & Hossain, 2013; Kesner & Sebor, 1994). However, concerns have been raised about the limited explanatory power of dismissals provided by poor firm performance (Brickley, 2003). Some researchers have attributed this problem to board heterogeneity and biases (Haleblian & Rajagopalan, 2006; Huang, Maharjan, & Thakor, 2020; Minutti-Meza, Nanda, & Xu, 2022; Wowak, Hambrick, & Henderson, 2011). Others have also pointed the likely impact of contextual factors (Crossland & Chen, 2013; Hilger, Mankel, & Richter, 2013). Overall, this research has focused chiefly on CEOs. This research is presented in Quadrant I of Table 1.

FINANCIAL REPORTING QUALITY AND EXECUTIVE DISMISSAL

The broader research on CEO dismissal also considers the role of poor financial reporting quality, as presented in Quadrants II and III in Table 1. This research was traditionally focused on the CEO but has been increasingly examining the likelihood of dismissing the CEO alone (e.g., Desai, Hogan, & Wilkins, 2006), the CEO or the CFO (e.g., Arthaud-Day et al., 2006), both (e.g., Leone & Liu, 2010), or only the CFO (e.g., Wang, 2010). This literature builds upon the previously mentioned theoretical arguments to argue that boards of directors should dismiss executives following instances of poor financial reporting.

Consistent with these arguments, empirical evidence has shown that CFOs are more likely to be dismissed when there is evidence of poor financial reporting quality, such as financial restatements (e.g., Arthaud-Day et al., 2006), earnings management

(Hazarika, Karpoff, & Nahata, 2012), or internal control material weaknesses (e.g., Johnstone, Li, & Rupley, 2011).

Of note is an exception to the above trend on the incidence of CFO dismissals following tax manipulations. CFO dismissals are not found to be higher when firms avoid taxes. Instead, such dismissals are more likely when the firm's tax avoidance, usually a strategic choice made by the CFO, is greater or lower than their peers' (Chyz & Gaertner, 2018). This finding suggests that CFOs should take the initiative to reduce their tax liability as much as possible while avoiding distinguishing themselves from peer firms.

The literature suggests that CFO suggestion mostly occurs when firms need to remediate important factors, such as corporate reputation (e.g., Chen, Cheng, & Lo, 2014), governance (e.g., Gomulya & Boeker, 2016), or executives' intellectual capital (e.g., Johnstone et al., 2011).

Studies that include the CFO provide a number of explanations either individually or in combination. For example, some highlight the broad importance of CFOs, whereas others emphasize responsibility for the soundness of financial reporting (Indjejikian & Matějka, 2009). Some note their potential ability to manipulate financial reports (Baker et al., 2019), whereas others note possible undue pressure on CFOs from their superior, the CEO (Feng, Ge, Luo, & Shevlin, 2011).

Although this and prior research do not claim that the CFO can be an agent or co-agent when combined with research on individual top management team members (e.g., Feeny, Edwards, & Simpson, 1992; Hambrick & Cannella, 2004), it does point to this direction. We will further discuss this possibility in the next section.

COULD THERE BE MORE THAN ONE AGENT TO THE PRINCIPAL IN THE SAME FIRM?

The dominant view or assumption in agency theory has traditionally assumed a single agent with one or multiple principals. For example, Jensen and Meckling (1976) originally strictly discussed agents in the singular form. As mentioned above, their work defines the agency relationship as “a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent” (p. 308).

Theoretical extensions of the agency theoretical model also treat agents in the singular, and most have focused on agents dealing with multiple principals (Nilakant & Rao, 1994). Less frequently, researchers have examined three-tiered structures in which the agent of the principal also hires, motivates, and manages sub-agents (Dikolli, Heater, Mayew, & Sethuraman, 2021). However, these extensions ignore the possibility of multiple agents working together on behalf of one or multiple principals within the same firm or organization (Barclift, 2006).

The assumption of a single agent is also shared with much of C-suite research, particularly in its focus on the CEO, as seen in studies regarding the contribution of the CEO to firm performance (e.g., Fitza, 2014; Hambrick & Quigley, 2014; Lieberman & O’Connor, 1972; Mackey, 2008; Quigley & Graffin, 2017).

Exceptionally, agency theoretic models have breached the possibility of multiple agents within a firm. Just like the principal, who can either be one or multiple firm owners or shareholders, some economists argue that managers in the plural should be considered agents rather than some sole agent in charge. For example, Shapiro (2005)

highlighted the potential “existence of multiple principals and multiple agents” (p. 267). Similarly, Nilakant and Rao (1994) discussed goal conflict notes in “situations where there are multiple principals and/or agents” (p. 657).

As highlighted above, the research on the CFO, especially CFO dismissal, albeit not claiming CFOs to be agents, clearly distinguishes CFOs from the rest of the top management team (TMT). However, even these findings are often contested. The traditional view is that the CEO is ultimately responsible for firm outcomes, including financial reporting quality. This view is also supported by numerous studies that document a higher likelihood of CEO dismissal following poor financial reporting quality (Arthaud-Day et al., 2006; Hazarika et al., 2012). Furthermore, some researchers argue that CFO firings in such instances serve as scapegoating to shelter the CEO from dismissal, considering that CEOs tend to be the great beneficiaries of such dismissals (Friedman, 2014; Leone & Liu, 2010).

Notably, other substreams of C-suite research ascribe high importance to non-CEO executives by linking TMT pay to firm financial performance (e.g., Fredrickson, Davis-Blake, & Sanders, 2010). However, co-agency has never been claimed (Menz, 2012). For example, researchers have demonstrated the crucial role of CFOs in firm strategy formulation and implementation (Zorn, 2004; Zorn, Dobbin, Dierkes, & Kwok, 2005). Similarly, researchers have shown that boards of directors perceive the CEO, as well as other executives’ talent, as an essential resource (Boivie, Withers, Graffin, & Corley, 2021; Datta & Iskandar-Datta, 2014).

Finally, studies examining strategic interfaces between the CEO and other executives also cast doubt regarding the assumption of the CEO as the sole agent without

highlighting assumption discrepancies (e.g., Bromiley & Rau, 2016; Georgakakis, Heyden, Oehmichen & Ekanayake, 2022; Simsek, Heavey, & Fox, 2018). In fact, although not focused on the non-CEO agency, a part of this literature suggests that outcomes may be the product of the interactions of CEOs with other members (Simsek et al., 2018; Zaccaro & Klimoski, 2002). Moreover, teamwork may often be indivisible, making it challenging to determine the contributions within a team (Alchian & Demsetz, 1972). Thus, given the causal ambiguity, attributing firm-level outcomes solely to CEOs is difficult. Consequently, studying CEOs with other executives or specific members, such as the CFO, may provide better predictions of firm-level outcomes (Finkelstein, Hambrick, & Cannella, 2009).

COULD THE CFO BE AN AGENT OR CO-AGENT OF THE PRINCIPAL?

Although more than one person besides the CEO could also be an agent, this study specifically focuses on CFOs. It argues that ample evidence suggests that CFOs can act as agents of the principal or at least as co-agents with CEOs. Prior research has shown changes in the role of CFOs over the years, transitioning from bean counter to strategic partners to CEOs, and the development of the pervasive role of CFOs in corporate America (Zorn, 2004). This transformation is attributed, among others, to increased industry consolidation, globalization, competition, and regulatory and other institutional changes (Zorn, 2004). These changes, as well as the ultimate shift in firms' institutional logic to a finance-oriented logic, emphasizing its reliance on financial data and analysis in strategic decision making and adoption of financial tools for evaluation, have expanded and elevated the role of the CFO (Fligstein, 1990).

In addition, as a key executive in charge of corporate finance, the CFO is held accountable for financial manipulation or fraud and may be dismissed. Specifically, the board of directors may dismiss the CFO when firms experience financial irregularities or poor financial management. Such dismissals may be necessary to fix internal accounting and reporting problems (e.g., Wang, 2010; Wiersema & Bantel, 1993) or to assuage shareholders' concerns (e.g., Arthaud-Day et al., 2006; Gamson & Scotch, 1964).

This focus is understandable, considering the traditional CFO role centered on financial reporting. However, this role has expanded to include strategic finance activities. These activities include optimizing global tax exposure and minimizing debt and capital costs, which can involve creating subsidiaries globally and dealing effectively with multiple jurisdictions (Howell, 2006). CFOs are often tasked with subsidiary management, devising employee incentives, IT activities, and other strategically essential areas (Masli, Richardson, Watson, & Zmud, 2016).

CFOs have become CEOs' strategic partners (Datta & Iskandar-Datta, 2014). Their work is essential in evaluating the soundness of strategic options, strategy implementation, and strategy formulation (Chen et al., 2018). Large-scale empirical research has also implicated CFOs in numerous strategic activities and outcomes. For example, recent studies provide evidence of CFOs' active participation in firm strategies, such as mergers and acquisitions (Shi, Zhang, & Hoskisson, 2019), strategic actions related to firm growth (Chen et al., 2018), research and development (Ginesti, Spano, Ferri, & Caldarelli, 2021), and corporate social responsibility (Xu, Shi, Qin, Zhang, & Tang, 2022). CFOs are regarded as essential in dealing with environmental challenges, such as fierce market competition (Bromwich, 1990), hostile takeover threats (e.g.,

Clemens, 1989), and active institutional shareholders (Almazan, Hartzell, & Starks, 2005).

The research evidence suggests that CFOs may potentially act as co-agents with CEOs. In such cases, could co-agents be held responsible for poor firm performance or the inability to fix it?

TESTING CFO AGENCY IN THE CONTEXT OF POOR PERFORMANCE

CEO dismissal for poor performance has been a traditional key test of a good agency. This study proposes a second test: the dismissal or non-dismissal of a CFO, which may also indicate the quality of governance, considering our assertions of the CFO as a co-agent. In addition to their fiduciary duties, CFOs have strategic responsibilities similar to the CEO. Therefore, apart from being dismissed for poor firm financial reporting quality, they should also be dismissed for poor firm financial performance, traditionally viewed as the purview of the CEO.

More specifically, while CEOs are primarily responsible for devising a firm's strategy, poor performance may not always be attributed to problems with this strategy. Instead, the problem may arise due to poor implementation or a mismatch between the firm's overall and financial strategies, which are issues where CFOs bear responsibility (Menz, 2012; Zorn, 2004). For instance, once a firm with poor performance has accumulated debt, it may be imperative to replace the CEO with someone skilled in debt management and reduction. This assertion aligns with prior research that CFO expertise requirements can differ within the same firm for various reasons (e.g., Higgins & Gulati, 2006). It also aligns with the understanding that complex financial strategies play an

increasingly central role in the reported performance of firms (Myers, 1984). In such cases, changing the CFO may be the most suitable option. This choice is likely to be reinforced by an understanding of the magnitude of disruption associated with a CEO change (Grusky, 1963; Tushman et al., 1985).

These reasons suggest that, on certain occasions, changing the CFO may be the most appropriate response following poor firm financial performance. Thus, consistent with the above reasoning, this study formally hypothesizes the following:

H1. Poor firm performance increases the likelihood of CFO dismissal.

CONTEXTUALIZING POOR FIRM PERFORMANCE–CFO DISMISSAL

RELATIONSHIP

Researchers have proposed that the relationship between firm performance and executive dismissal requires contextualization (e.g., Cragun et al., 2016; Oc, 2018; Uhde, Klarner, & Tuschke, 2017). In Table 2, we offer two important contextualizations of the poor firm performance–CFO dismissal relationship. We first examine the moderating role of CFO power, as power is a commonly studied moderator in dismissal research. We also focus on the role of CFOs’ strategic importance, which is in line with theories about boards’ consideration of disruptions in dismissal decisions and strategic human capital theories.

[Insert Table 2 Here]

By considering contextualizations, researchers have often indicated the problem of managerial power. According to the managerial power theory (Finkelstein, 1992), each executive has power, which is defined as the ability to exercise influence over others (Gioia & Sims, 1983). An executive's power can be derived from various sources, such as personal characteristics (e.g., charismatic leadership and expertise), structural position (e.g., board membership), internal/external status (e.g., celebrity and prestige), or ownership (Finkelstein, 1992; Shin, 2016). Executives use their power to influence decisions and, at the highest level, may even be able to control board meetings' agendas (Daily & Johnson, 1997; Lorsch & MacIver, 1989) and influence board decisions. (Westphal, 1999; Westphal & Zhu, 2019). They also may utilize their power to achieve their own goals, such as increasing their pay (e.g., Bebchuk & Fried, 2004; Faulkender & Yang, 2010; Van Essen, Otten, & Carberry, 2015) and obtaining more significant non-contingent pay (e.g., Carpenter & Wade, 2002; Conyon & Murphy, 2000; Shaw & Zhang, 2010). They may also aspire to promotion (e.g., Cannella & Shen, 2001; Ocasio, 1994; Shen & Cannella, 2002).

Extant literature also argues that CEOs, as powerful agents, can use their power to preserve their jobs when threatened (e.g., Goyal & Park, 2002; Harris & Helfat, 1998; Jensen & Meckling, 1976). Therefore, if CFOs are considered agents, they may acquire power and, as such, may be able to use it to preserve their jobs (Bebchuk & Fried, 2003; Bedard et al., 2014). CFO power is not a remote possibility, considering that CFOs, unlike other non-CEO executives, have frequent and direct interactions with board members (Uhde et al., 2017). Consequently, CFOs may have the ear of directors and be able to shift the blame for poor performance away from them and unto other executives

(Boeker, 1992). Moreover, powerful executives also participate in board appointments (Westphal & Zajac, 1995), which can provide them with leverage. Prior research also suggests that CFOs with power are less likely to be used as scapegoats in instances where the CEO should be fired (Bedard et al., 2014).

Based on these considerations, this study hypothesizes that CFO power moderates the relationship between poor firm performance and CFO dismissal. More formally:

H2. CFOs' power will decrease the likelihood of CFO dismissal following poor firm performance.

When board members contemplate dismissing executives, they must consider the disruptions involved. According to the disruption view (Grusky, 1960, 1963), executive succession generally creates internal and external disturbances that undermine firm value. The strategic human capital literature also highlights that executive departures usually lead to losing human and social capital (e.g., Barney & Wright, 1998; Becker, 1964; Dess & Shaw, 2001; Messersmith, Lee, Guthrie, & Ji, 2014; Shaw, Park, & Kim, 2013). This loss is due to the accumulated firm-specific knowledge and skills embodied by the departing executive (e.g., Crook, Todd, Combs, Woehr, & Ketchen, 2011; Haspeslagh & Jemison, 1991). Departing executives may also have essential and value-creating relationships with internal and external stakeholders (e.g., Adler & Kwon, 2002; Wiersema, Nishimura, & Suzuki, 2018). Thus, losing such executives may also lead to the loss of a firm's competitive advantages. Even if a firm identifies a successor promptly, new executives typically lack firm- and/or task-specific human capital (e.g.,

Bailey & Helfat, 2003; Georgakakis & Ruigrok, 2017; Williams, Chen, & Agarwal, 2017). In addition, changes in executives can lead to drastic shifts in firm strategy and policy, which can decrease a firm's fit with its environment and create uncertainty in the firm's future performance (Friedman & Singh, 1989; Tushman & Rosenkopf, 1996; Virany, Tushman, & Romanelli, 1992). Hence, the greater the potential disruption, the more likely board members are to hesitate to consider executive dismissal (Fredrickson, Hambrick, & Baumrin, 1988).

In research on CEO dismissal, CEOs are generally assumed to be essential to firm strategy, hence, the predicted disruption. Consistent with this argument, prior evidence shows a lower likelihood of dismissing strategically important executives, such as CEOs with longer tenures (Allgood & Farrell, 2003; Fredrickson et al., 1988).

This study argues that the same disruptive effect applies to CFOs, albeit not equally across CFOs. The disruption is likely to be more severe if CFOs are involved in firm strategy or have strategic importance, as they are likely to have a long-term impact on firm performance (Bertrand & Schoar, 2003). Changing such executives may lead to strategic disruption that affects the implementation of the current firm strategy (Grusky, 1960, 1963) and may even possibly force a change in a company's strategy (Wang, Zhao, & Chen, 2017).

Thus, the departure of strategically important CFOs creates more disruptions than others. As a result, the board of directors may hesitate to dismiss the CFO, even if the firm faces poor performance when the CFO has a high level of strategic importance.

More formally:

H3. CFOs' strategic importance will decrease the likelihood of CFO dismissal following poor firm performance.

METHODS

Sample

The study initially included all S&P 1500 firms between 2010 and 2019, excluding the financial sector. Additional data were added, such as firm financial information from COMPUSTAT, executive information from ExecuComp, and firm governance and internal control information from Institutional Shareholder Services, BoardEX, and Thomson Reuters Institutional (13F) holdings. CFOs in these firms were identified using methods similar to that in previous studies (e.g., Cornaggia, Krishnan, & Wang, 2017; Jiang, Petroni, & Wang, 2010). CFOs identified by ExecuComp as annual CFOs (CFOANN) were assumed the CFO for that specific firm year. If the annual CFO information was missing, executives' titles in ExecuComp were used to identify the unmarked CFO by finding executives with specific terms in their title, such as "CFO" and "chief financial officer," while excluding those with terms, such as "former," "acting," or "interim." Finally, if multiple executives held CFO-like titles in a particular firm year, the CFO title was assigned to the individual who held the same title the following year. Due to missing data, the study sample was reduced to 10,507 firm-year observations, including 1,730 unique firms, 2,641 unique CFOs, and 541 CFO dismissals.

Main variables

CFO dismissal is measured as a dummy variable equal to 1 if the CFO was dismissed and 0 if otherwise. CFO dismissals start by identifying CFO changes between

year t and year $t-1$ in ExecuComp. Such changes are classified as dismissals if (1) the departing CFO was not demoted, (2) did not accept another position within the firm, and (3) was under the age of 60 (Parrino, 1997; Suk, Lee, & Kross, 2021). Consequently, 633 CFO dismissals were identified. However, due to insufficient data on other key study variables, the final study sample included 541 CFO dismissals.

Poor firm performance is measured using the industry-adjusted return on assets (ROA), which is in line with prior studies on executive dismissal (e.g., Gentry, Harrison, Quigley, & Boivie, 2021; Shen & Cannella, 2002; Westphal & Fredrickson, 2001). Specifically, the two-year average industry-adjusted ROA before CFO dismissal was calculated and standardized within the sample (Tian, Haleblan & Rajagopalan, 2011; Westphal & Fredrickson, 2001). Finally, the calculated industry-adjusted ROA is inverted to reflect *poor* performance (Westphal & Fredrickson, 2001).

CFO power, consistent with prior research, is measured as 1 if the CFO serves on the board of the focal firm and 0 if otherwise (Bedard et al., 2014; Muttakin, Khan, & Tanewski, 2019). This approach provides a reasonable measure of power, considering that insider directors can rival CEOs and challenge CEO power (Ocasio, 1994; Vancil, 1987). Approximately 10.3% of the CFOs in the study sample are board members.

CFO strategic importance is measured as the residual from a model that regresses total CFO compensation on year fixed effects using all the following variables: firm size, firm age, ROA, Tobin's Q , CFO tenure, and CFO gender. Given that more talented and important executives are given higher pay (Frydman & Jenter, 2010; O'Reilly & Main, 2010), the residual, which means the excess compensation granted to the CFO, is considered an appropriate approach to measure strategic importance. Indeed, the

measurement of executives' ability or importance through residuals is used in finance (e.g., Song & Wan, 2019) or strategy literature (e.g., Seo, Gamache, Devers, & Carpenter, 2015; Zorn, Shropshire, Martin, Combs, & Ketchen, 2017). Thus, a higher residual value indicates greater CFO strategic importance.

Control variables

Several control variables, at the CFO and firm levels, are included to account for other factors that may influence the likelihood of CFO dismissal.

At the CFO level, in addition to *CFO power* and *strategic importance*, which are moderating variables, the study includes *CFO age*, since executives are more likely to leave their position as they age. (e.g., Brickley, 2003; Murphy, 1999). At the firm level, controls are made for *firm size*, measured as the natural log of firm sales, considering that larger firms may have more candidates who can replace CFOs (Bilgili, Calderon, Allen, & Kedia, 2017). *Discretionary accruals*, which are measured using the modified Jones model (Dechow, Sloan, & Sweeney, 1995), control for the quality of financial reporting often associated with CFO dismissal (Hazarika et al., 2012). Two additional measures are included to control for the quality of governance: *board size*, which is measured as the total number of the board of directors (Wiersema & Zhang, 2011), and the *independent director ratio*, which is measured as the percentage of independent directors to board size (Lehn & Zhao, 2006). *CEO dismissal* is measured by a dummy variable equal to 1 if the CEO was dismissed in the prior year and 0 otherwise. It controls the possibility of a new CFO changing the C-suite members (Andrus, Withers, Courtright, & Boivie, 2019).

The details of these measures and the control variables are presented in Table 3. Table 4 reports the CFO strategic importance model.

Estimation methods

A Cox hazards model (Cox, 1972) is estimated with firm-level clustering to test the study hypotheses. Cox hazard modeling has been increasingly used in succession research (e.g., Arthaud-Day et al., 2006; Gietzmann, Marra, & Pettinicchio, 2016; Hazarika et al., 2012; Hubbard, Christensen, & Graffin, 2017; Jenter & Kanaan, 2015; Shin & You, 2023; Wang, Zhu, Avolio, Chen, & Waldman, 2022), as well as in strategy research (e.g., Dai, Eden, & Beamish, 2017; Nadolska & Barkema, 2014; Piao & Zajac, 2016). Also called event history or survival modeling, Cox hazard models are considered superior to logit or probit models in estimating the occurrence of an event, such as survival or death (Shumway, 2001) and, in our case, dismissal. Among others, event history modeling considers not only the actual event—or dismissal, as in probit or logit—but also controls for its timing. Moreover, it allows accounting for the right censoring of the data, considering that executives in our final data year have yet to leave their positions or be dismissed.

The data are compiled at the firm-CFO-year level. Each observation is treated as right-censored, except for CFO dismissal years. CFO tenure is used for the time clock for CFO dismissal. In all models, year and industry fixed effects were included. Independent and control variables are lagged by one year, as is standard in the strategic management literature (e.g., Hubbard et al., 2017).

[Insert Tables 3 and 4 Here]

RESULTS

Table 5 reports the correlation matrix and descriptive statistics for the variables. The correlation between *firm size* and *board size* appears to be high; however, the variance inflation factors (VIFs) were low, ranging from 1.00 to 1.76, with a mean VIF of 1.20. These values are below the threshold value of 10 (Neter, Kutner, Nachtsheim, & Wasserman, 1996), indicating that our model does not suffer from multicollinearity bias.

Table 6 presents the results of the model testing. The first or base Model includes only the control variables. As expected, the direct impacts of *CFO power* and *strategic importance* on CFO dismissal are negative. These results are generally consistent with the existing research on executive dismissal. In Model 2, *poor firm performance* is added to test H1. Its estimated coefficient is 0.35, which is positive and significant ($p=0.00$). This finding indicates that when firm performance becomes poorer, as much as 1 SD above the mean, the CFO dismissal rate increases by 41.9%. The results support H1, which predicts that the likelihood of CFO dismissal will be higher as firm performance worsens. Model 3 introduces the interaction between *CFO power* and *poor firm performance* to test H2. Its estimated coefficient is 0.56, which is positive and significant ($p=0.08$). This indicates that the expected likelihood of CFO dismissal following poor firm performance is 1.75 times higher in the high CFO power group compared with the low CFO power group. Hence, the finding contradicts H2, which argues that CFO power will reduce the likelihood of CFO dismissal following poor firm performance. Model 4 adds the interaction between *CFO strategic importance* and *poor firm performance* to test H3. Its estimated coefficient is -0.14 , which is negative and significant ($p=0.09$). According to the standardized value calculation, when the *CFO strategic importance*

value increases 1 SD above the mean, the CFO dismissal rate following poor firm performance decreases by 8.6%. This result supports H3, which predicts that CFO strategic importance will decrease the likelihood of CFO dismissal following poor firm performance.

Additional testing was conducted to check the robustness of these results. First, and most importantly, additional testing was undertaken to account for the possibility of CFO dismissal as scapegoating rather than dismissal due to poor firm performance. If CFO dismissal is due to scapegoating, we would expect to observe a higher likelihood of dismissal when the CEO has power. However, no evidence of increased CFO dismissal was found due to poor firm performance when the CEO had power, captured by either of two commonly used measures of CEO power—*CEO duality* and *CEO ownership* (Boeker, 1992). The findings are reported in Table 7.

Second, the robustness of the results is tested using alternative measures of the main constructs. Instead of industry-adjusted ROA, firm ROA before industry adjustments is used as an alternative measure for poor firm performance. CFO ownership in the firm, which is captured by shares owned by the CFO divided by total shares outstanding, is used as an alternate measure of CFO power (Finkelstein, 1992). Finally, this study captures CFO strategic importance as a dummy variable. Specifically, high CFO strategic importance is measured by assigning 1 if the residual, which is the original strategic importance measurement, is positive, and 0 if negative. Once again, largely, H1 is supported, and H2 reports the opposite finding. For H3, the p-value is slightly high, but the direction of the coefficient supports the hypothesis. The findings are reported in Tables 8 and 9.

Finally, considering that studies of dismissal traditionally use panel probit and logit models, the dismissal model is reestimated using these methodologies. CFO tenure is added to these models as a control. In contrast, tenure must be used as the baseline in the Cox hazards model. The results are presented in Table 10. Similar to the main findings, H1 and H3 are supported, but H2 is not supported.

In addition, to provide a deeper understanding of the moderating effects of CFO strategic importance, this study examines the 95% confidence intervals of the marginal effects of CFO strategic importance on CFO dismissal. While the margin command assumes that the effect of a covariate is constant over time, the effect of a covariate on survival time may vary depending on the period considered in the Cox hazards model (Morita, Lee, & Mowday, 1993). Thus, following previous studies (Li, 2018; Zelner, 2009), this study calculated the 95% confidence intervals of the marginal effects based on a simulation-based logistic estimator. As reported in Figure 1, high CFO power increases the likelihood of CFO dismissal following poor firm performance, indicating that the finding is the opposite of H2. Figure 2 reports that high CFO strategic importance decreases the likelihood of CFO dismissal following poor firm performance. This finding supports H3.

[Insert Tables 5, 6, 7, 8, 9, and 10 Here]

[Insert Figures 1 and 2 Here]

DISCUSSION AND CONCLUSION

This study argues that, in addition to their fiduciary duties, CFOs have strategic responsibilities similar to the CEO and hence can be considered co-agents of the CEO. Therefore, CFOs should also be at risk of dismissal when their firm's performance is poor. In line with this argument, the study shows that a standard deviation decline in performance from the mean will lead to a 42% increase in the likelihood of dismissing the CFO. As such, this study extends agency theory arguments (Jensen & Meckling, 1976) by offering CFOs as co-agents liable to dismissal following poor firm performance. The arguments are also consistent with agency theoretical research suggesting that firms may have more than one agent (e.g., Nilakant & Rao, 1994; Shapiro, 2005).

The study's main finding also suggests that CFOs' insufficient contributions to the firm's strategy, either in the formulation or implementation stages, drive CFO dismissal. The finding aligns with research demonstrating the contribution of CFOs to firm strategic outcomes (e.g., Bertrand & Schoar, 2003; Datta & Iskandar-Datta, 2014) and with Mian's (2001) descriptive study, which found that CFO dismissal is preceded by negative excess returns and a decline in ROA. Moreover, while prior research has suggested that such dismissals could be due to scapegoating (Boeker, 1992), our results are not likely to be driven by the scapegoating of CFOs to maintain CEOs' jobs. In contrast, Leone and Liu's (2010) study is congruent with the scapegoating argument when the CEO is a founder.

This argument also builds on and adds to prior research as follows: A voluminous body of work has already examined the link between poor firm performance and agent

dismissal, with a focus on the CEO, assuming that the CEO is the only agent (Berns, Gupta, Schnatterly, & Steele, 2021; Berns & Klarner, 2017). Similar to previous works, the focus on CEOs highlights the importance of non-CEO executives, which are increasingly studied in the management literature (e.g., Datta & Iskandar-Datta, 2014; Gore, Matsunaga, & Yeung, 2011; Menz, 2012; Uhde et al., 2017; Zorn, 2004). Our arguments that CEOs should be held accountable for adverse firm outcomes is also in line with past research that has linked CFO dismissal to poor firm reporting quality (e.g., Arthaud-Day et al., 2006; Indjejikian & Matějka, 2009; Jiang et al., 2010; Habib & Hossain, 2013); that is, when high-quality financial reporting is part of their fiduciary duty.

In addition to the main argument, this study examined the moderating role of CFO power. The study's arguments were built on calls for contextualizing the relationship between poor firm performance and agent dismissal (e.g., Berns et al., 2021; Oc, 2018). However, unlike prior research, which demonstrates a decreased likelihood of dismissal when the CEO is powerful (e.g., Boeker, 1992; Goyal & Park, 2002; Walsh & Seward, 1990), this study could not show that more powerful CFOs are entrenched and less likely to be dismissed even when firm performance is poor. This finding is also contrary to prior research showing evidence of CFO power by demonstrating a link between CFO power and, among other things, compensation (Bedard et al., 2014; Duong & Evans, 2015). Although the power measures used may have been imperfect, the difference between this study's findings and other studies' findings suggests that CFO power may be contextualized or ineffective at protecting one's job from dismissal.

Finally, the study also proposed that CFOs' strategic importance will moderate the poor performance–dismissal relationship, considering that board members will be more reluctant to dismiss important CFOs. Our arguments and findings align with prior work suggesting that the strategic disruption caused by changing CEOs makes board members reluctant to do so (Fredrickson et al., 1988; Grusky, 1960, 1963). The findings also align with the human capital literature, which suggests that executive departures lead to the loss of human and social capital (Messersmith et al., 2014; Shaw et al., 2013), and prior executive succession research, which suggests that great CEOs' strategic fit or importance reduces their likelihood of dismissal following poor firm performance (Allgood & Farrell, 2003; Shen, Gentry, & Tosi, 2010; Wang et al., 2017).

In addition, the study broadens our understanding of the board of directors' actions during poor firm performance. This suggests that boards may not necessarily be ineffective when they do not fire the CEO following poor firm performance, contrary to the accepted view (Boivie et al., 2016). CFO strategic importance and co-agency may explain prior findings of low explanatory power or a weak relationship in studies linking poor firm performance to CEO dismissal (Brickley, 2003; Hilger et al., 2013; Murphy, 1999). Board members may choose to dismiss CFOs instead of CEOs when they are deemed responsible for insufficient contributions to a firm's strategy. This explanation adds to existing hypotheses for unexpected findings, focusing on factors, such as imperfect choices of firm performance metrics (Hilger et al., 2013) or heterogeneous governance quality (Fisman, Khurana, Rhodes-Kropf, & Yim, 2014). Therefore, future researchers can examine whether the presence of strategically important CFOs reassures

board members of limited disruption and increases the likelihood of CEO dismissal following poor firm performance.

Furthermore, it would be essential to try to understand when boards of directors dismiss the CEO rather than the CFO, vice versa, or both. In general, agency theory researchers may need to deviate from current dyadic examinations of the board–CEO relationship (Eisenhardt, 1989).

From a practitioner’s standpoint, this study highlights the increased roles and accountabilities of CFOs in firm strategy and performance (Estrada, 2022).

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Table 1: Prior research and positioning of this study

	CEO Dismissal	CFO Dismissal
Poor Firm Performance	<p>Prior Work: The CEO is the agent and should be held liable for poor firm performance.</p> <ul style="list-style-type: none"> ● Coughlan & Schmidt (1985) ● Weisbach (1988) <p>Quadrant I</p>	<p>This study: The CFO is also an agent and, like the CEO, should be held liable following poor firm performance.</p> <p>Such a dismissal is not driven by scapegoating-although theoretically it could be.</p> <p>Quadrant IV</p>
Poor Financial Reporting Quality	<p>Prior Work: The CEO is the Agent and should be held liable for anything that goes wrong in the firm, including poor financial reporting quality.</p> <ul style="list-style-type: none"> ● Desai, Hogan, & Wilkins (2006) ● Hazarika et al. (2012) <p>Even dismissals of CFOs in those instances could be due to scapegoating</p> <ul style="list-style-type: none"> ● Friedman (2014) ● Leone & Liu (2010) <p>Quadrant II</p>	<p>Prior Work: The CFO has a fiduciary duty to stakeholders (<i>under SOX</i>) - and should be held responsible for poor financial reporting quality. Moreover, the CFO should not bow to CEO pressures to do so, even though it happens.</p> <ul style="list-style-type: none"> ● Arthaud-Day et al. (2006) ● Li et al. (2010) ● Wang (2010) ● Curtis et al. (2019) <p>Quadrant III</p>

Table 2: Prior research on moderating factors for dismissal and this study positioning

	CEO Dismissal	CFO Dismissal
Executive Power -Power Theories	<p>Prior Work: CEOs can gain power due to their position, relative power vis-a-vis directors, and poor governance quality. Such power can lead to entrenchment.</p> <ul style="list-style-type: none"> ● Boeker (1992) ● Denis, Denis, & Sarin (1997) ● Goyal & Park (2002) ● Bebchuk & Fried (2004) ● Gao, Harford, & Li (2017) 	<p>This study: CFOs can gain power vis-a-vis directors or coopt them. Such power can lead to entrenchment.</p> <p>Such a dismissal is not driven by scapegoating-although theoretically, it could be.</p>
Firm Disruption - Disruption Theories,	<p>Prior Work: CEO change can create a major disruption in the firm, and as such, boards of directors will be reluctant to dismiss the CEO, even when performance is poor.</p> <ul style="list-style-type: none"> ● Grusky (1960, 1963) ● Fredrickson et al. (1988) ● Schepker et al. (2017) 	<p>This Study: The board of directors will be reluctant to fire strategically important CFOs considering it can cause disruption in the firm, and the loss of strategic human capital which can be disruptive to the firm.</p>
Strategic Human Capital Theory	<p>Prior Work: Individuals may be strategic human assets, which help create value for the firm. Strategic human assets are characterized by high human, social, and cognitive capital **as well as high firm specificity of such a capital.</p> <ul style="list-style-type: none"> ● Becker (1964) ● Barney & Wright (1998) ● Allgood & Farrell (2003) ● Wang et al. (2017) 	

Table 3. Study measures

Construct	Measures
CFO dismissal	CFO dismissal (CFO dismissal=1, otherwise 0): among the CFO changes excluding: demotion or promotion and the departing CFO's age was more than 60
Poor Firm Performance (PFPI)	Inverted-standardized two-year average industry-adjusted ROA prior to CFO dismissal
Poor Firm Performance (PFP2)	Inverted-standardized two-year average ROA prior to CFO dismissal
CFO power 1	CFO board membership (CFO on board=1, otherwise 0)
CFO strategic importance 1	Residual of CFO total compensation as a function of firm size; firm age; ROA; Tobin's Q; CFO tenure; and CFO gender
CFO power 2	CFO ownership
CFO strategic importance 2	Positive value of residual CFO total compensation (positive residual of CFO total compensation is positive=1, otherwise, 0)
CEO power 1	CEO duality (CEO duality=1, otherwise 0)
CEO power 2	CEO ownership
CFO age	CFO age in years
Firm size	Natural log of firm sales
Discretionary	Modified Jones model for discretionary accruals

accruals	
Board size	Total number of the board of directors
Independent director ratio	The percentage of independent directors to board size
CEO dismissal	CEO dismissal (CEO dismissal=1, otherwise 0): among the CEO changes excluding: demotion or promotion and the departing CEO's age was more than 60

Table 4. CFO strategic importance model

	Model 1
Firm size	0.14***
	(0.00)
Firm age	0.04***
	(0.00)
ROA	-0.04
	(0.33)
Tobin's Q	0.24***
	(0.00)
CFO tenure	0.02***
	(0.00)
CFO female	-0.03
	(0.47)
Constant	5.31***
	(0.00)
Note: Observations: 11,780; R-squared: 0.21; Year dummy: Yes; Log-Likelihood: -3651 Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1	

Table 5. Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) CFO dismissal	1.00									
(2) Poor firm performance	0.04	1.00								
(3) CFO power	-0.06	0.02	1.00							
(4) CFO strategic importance	-0.08	-0.07	0.06	1.00						
(5) CFO age	-0.02	-0.06	0.03	-0.01	1.00					
(6) Firm size	-0.01	-0.21	-0.01	0.37	0.09	1.00				
(7) Discretionary accruals	0.01	0.02	0.00	-0.03	-0.01	-0.01	1.00			
(8) Board size	-0.01	-0.08	0.02	0.29	0.08	0.60	-0.01	1.00		
(9) Independent director ratio	0.02	-0.06	-0.16	0.17	-0.03	0.19	-0.01	0.19	1.00	
(10) CEO dismissal	0.05	0.04	-0.02	0.01	-0.02	-0.02	0.01	-0.01	0.01	1.00
Mean	.05	-.12	.13	-.02	52.51	7.51	.22	8.99	.79	.01
S.D.	.22	.76	.33	.68	6.40	1.649	3.69	2.10	.11	.11
VIF	-	1.04	1.03	1.23	1.02	1.76	1.00	1.61	1.09	1.00

Table 6. Explaining CFO dismissal

	Model 1	Model 2	Model 3	Model 4	Model 5
PFP 1		0.35***	0.34***	0.31***	0.30***
		(0.00)	(0.00)	(0.00)	(0.00)
PFP 1 * CFO power 1			0.56*		0.54*
			(0.08)		(0.09)
PFP 1 * CFO strategic importance 1				-0.14*	-0.14*
				(0.09)	(0.10)
CFO power 1	-5.36***	-5.32***	-5.59***	-5.34***	-5.51***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
CFO strategic importance 1	-0.49***	-0.51***	-0.51***	-0.50***	-0.50***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CFO age	-0.07***	-0.07***	-0.07***	-0.07***	-0.07***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Firm size	0.08*	0.13***	0.13***	0.13***	0.13***
	(0.08)	(0.00)	(0.00)	(0.00)	(0.01)
Discretionary accruals	0.00	0.01	0.01	0.01	0.01

	(0.76)	(0.67)	(0.67)	(0.63)	(0.64)
Board size	0.01	-0.00	-0.00	-0.00	-0.00
	(0.81)	(0.96)	(1.00)	(0.94)	(0.99)
Independent director ratio	1.22**	1.14**	1.14**	1.12**	1.13**
	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
CEO dismissal	1.08***	0.96***	0.96***	0.94***	0.94***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	10,507	10,507	10,507	10,507	10,507
Industry & Year dummies	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	-4467	-4449	-4447	-4447	-4445
Chi-squared	1141	1603	269.8	1773	285.2
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1					

Table 7. Explaining CFO dismissal with CEO power

	Mode1 1	Mode1 2	Mode1 3	Mode1 4	Mode1 5
PFP 1		0.37***	0.44***	0.36***	0.43***
		(0.00)	(0.00)	(0.00)	(0.00)
PFP 1 * CEO power 1			-0.18*		-0.20*
			(0.09)		(0.06)
PFP 1 * CEO power 2				0.08	0.12
				(0.45)	(0.24)
CEO power 1	-0.54***	-0.56***	-0.56***	-0.56***	-0.56***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO power 2	0.08	0.09	0.09	0.09	0.09
	(0.32)	(0.30)	(0.30)	(0.30)	(0.31)
CFO power 1	-6.00***	-5.89***	-5.87***	-5.90***	-5.89***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CFO strategic importance 1	-0.50***	-0.52***	-0.52***	-0.52***	-0.52***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CFO age	-0.06***	-0.06***	-0.06***	-0.06***	-0.06***

	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Firm size	0.11**	0.16***	0.16***	0.16***	0.16***
	(0.02)	(0.00)	(0.00)	(0.00)	(0.00)
Discretionary accruals	0.00	0.01	0.01	0.01	0.01
	(0.79)	(0.70)	(0.72)	(0.69)	(0.72)
Board size	-0.01	-0.02	-0.02	-0.02	-0.02
	(0.78)	(0.55)	(0.53)	(0.55)	(0.53)
Independent director ratio	-8.39**	-8.65**	-8.61**	-8.66**	-8.57**
	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
CEO dismissal	0.96***	0.82***	0.79***	0.82***	0.79***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	10,499	10,499	10,499	10,499	10,499
Industry & Year dummies	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	-4447	-4427	-4426	-4427	-4425
Chi-squared	245.1	1940	1357	1942	1563
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1					

Table 8. Explaining CFO dismissal measuring PFP 2

	Model 1	Model 2	Model 3	Model 4	Model 5
PFP 2		0.35***	0.34***	0.32***	0.30***
		(0.00)	(0.00)	(0.00)	(0.00)
PFP 2 * CFO power 1			0.48*		0.48*
			(0.07)		(0.08)
PFP 2 * CFO strategic importance 1				-0.12	-0.12
				(0.14)	(0.14)
CFO power 1	-5.36***	-5.31***	-5.65***	-5.33***	-5.60***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)
CFO strategic importance 1	-0.49***	-0.51***	-0.51***	-0.50***	-0.50***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CFO age	-0.07***	-0.07***	-0.07***	-0.07***	-0.07***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Firm size	0.08*	0.14***	0.14***	0.14***	0.14***
	(0.08)	(0.00)	(0.00)	(0.00)	(0.00)
Discretionary accruals	0.00	0.00	0.00	0.00	0.00

	(0.76)	(0.78)	(0.78)	(0.74)	(0.75)
Board size	0.01	-0.00	0.00	-0.00	-0.00
	(0.81)	(1.00)	(0.98)	(0.96)	(0.99)
Independent director ratio	1.22**	1.14**	1.13**	1.12**	1.12**
	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
CEO dismissal	1.08***	0.95***	0.95***	0.93***	0.94***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	10,507	10,507	10,507	10,507	10,507
Industry & Year dummies	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	-4467	-4446	-4445	-4445	-4443
Chi-squared	1141	282	275.3	299.3	290.2
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1					

Table 9. Explaining CFO dismissal with alternative measurements of CFO power and strategic importance

	Model 1	Model 2	Model 3	Model 4	Model 5
PFP 1		0.31***	0.25***	0.38***	0.31***
		(0.00)	(0.00)	(0.00)	(0.00)
PFP 1 * CFO power 2			8.01***		8.24***
			(0.00)		(0.00)
PFP 1 * CFO strategic importance 2				-0.14	-0.12
				(0.14)	(0.18)
CFO power 2	-260.06**	-255.86**	-258.31**	-253.77**	-254.70**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
CFO strategic importance 2	-0.37***	-0.46***	-0.45***	-0.45***	-0.45***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CFO age	0.07	0.07	0.07	0.07	0.07
	(0.28)	(0.28)	(0.29)	(0.28)	(0.29)
Firm size	-0.14***	-0.06	-0.06	-0.06	-0.07
	(0.00)	(0.21)	(0.15)	(0.16)	(0.13)
Discretionary accruals	0.01	0.01	0.01	0.01	0.01

	(0.75)	(0.66)	(0.65)	(0.63)	(0.63)
Board size	-0.02	-0.03	-0.03	-0.03	-0.03
	(0.53)	(0.26)	(0.27)	(0.27)	(0.27)
Independent director ratio	1.49***	1.39**	1.43***	1.37**	1.40**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
CEO dismissal	1.12***	0.96***	0.97***	0.91***	0.93***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	10,588	10,588	10,588	10,588	10,588
Industry & Year dummies	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	-4407	-4391	-4388	-4390	-4387
Chi-squared	1776	1244	1514	1183	1125
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1					

Table 10. Panel probit and logit models for CFO dismissal

	Panel probit				Panel logit			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
PFP 1	0.17***	0.16***	0.15***	0.14***	0.35***	0.33***	0.30***	0.29***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
PFP 1 * CFO power 1		0.15		0.14		0.42		0.42
		(0.26)		(0.27)		(0.14)		(0.13)
PFP 1 * CFO strategic importance 1			-0.07*	-0.07*			-0.12	-0.12
			(0.08)	(0.09)			(0.13)	(0.13)
CFO power 1	-0.42***	-0.43***	-0.42***	-0.43***	-0.95***	-1.00***	-0.95***	-1.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CFO strategic importance 1	-0.32***	-0.32***	-0.32***	-0.32***	-0.74***	-0.73***	-0.73***	-0.73***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CFO age	-0.01*	-0.01*	-0.01	-0.01	-0.01*	-0.01*	-0.01*	-0.01*
	(0.10)	(0.10)	(0.10)	(0.10)	(0.08)	(0.08)	(0.08)	(0.08)

CFO tenure	-0.02***	-0.02***	-0.02***	-0.02***	-0.05***	-0.05***	-0.05***	-0.05***
	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Firm size	0.08***	0.08***	0.07***	0.07***	0.18***	0.18***	0.17***	0.17***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Discretionary accruals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.83)	(0.82)	(0.81)	(0.80)	(0.75)	(0.75)	(0.74)	(0.74)
Board size	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.63)	(0.63)	(0.65)	(0.66)	(0.64)	(0.64)	(0.67)	(0.66)
Independent director ratio	0.50**	0.50**	0.49**	0.49**	1.15**	1.15**	1.13**	1.13**
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
CEO dismissal	0.56***	0.56***	0.56***	0.56***	1.11***	1.12***	1.11***	1.11***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-2.24***	-2.23***	-2.22***	-2.21***	-4.40***	-4.38***	-4.35***	-4.34***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	10,506	10,506	10,506	10,506	10,506	10,506	10,506	10,506

Industry & Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	-2010	-2009	-2008	-2008	-2006	-2005	-2005	-2003
Chi-squared	181.8	177.5	188.8	184.5	206.4	200.9	217	211.4
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1								

Figure 1. The moderating effect of CFO power

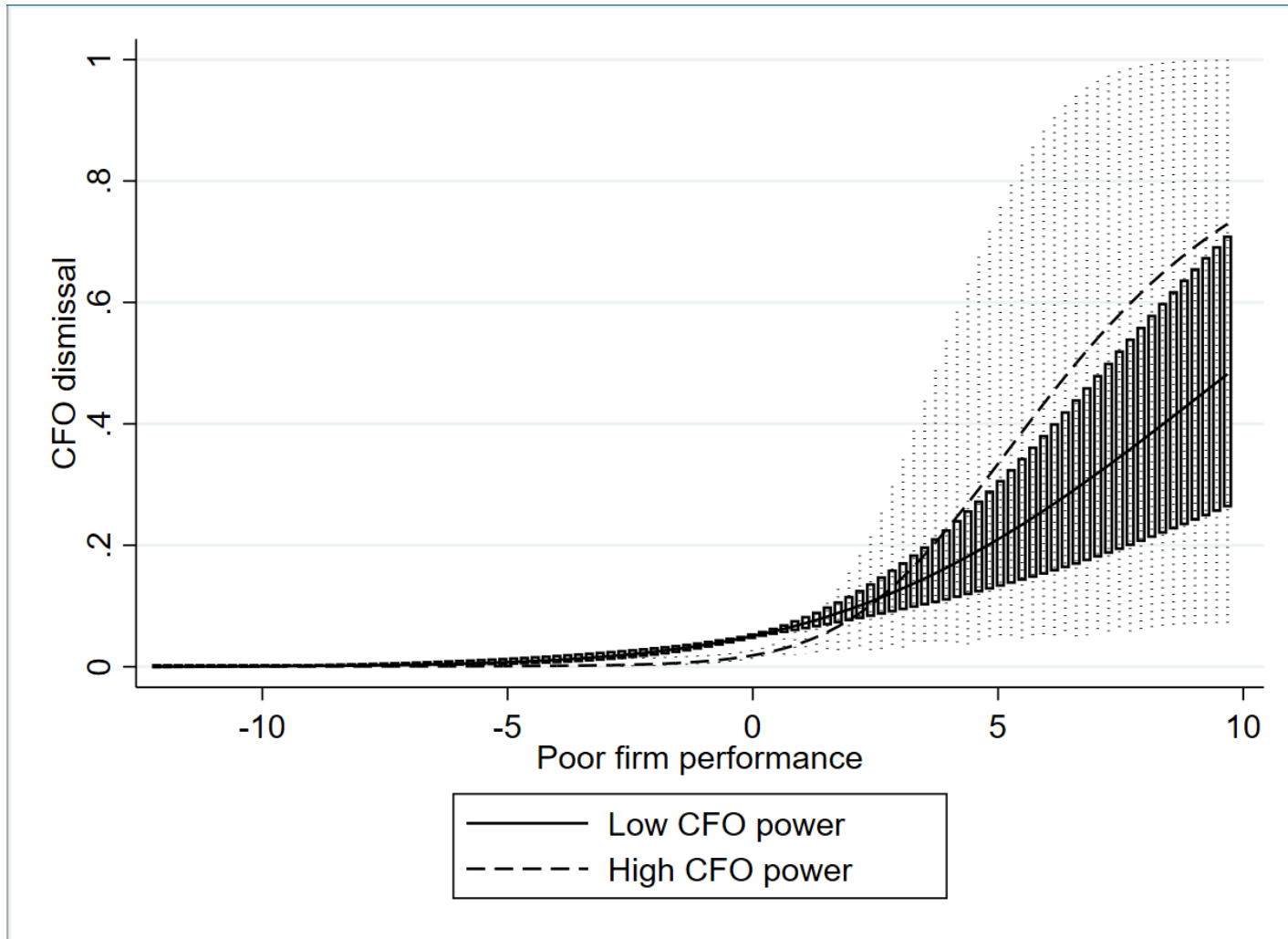
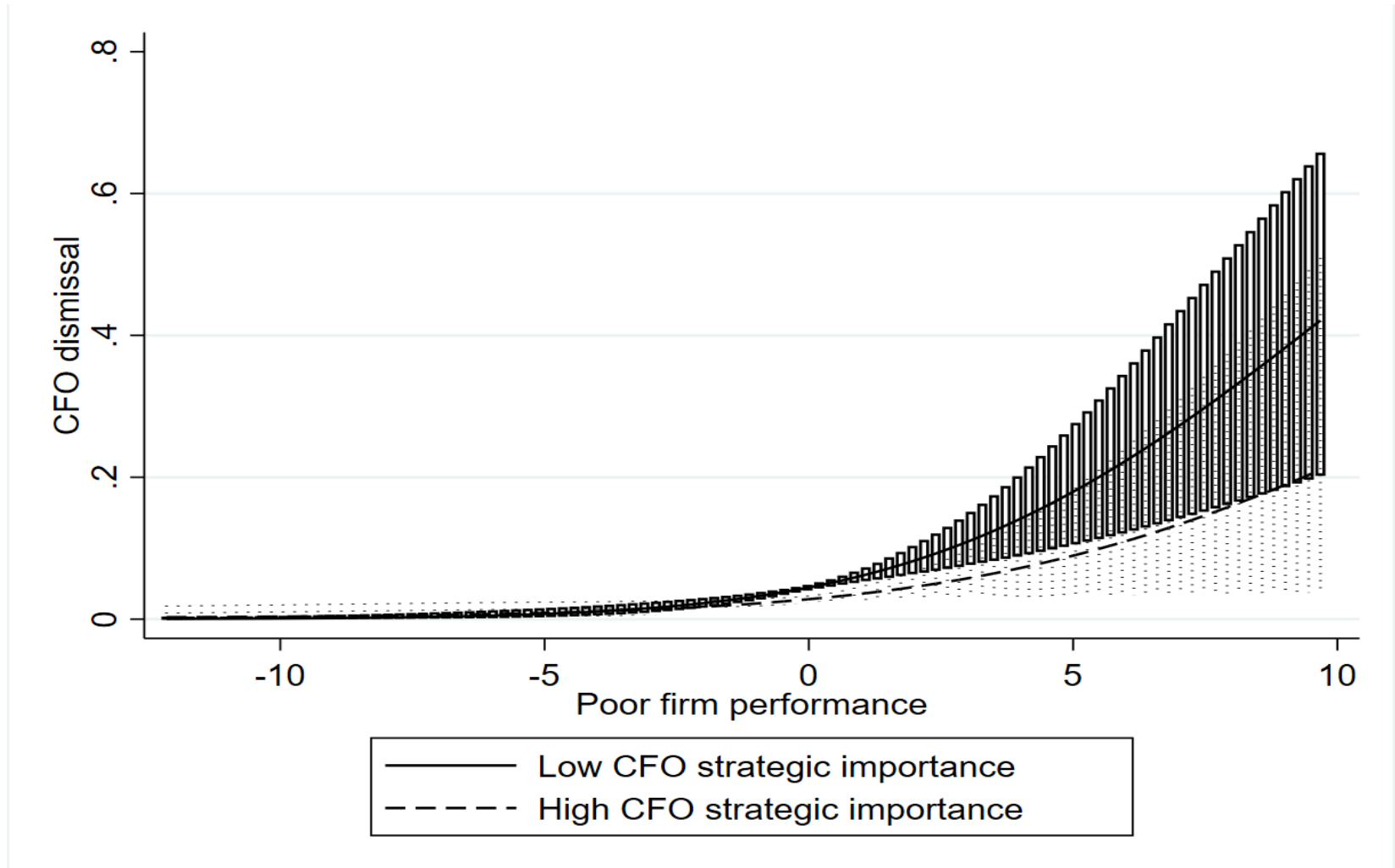


Figure 2. The moderating effect of CFO strategic importance



II. CFO POWER AND EXPERTISE AND CEO DISMISSAL

INTRODUCTION

Studies on CEO dismissal have emphasized the role of other C-suite members in the dismissal of the CEO and their influence on the likelihood of dismissal following poor firm performance. These studies have also, at times, focused on the expertise of such members and, at other times, on their power to increase the likelihood of dismissal.

While the highlighted studies are compelling in their own right, they present different mechanisms for CEO dismissal. On one hand, the expertise studies suggest that C-suite members with expertise may increase the likelihood of CEO dismissal because they can substitute for the CEO or can help onboard the new CEO (e.g., Fredrickson, Hambrick, & Baumrin, 1988; Mobbs, 2013; Zhang, 2006). On the other hand, power studies argue that powerful C-suite members, drawing on political and institutional explanations, challenge their CEO for promotion (e.g., Bebchuk & Fried, 2004; Finkelstein, 1992; Ocasio, 1994; Shen & Cannella, 2002). The arguments on direct effect imply that regardless of the firm's situation, expertise or power will lead to more dismissals.

This study incorporates all these arguments in a single context to examine whether power or expertise drives the relationship between C-suite members and CEO dismissals and whether this effect is direct or moderating. This study focuses on the role of the CFO in CEO dismissals, which has not yet been examined, to enable such a comparison. These CFOs vary in their expertise and power levels and are often visible to the board. Drawing on and extending prior research, this study makes the following arguments. First, this study argues that greater CFO expertise can directly increase the

likelihood of CEO dismissals. Such experts may alert board members of potential future firm performance problems well before they are reflected in financial statements (Dou, Sahgal, & Zhang, 2015; Mobbs, 2013). Moreover, such experts may also be seen as a viable alternative if the board is considering CEO dismissal for reasons other than performance. Finally, expert CFOs can hold the fort, so to speak, until a new CEO is hired and can help onboard the new CEO, since they are intimately acquainted with the firm's strategy and are in charge of implementation. Second, this study argues that greater CFO expertise moderates the relationship between poor firm performance and CEO dismissal. Moreover, expert CFOs can help increase stability in the case of a CEO departure under adverse firm conditions, thus alleviating board members' concerns. Third, this study argues that CFO power can directly influence the likelihood of CEO dismissal. Such a powerful CFO may wish to take on the job or simply replace the CEO with someone with a more compatible profile, regardless of the firm's performance (Ocasio, 1994). Finally, CFO power is predicted to moderate the relationship between poor performance and CEO dismissal. In this regard, only when firm performance is poor can the CFO increase the likelihood of CEO dismissal (Ocasio, 1994; Shen & Cannella, 2002).

These hypotheses are tested using CEO dismissal information in Standard & Poor's (S&P) 1500 firms between 2010 and 2019. The study results show that CFO power increases the likelihood of CEO dismissal, whereas CFO expertise decreases the likelihood of CEO dismissal. In addition, in the moderating tests, the interaction between CFO power and poor firm performance increases CEO dismissal; however, the interaction between CFO expertise and poor firm performance decreases CEO dismissal.

These findings are more sensitive when poor firm performance is measured as normal firm ROA rather than industry-adjusted ROA.

This study contributes to the literature as follows. First, it offers an alternative explanation for CEO dismissal. The dominant view of CEO dismissal was that the CEO is accountable for, or scapegoated by, the adverse effects of the firm, such as poor performance or wrongdoings (Berns, Gupta, Schnatterly, & Steele, 2021). A few studies have suggested individual forces within and outside the firm, such as professional board members (Francis, Hasan, & Wu, 2015) or strong internal competitors (Rowe, Cannella, Rankin, & Gorman, 2005; Shen & Cannella, 2002), as potential factors in CEO dismissal. However, theories and findings have only limited the moderating effect of poor firm performance. Therefore, by providing the direct effects of CFO power and expertise on CEO dismissal, this study is expected to advance our knowledge of CEO dismissal.

Second, this study expands the current literature on the importance of functional executives (Menz, 2012). The research findings that the CFO can be both a friend and a foe imply that research on functional executives should not be limited to the functional areas of each executive. Instead, it should be expanded to include research on leadership changes, which are core issues in firm strategy.

Future research can explore the powers and expertise of other non-CEO insiders, not just limited to the CFO, and investigate the consequences of each mechanism on CEO dismissal and firm-level outcomes, such as strategy and performance.

CEO DISMISSAL

The causes of CEO dismissals have been a prominent topic in strategic management and management research over the past few decades (e.g., Berns & Klarner, 2017; Cragun, Nyberg, & Wright, 2016; Kesner & Sebor, 1994; Nyberg, Cragun, & Schepker, 2021). Most studies have investigated the relationship between poor firm performance and CEO dismissal, assuming that the CEO is the most accountable position for firm performance (Berns et al., 2021). Based on agency theory (Fama, 1980; Jensen & Meckling, 1976), these studies suggest that boards of directors dismiss their CEOs due to poor firm performance, which is considered a reflection of the CEO's lack of ability, effort, and problems with corporate governance. Furthermore, adaptation theorists argue that poor firm performance indicates a misalignment between the current firm strategy and the business environment; therefore, to reorient the firm strategy, the CEO is replaced (e.g., Tushman & Rosenkopf, 1996; Tushman, Virany, & Romanelli, 1985; Virany, Tushman, & Romanelli, 1992). Scapegoat theorists propose that the CEO is scapegoated for poor firm performance to assuage shareholders' concerns or maintain firm legitimacy (Gamson & Scotch, 1964; Pfeffer & Salancik, 1978). Similarly, studies have found a positive association between corporate wrongdoings and CEO dismissal (e.g., Desai, Hogan, & Wilkins, 2006; Hazarika, Karpoff, & Nahata, 2012).

From a socio-political perspective, a different explanation for CEO dismissal emerges, although it is somehow blended with agency theory. Specifically, CEO dismissal is not only explained by such adverse firm events but also by power struggles or challenges from external and internal individuals (e.g., Bebchuk & Fried, 2004; Finkelstein, 1992). In external individuals, regardless of their type, power, or expertise,

the study is somewhat consistent with agency theory. For instance, studies have found that when firms have powerful or expert independent board members, they are more likely to dismiss their CEOs during poor firm performance (e.g., Conyon & He, 2011; Khanna, Kim, & Lu, 2015; Weisbach, 1988). This is because powerful external board members possess more vetoes for the CEO, whereas expert external board members can monitor the CEO more effectively (e.g., Eisenhardt, 1989; Fama & Jensen, 1983; Johnson, Daily, & Ellstrand, 1996; Laux, 2008). Moreover, performance–CEO dismissal sensitivity is higher when firms can easily find a replacement CEO externally (Parrino, 1997).

Second, research on internal individuals is based on the power circulation (Ocasio, 1994) or disruption view (Grusky, 1960, 1963). For example, C-suit members, as insiders, are not always suppressed by their CEO (Menz, 2012), and they may sometimes engage in power struggles with their CEO (Ocasio, 1994; Shen & Cannella, 2002; Rowe et al., 2005). Alternatively, the board may not hesitate to dismiss the CEO for poor firm performance if it believes that alternative candidates or C-suite members with expertise in C-suite who can minimize organizational disruptions are available (Fredrickson et al., 1988).

However, as summarized in Table 1, most studies have hypothesized and found interactions between the power or expertise of internal/external individuals and poor firm performance. Only a few studies have reported the direct effect of internal/external individuals' power or expertise without hypothesizing it. Moreover, even though an individual can have power and expertise at the same time, the studies have not considered this possibility.

Therefore, this study investigates the direct influences of an individual's power and expertise on CEO dismissal, as well as their interaction effects with poor firm performance, by focusing on the CFO to extend the current limitations of the literature.

[Insert Table 1 Here]

WHY CFO?

Why do we need to focus on the CFO? This study proposes that the CFO is a C-suite member with sufficient power and expertise to influence the CEO's dismissal. Anecdotal and systematic research evidence provides an explanation for why the literature should pay more attention to CFOs than other executives.

First, the role of CFOs has changed over the years, from bean counters to strategic partners to CEOs (Zorn, 2004). Changes in the business environment, such as increased industry consolidation, globalization, and competition, as well as important regulatory shifts, have led companies to adopt financial logic rather than marketing or sales logic, with the managerial discretion of the CFO increasing accordingly (Fligstein, 1990). As a result, in modern times, the prevalence of COOs, another important executive position, continues to decline, whereas the prevalence of CFOs continues to increase.

Second, the CFO is in charge of corporate financial strategy, which is a key element for shareholder value enhancement, such as budgeting (Graham & Harvey, 2002), decisions on investment and dividends (Baker, Veit, & Powell, 2001; Graham & Harvey, 2001), cash flow (Hoitash, Hoitash, & Kurt, 2016), and tax management (Dyreg, Hanlon, & Maydew, 2010).

Third, with the knowledge of corporate financial strategy, CFOs have become CEOs' strategic partners (Datta & Iskandar-Datta, 2014). Their work is essential in evaluating the soundness of a strategic option and often also its implementation (Chen, Meyer-Doyle, & Shi, 2018). Large-scale empirical research has also implicated CFOs in numerous strategic activities and outcomes. For instance, the CFO actively participates in firm strategies, such as mergers and acquisitions (Shi, Zhang, & Hoskisson, 2019), firm growth-related strategic actions (Chen et al., 2018), research and development (Ginesti, Spano, Ferri, & Caldarelli, 2021), and corporate social responsibility (Xu, Shi, Qin, Zhang, & Tang, 2022).

Moreover, the CFO is considered essential in dealing with environmental challenges, such as fierce market competition (Bromwich, 1990), hostile takeover threats (e.g., Clemens, 1989), and active institutional shareholders (Almazan, Hartzell, & Starks, 2005).

With all these evidence, this study suggests that CFOs can be considered important insiders who contribute significantly to shareholder value as CEOs. This means that the CFO must be the focal point of the board members, suggesting that the CFO is an individual with the power and expertise that should be included in the CEO dismissal model.

CFO IN THE CEO DISMISSAL MODEL

This section argues for the inclusion of the CFO in the CEO dismissal model and explores how CFO power and expertise can explain CEO dismissal. As discussed earlier, if the CFO is the most visible executive compared to others, it will be the board of

directors' focus (Uhde, Klarner, & Tuschke, 2017). Specifically, the board of directors may consider the CFO a strategic leader who plays a central role in firm value creation (e.g., Zorn, 2004) and can effectively cope with organizational challenges and changes (e.g., Zorn, Dobbin, Dierkes, & Kwok, 2005). Indeed, the CFO is recognized by the board of directors as the ideal candidate to fill the void left by the CEO (Chasan, 2011). Therefore, in the CEO dismissal process, the CFO should be considered an alternative or competitor to the CEO. The literature on executive succession provides theoretical rationales for the CFO to temporarily substitute the CEO (Ballinger & Marcel, 2010), assist in onboarding the new CEO (Messersmith, Lee, Guthrie, & Ji, 2014), or utilize their powers to influence the board of directors to dismiss the CEO (Ocasio, 1994).

CFO expertise and CEO dismissal

According to the human capital literature, executive expertise refers to an individual's ability, knowledge, or experience that is a key factor in enhancing firm value (e.g., Barney & Wright, 1998; Becker, 1964; Combs & Skill, 2003; Ployhart & Moliterno, 2011). Studies have suggested that not all executives have the same level of expertise, and executives with high expertise are treated with relatively high compensation (e.g., Conyon, Hass, Vergauwe, & Zhang, 2019; Datta & Iskandar-Datta, 2014; Harris & Helfat, 1997).

The presence of non-CEOs with expertise can be a major threat to the CEO position. First, from a human capital perspective (Barney & Wright, 1998; Becker, 1964), non-CEOs with expertise inevitably receive the attention of the board of directors (Carpenter & Wade, 2002). Directors who are always interested in good human capital would want to retain these talented executives, which directly and indirectly provide

several benefits, such as promotions or salary increases (e.g., Call, Nyberg, & Thatcher, 2015; Mobbs, 2013). In fact, these executives with expertise are groomed as the next CEO; furthermore, they aim for the CEO position (e.g., Brady & Helmich, 1984; Cannella & Shen, 2001; Zhang & Rajagopalan, 2006). Second, executives with expertise can promptly identify potential problems in the firm or weaknesses in the current CEO's strategy. For example, Disney's CFO, Christine McCarthy, had early doubts about the new CEO's strategy, which led to the CEO's firing. Third, and more importantly, executives with expertise can alleviate the board of directors' concerns about the disruptive effects following CEO dismissal (Hetzner, 2022). According to the disruption view, CEO dismissal causes many disruptions in a business (Grusky, 1960, 1963). Thus, the board of directors is less hesitant to dismiss the CEO when alternatives to reduce disruption are still available (Fredrickson et al., 1988). The experience and knowledge of executives with expertise can help smooth the onboarding of a new CEO, alleviating board concerns about disruptions (Messersmith et al., 2014).

Likewise, if the CFO's expertise is high, the CEO's position is at stake. As mentioned above, a CFO with high expertise can be considered the next CEO (e.g., Ballinger & Marcel, 2010; Chen, Luo, Tang, & Tong, 2015), which is a potential threat to the CEO position. Moreover, as a financial expert, a highly experienced CFO can spot a firm's potential financial problems in advance (e.g., Aier, Comprix, Gunlock, & Lee, 2005; Bedard, Hoitash, & Hoitash, 2014). As in the case of Disney, the CFO with expertise can observe the CEO up close and spot weaknesses in their strategy. As a result, these expert CFOs share opinions with the board, which can increase the likelihood of CEO dismissal (Uhde et al., 2017). Finally, an expert CFO can help a new CEO fit into

the business. Even for a short period of time, they can perform the role of CEO well (Ballinger & Marcel, 2010; Chen et al., 2015). Therefore, the directors' concerns about the disruption can be allayed. In such cases, the CFO's expertise can increase the likelihood of CEO dismissal.

This relationship will be further strengthened if the board of directors is already considering the CEO's dismissal due to poor firm performance. Moreover, this is because the CFO with expertise can stabilize chaotic situations, such as poor firm performance, can handle a firm on an interim basis until a new CEO is appointed, and can help onboard a newly appointed CEO.

H1. CFO expertise increases the likelihood of CEO dismissals.

H2. Poor firm performance will enhance the positive relationship between CFO expertise and the likelihood of CEO dismissals.

CFO power and CEO dismissal

Executives possess not only expertise but also power. Socio-political theories view the firm as a political coalition where political and power struggles are not uncommon (March, 1962; March & Olsen, 1983). All firm executives may have power (Finkelstein, 1992), which they utilize to drive their plans and objectives throughout the organization (Pfeffer, 1992). In fact, jockeying for power and its influence can be found in competitions for compensation (e.g., Connelly, Tihanyi, Crook, & Gangloff, 2014; Lazear & Rosen, 1981) or promotions (e.g., Cannella & Shen, 2001).

Power is also likely to be observed in executive dismissal decisions (e.g., Boeker, 1992; Ocasio, 1994). On the one hand, more powerful superiors can use their power to push for the dismissal of lower-level executives. By extending on Gamson and Scotch's (1964) scapegoating theory, Boeker (1992) argued and found that powerful CEOs shift blame for poor performance onto less powerful executives who are then dismissed despite their lack of failure—a.k.a. get scapegoated. On the other hand, non-CEO insiders can also contribute to the dismissal of CEOs (Ocasio, 1994; Vancil, 1987). Specifically, Ocasio's (1994) power circulation theory highlights the prevalence of power struggles between insiders and CEOs. Ocasio (1994) argued that when the CEO's control weakens (i.e., the firm's performance is poor under his/her leadership), the "power of the CEO is subject to contestation" from insiders (p. 288). Consistent with this theory, the study reveals that the likelihood of CEO dismissal following poor firm performance increases in the presence of more internal directors.

As Ocasio (1994) suggested, non-CEO executives who are most likely to benefit from CEO dismissal are those in line with the CEO position. Non-CEO executives groomed for the next CEO anticipate "running their own shows," and thus, for them, "promotion to CEO is a top priority" (Cannella & Shen, 2001, p. 257). Internal power struggles are also more intense when potential CEO successors are contenders, that is, internal successors engage in power struggles with their predecessors to rise (Georgakakis & Buyl, 2020; Shen & Cannella, 2002), rather than with deliberately groomed successors (Shen & Cannella, 2002; Zhang, 2006). In addition, powerful non-CEO executives may exert their power to ensure the appointment of a more capable CEO for their own careers or to have a CEO of their own.

CFO power is also not a remote possibility, considering that CFOs, in contrast to other non-CEO executives, have frequent and direct interactions with board members (Uhde et al., 2017). In such cases, the powerful CFO can be a threatening challenge to the CEO. A high level of power allows the CFO to engage in a power struggle with the CEO to take their position. Furthermore, even if a powerful CFO does not want to become the next CEO, she or he can still sway the current CEO to have a new CEO who can provide better career or personal chemistry.

This relationship is strengthened when the CEO's power is greatly diminished due to poor firm performance. Specifically, no CFO or other executives want to preside over a firm that has poor firm performance. Top executives leaving poorly performing firms often struggle to find other jobs (Cannella, Fraser, & Lee, 1995; Fee & Hadlock, 2004). Moreover, no executive wants to leave a poor legacy (Matta & Beamish, 2008; Vroom & Pahl, 1971). Moreover, similar to other executives, powerful CFOs are increasingly likely to get a CEO position, and poor firm performance is an opportunity for a powerful CFO to remove the CEO and take over the position.

H3. CFO power increases the likelihood of CEO dismissals.

H4. Poor firm performance will enhance the positive relationship between CFO power and the likelihood of CEO dismissals.

METHODS

Sample

The study initially included all S&P 1500 firms between 2010 and 2019, excluding the financial sector. Data from various sources were incorporated. Firm financial information was sourced from COMPUSTAT, executive information from ExecuComp, and firm governance and internal control information from Institutional Shareholder Services, BoardEX, and Thomson Reuters Institutional (13F) holdings. CEOs in these firms were identified using methods similar to that in previous studies (e.g., Cornaggia, Krishnan, & Wang, 2017; Jiang, Petroni, & Wang, 2010). Specifically, CEOs identified by ExecuComp as annual CEOs (CEOANN) were assumed to be the CEO for that firm year. If the annual CEO information was missing, the executives' titles in ExecuComp were used to identify the unmarked CEO. This identification was made by finding executives with specific terms in their titles, including "CEO" and "chief executive officer," while excluding those with other terms, including "former," "acting," or "interim." Finally, if multiple executives with CEO-like titles appeared in a particular firm year, the CEO title was assigned to the individual who held the same title the following year. Missing data reduced the study sample to 11,648 firm-year observations, which included 1,762 unique firms, 2,532 unique CEOs, and 244 CEO dismissals.

Main variables

CEO dismissal is measured as a dummy variable equal to 1 if the CEO was dismissed and 0 if otherwise. CEO dismissals start by identifying changes in CEO between years t and year $t-1$ in ExecuComp. Such changes are classified as dismissals when the departing CEO did not accept another position in the firm and the departing

CEO's age was less than 60 years (Parrino, 1997; Suk, Lee, & Kross, 2021).

Consequently, 289 CEO dismissals were identified, and 244 CEO dismissals were finalized after excluding missing values.

CFO expertise is measured as the residual from a model that regresses total CFO compensation on year fixed effects using all the following variables: firm size, firm age, return on assets (ROA), Tobin's *Q*, CFO tenure, and CFO gender. Given that more talented and important executives receive higher pay (Frydman & Jenter, 2010; O'Reilly & Main, 2010), the residual, which means the excess compensation granted to the CFO, is considered an appropriate approach to measure expertise. Indeed, the measurement of executives' ability or importance through residuals is used in finance (e.g., Song & Wan, 2019) or strategy literature (e.g., Seo, Gamache, Devers, & Carpenter, 2015). Thus, a higher residual value indicates greater CFO expertise.

CFO power, in line with prior research, is measured as 1 if the CFO serves on the board of the focal firm and 0 if otherwise (Bedard et al., 2014; Muttakin, Khan, & Tanewski, 2019). This approach provides a reasonable measure of power, considering that insider directors can rival CEOs and contest CEO power (Ocasio, 1994; Vancil, 1987). Approximately 10.3% of the CFOs in the study sample are board members.

Poor firm performance is measured using industry-adjusted ROA and normal ROA, which are consistent with prior studies on executive dismissal (e.g., Gentry, Harrison, Quigley, & Boivie, 2021; Shen & Cannella, 2002; Westphal & Fredrickson, 2001). Specifically, the two-year average industry-adjusted ROA and normal ROA before CEO dismissal were calculated and standardized within the sample (Tian, Haleblian, & Rajagopalan, 2011; Westphal & Fredrickson, 2001). Finally, the calculated industry-

adjusted ROA and normal ROA are inverted to reflect *poor* performance (Westphal & Fredrickson, 2001). Each variable was named *poor firm performance 1* and *poor firm performance 2*.

Control variables

Several control variables, at the CEO and firm levels, are included to account for other factors that may influence the likelihood of CEO dismissal.

At the CEO level, *CEO ownership* measured by shares owned by the CEO divided by total shares outstanding is included, since managerial ownership influences the likelihood of dismissal (Boeker, 1992). *CEO total compensation* is included using the natural log of total compensation reported in SEC filings, since the compensation level often refers to executive power (Shen, Gentry, & Tosi, 2010; Tosi & Gomez-Mejia, 1989). *CEO duality* is included as a dummy variable in which the value is 1 if the CEO serves as the board chair and 0 otherwise, since it may increase entrenchment (Krause, Semadeni, & Cannella, 2014). *CEO age* was controlled, since executives are more likely to leave their position as they age (e.g., Gupta, Mortal, Silveri, Sun, & Turban, 2020; Murphy, 1999). At the firm level, *firm size* is included and measured as the natural log of firm sales, considering that larger firms may have more candidates who can replace CEOs (Bilgili, Calderon, Allen, & Kedia, 2017). *Discretionary accruals*, which are measured using the modified Jones model (Dechow, Sloan, & Sweeney, 1995), control for the quality of financial reporting often associated with CEO dismissal (Hazarika et al., 2012). Two additional measures are included to control for the quality of governance: *board size*, which is measured as the total number of the board of directors (Wiersema &

Zhang, 2011), and *independent director ratio*, which is measured as the percentage of independent directors to board size (Lehn & Zhao, 2006).

The details of the measures of all variables are presented in Table 2. Table 3 reports the CFO expertise model.

Estimation methods

To test the study hypotheses, a Cox hazards model (Cox, 1972) is estimated using firm-level clustering. Cox hazard modeling has been increasingly used in succession research (e.g., Arthaud-Day, Certo, Dalton, & Dalton, 2006; Gietzmann, Marra, & Pettinicchio, 2016; Hazarika et al., 2012; Hubbard, Christensen, & Graffin, 2017; Jenter & Kanaan, 2015; Shin & You, 2023; Wang, Zhu, Avolio, Chen, & Waldman, 2022), as well as in strategy research (e.g., Dai, Eden, & Beamish, 2017; Nadolska & Barkema, 2014; Piao & Zajac, 2016). Also called event history or survival modeling, Cox hazard models are considered superior to logit or probit models in estimating the occurrence of an event, such as survival or death (Shumway, 2001), and in our case, dismissal. Among others, event history modeling considers not just the actual event—or dismissal, as in probit or logit—but also controls for its timing. Moreover, it allows accounting for the right censoring of the data, considering executives in our final data year who have yet to leave their position or be dismissed.

The data are compiled at the firm-CEO-year level. Each observation is treated as right-censored, except for CEO dismissal years. CEO tenure is used as the time clock for CEO dismissal. In all models, year and industry fixed effects were included. Independent and control variables are lagged by one year, as is standard in the strategic management literature (e.g., Hubbard et al., 2017).

[Insert Tables 2 and 3 Here]

RESULTS

Tables 4 and 5 report the correlation matrix and descriptive statistics for the variables. The correlation between *firm size* and *board size* and *CEO total compensation* seems high; however, the variance inflation factors were low, ranging from 1.00 to 2.53. These values are less than the threshold value of 10 (Neter, Kutner, Nachtsheim, & Wasserman, 1996), indicating that our model does not suffer from multicollinearity bias. Table 6 presents the results of hypothesis testing with *poor firm performance 1*. The first or base model includes only the control variables. As expected, *CEO ownership*, *total compensation*, and *duality* are negatively related to CEO dismissal, whereas *CEO age* and *independent director ratio* are positively related to CEO dismissal. These results are generally consistent with the extant research on executive dismissal. In Model 2, *CFO expertise* is added to the test for H1. Its estimated coefficient is -3.15 , which is negative and significant ($p=0.00$). Hence, the finding is opposite to H1, which argues that *CFO expertise* increases the likelihood of CEO dismissal. Model 3 adds the interaction between *CFO expertise* and *poor firm performance 1* to test H2. Its estimated coefficient is -0.13 , which is negative but not significant ($p=0.18$). Thus, H2 is not supported. In Model 4, *CFO power* is added to test H3. The coefficient is 0.43 , which is positive and significant ($p=0.02$), indicating that the expected likelihood of CEO dismissal is 1.54 times higher in the high CFO power group compared with the low CFO power group. Model 5 adds the interaction between *CFO power* and *poor firm performance 1* to test

H4. Its estimated coefficient is 0.21, which is positive but not significant ($p=0.43$). Thus, H4 is not supported.

Table 7 reports the results of hypothesis testing with *poor firm performance 2*. Similar to Table 6, in the first model, *CEO ownership*, *total compensation*, and *duality* are negatively related to CEO dismissal, whereas *CEO age* and *independent director ratio* are positively related to CEO dismissal. Model 2 shows the findings for *CFO expertise*. Its estimated coefficient is the same as the finding for *poor firm performance 1*, which is -3.15 and significant ($p=0.00$). Thus, again H1 is not supported, providing the opposite result. Model 3 adds the interaction between *CFO expertise* and *poor firm performance 2* to test H2. Its estimated coefficient is -0.16 , which is negative and significant ($p=0.05$). Thus, H2 is not supported. In Model 4, CFO power is added to test H3. The coefficient is the same as the finding for *poor firm performance 1*, which is 0.43 and significant ($p=0.02$), suggesting that H3 is supported. Model 5 adds the interaction between *CFO power* and *poor firm performance 2* to test H4. Its estimated coefficient is 0.40 , which is positive and significant ($p=0.02$). Thus, H4 is supported. The different findings between *poor firm performance 1* and *2* will be discussed in the discussion and conclusion sections.

Additional testing was also conducted to check the robustness of these results. First, the robustness of the results is tested using alternative measures of the main constructs. *CFO expertise* is a dummy variable. Specifically, the dummy variable is assigned 1 if it is the residual, which is the original expertise measurement, and 0 if it is negative. CFO ownership in a firm, captured by shares owned by the CFO divided by

total shares outstanding, is used as an alternate measure of *CFO power* (Finkelstein, 1992). The findings are reported in Tables 8 and 9. H1, H2, and H3 are largely supported.

Considering that dismissal studies traditionally use panel probit and logit models, the dismissal model is reestimated using these methodologies. CEO tenure is added to these models as a control. In contrast, tenure must be used as the baseline in the Cox hazards model. The results are presented in Tables 10 and 11. H3 and H4 are supported, and although the p-values are high, the findings for H1 and H2 are largely similar to the main finding.

In addition, to provide a deeper understanding of the moderating effect of CFO power, we examine the 95% confidence intervals of the marginal effects of CFO power on CEO dismissal. While the margin command assumes that the effect of a covariate is constant over time, the effect of a covariate on survival time may vary depending on the time period considered in the Cox hazards model (Morita, Lee, & Mowday, 1993). Thus, following previous studies (Li, 2018; Zelner, 2009), this study calculated the 95% confidence intervals of the marginal effects based on a simulation-based logistic estimator. As shown in Figure 1, high CFO power increases the likelihood of CEO dismissal following poor firm performance, supporting H4.

[Insert Tables 4, 5, 6, 7, 8, 9, 10, and 11 Here]

[Insert Figure 1 Here]

DISCUSSION AND CONCLUSION

This study argues that the CFO can be involved in the CEO dismissal model. Based on the logic of the role of the C-suite members in CEO dismissal decision making, this study argues that the power and expertise of the CFO, who is the most visible executive other than the CEO, can increase the likelihood of CEO dismissal. In addition, this study suggests that the direct and positive relationship between the CFO's expertise and power and CEO dismissal will be strengthened during poor firm performance.

Findings largely support the CFO power argument, suggesting that CFO power increases the likelihood of CEO dismissal. This finding is consistent with power circulation theory (Ocasio, 1994). A powerful CFO can be a competitor for the position of CEO, and even if they do not become a direct competitor, their power can directly increase the risk of the CEO dismissal to exert their will. Furthermore, the interaction with poor firm performance is largely supported, suggesting that threats from CFO power to CEO dismissal are enhanced during poor firm performance.

The findings for the CFO expertise argument do not support the theory suggesting that internal experts can replace CEOs. The findings show opposite results. In addition, the interaction with poor firm performance further decreases the likelihood of CEO dismissal. This suggests that the board of directors considers expertise insiders as colleagues who can help the CEO rather than as substitutes for the CEO. This finding is consistent with the CEO–CFO strategic partner view, suggesting that as one team, the CEO and CFO cooperate and complement with each other (e.g., Chen et al., 2018; Zorn, 2004; Zorn et al., 2005). Thus, even if the firm is not performing well, when the CEO is

partnered with a CFO with expertise, the board of directors will provide more chances to fix the problem rather than dismiss the CEO.

In addition, the findings are more sensitive when poor firm performance is measured by normal firm ROA than industry-adjusted ROA, which may be because the board of directors uses industry-relative performance to evaluate their CEO, and the directors must look at changes in industry trends, such as the skill set required of CEOs. Thus, board members may react to the ROA more immediately than the industry-adjusted ROA (Eisfeldt & Kuhnen, 2013).

In summary, this study should advance our knowledge of the role of insiders or C-suite members in CEO dismissal. Existing studies on individuals affecting CEO dismissal have focused on the outside of the firm (e.g., Cai & Nguyen, 2018; Francis et al., 2015). In other words, studies mostly examine independent directors' power or expertise. A relatively small number of studies on insiders focus on C-suite members, and most focus on the power struggle mechanism and are less interested in the expertise mechanism (e.g., Zhang, 2006). Furthermore, studies have neglected to postulate that one individual may use his or her power or expertise in board decision making. Thus, by providing evidence of the power and expertise of the CFO to influence CEO dismissal, this study will provide future research opportunities in this area.

Moreover, this study can broaden the knowledge of the board of directors' actions during poor firm performance. Previous studies have pointed out low explanatory power or a weak relationship (e.g., Hilger, Mankel, & Richter, 2013). Thus, by providing evidence of the CFO's role in CEO dismissal, this study suggests that future studies should consider the role of insiders or C-suite members in the CEO dismissal model.

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Table 1. Prior literature on power, expertise, and CEO dismissals

C-Suite Members and CEO Dismissal	Powerful	Experts
Internal Members	<p><i>Direct Effect</i></p> <ul style="list-style-type: none"> ● Ocasio (1994): Direct effect of the number of inside directors is not significant to CEO succession. ● Zhang (2006): The presence of a separate COO/president position is not significant to CEO dismissal. 	<p><i>Direct Effect</i></p> <ul style="list-style-type: none"> ● Mobbs (2013): Inside directors with outside directorships increase forced CEO turnover.
	<p><i>Moderating Effect</i></p> <ul style="list-style-type: none"> ● Ocasio (1994): Interaction between inside directors and economic adversity is positive to CEO succession. ● Zhang (2006): The presence of a separate COO/president is positive to the CEO dismissal under conditions of low firm performance. 	<p><i>Moderating Effect</i></p> <ul style="list-style-type: none"> ● Mobbs (2013): Interaction between inside directors with outside directorships and ROA is negative, indicating that “talented inside directors are associated with a greater forced CEO turnover sensitivity to accounting performance.”
External Members	<p><i>Direct Effect</i></p> <ul style="list-style-type: none"> ● Boeker (1992): The proportion of outside directorship is not significant to CEO dismissal. ● Conyon & He (2011): The fraction of the board comprised of independent directors is not significant to CEO turnover. ● Flickinger et al. (2016): Board independence is not significant to CEO 	<p><i>Direct Effect</i></p> <ul style="list-style-type: none"> ● Francis, Hasan, & Wu (2015): The direct effect of professor directors on forced CEO turnover is not significant. ● Cai & Nguyen (2018): There is no direct effect of a fired CEO director on CEO turnover. ● Dou, Sahgal, & Zhang (2015): Experienced directors increase CEO

	<p>dismissal.</p> <ul style="list-style-type: none"> ● Khanna, Kim, & Lu (2015): Board independence increases CEO dismissal. 	
	<p><i>Moderating Effect</i></p> <ul style="list-style-type: none"> ● Boeker (1992): The interaction between the proportion of outside directorship and poor performance is positive to CEO dismissal. ● Flickinger et al. (2016): Board independence increase the likelihood of CEO dismissal following poor firm performance. ● Khanna, Kim, & Lu (2015): Board independence increases CEO dismissal following alleged fraud. 	<p><i>Moderating Effect</i></p> <ul style="list-style-type: none"> ● Francis, Hasan, & Wu (2015): The professor directors show higher CEO forced turnover-performance sensitivity. ● Wang, Xie, & Zhu (2015): Industry expert directors increase CEO turnover-performance sensitivity. ● Cai & Nguyen (2018): A fired CEO director increases CEO performance-turnover sensitivity. ● Dou, Sahgal, & Zhang (2015): There is a greater likelihood of CEO turnover when the firm performs poorly, and there are experienced directors.

Table 2. Study measures

Construct	Measures
CEO dismissal	CEO dismissal (CEO dismissal=1, otherwise 0): among the CEO changes excluding: demotion or promotion and the departing CEO's age was more than 60
CFO expertise 1	Residual of CFO total compensation as a function of firm size; firm age; ROA; Tobin's Q; CFO tenure; and CFO gender
CFO power 1	CFO board membership (CFO on board=1, otherwise 0)
CFO expertise 2	Positive value of residual of CFO total compensation (positive residual of CFO total compensation is positive=1, otherwise, 0)
CFO power 2	CFO ownership
Poor Firm Performance (<i>PFP1</i>)	Inverted-standardized two-year average industry-adjusted ROA prior to CEO dismissal
Poor Firm Performance (<i>PFP2</i>)	Inverted-standardized two-year average ROA prior to CEO dismissal
CEO ownership	Shares owned by the CEO divided by total shares outstanding
CEO total compensation	Natural log of total compensation reported in SEC filings
CEO duality	CEO duality (CEO duality=1, otherwise 0)
CEO age	CEO age in years
Firm size	Natural log of firm sales
Discretionary accruals	Modified Jones model for discretionary accruals

Board size	Total number of the board of directors
Independent director ratio	The percentage of independent directors to board size

Table 3. CFO expertise model

	Model 1
Firm size	0.16***
	(0.00)
Firm age	0.04***
	(0.00)
ROA	0.00
	(0.92)
Tobin's Q	0.21***
	(0.00)
CFO tenure	0.01***
	(0.00)
CFO female	-0.09***
	(0.01)
Constant	5.21***
	(0.00)
Observations 13,096; R-squared: 0.18; Year dummy: Yes; Log-Likelihood:-470; Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1	

Table 4. Correlation matrix with PFP 1

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) CEO dismissal	1.00											
(2) CFO expertise 1	0.00	1.00										
(3) CFO power 1	0.01	0.07	1.00									
(4) PFP 1	0.05	-0.07	0.02	1.00								
(5) CEO ownership	0.00	-0.15	0.00	0.00	1.00							
(6) CEO total compensation	-0.03	0.57	-0.04	-0.17	0.00	1.00						
(7) CEO duality	-0.07	0.03	0.08	-0.03	0.18	0.11	1.00					
(8) CEO age	-0.07	-0.09	0.08	-0.03	0.00	0.05	0.25	1.00				
(9) Firm size	-0.02	0.31	0.00	-0.20	-0.01	0.64	0.15	0.10	1.00			
(10) Discretionary accruals	0.00	-0.03	-0.01	0.01	0.00	-0.02	0.00	-0.01	0.00	1.00		
(11) Board size	-0.01	0.24	0.02	-0.08	-0.17	0.45	0.06	0.08	0.59	0.00	1.00	
(12) Independent director ratio	0.02	0.14	-0.17	-0.06	-0.22	0.26	0.08	-0.07	0.18	0.00	0.19	1.00
Mean	.02	-.02	.13	-.10	.23	8.32	.50	57.51	7.69	.23	8.94	.79
S.D.	.14	.69	.33	.69	.62	1.00	.50	7.28	1.66	3.55	2.11	.11
VIF	-	1.57	1.05	1.04	1.21	2.52	1.15	1.14	2.43	1.00	1.62	1.18

Table 5. Correlation matrix with PFP 2

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) CEO dismissal	1.00											
(2) CFO expertise 1	0.00	1.00										
(3) CFO power 1	0.01	0.07	1.00									
(4) PFP 2	0.05	-0.02	0.00	1.00								
(5) CEO ownership	0.00	-0.15	0.00	0.00	1.00							
(6) CEO total compensation	-0.03	0.57	-0.04	-0.15	0.00	1.00						
(7) CEO duality	-0.07	0.03	0.08	-0.05	0.18	0.11	1.00					
(8) CEO age	-0.07	-0.09	0.08	-0.01	0.00	0.05	0.25	1.00				
(9) Firm size	-0.02	0.31	0.00	-0.24	-0.01	0.64	0.15	0.10	1.00			
(10) Discretionary accruals	0.00	-0.03	-0.01	-0.01	0.00	-0.02	0.00	-0.01	0.00	1.00		
(11) Board size	-0.01	0.24	0.02	-0.09	-0.17	0.45	0.06	0.08	0.59	0.00	1.00	
(12) Independent director ratio	0.02	0.14	-0.17	0.00	-0.22	0.26	0.08	-0.07	0.18	0.00	0.19	1.00
Mean	.02	-.02	.13	-.10	.23	8.32	.50	57.51	7.49	.23	8.94	.79
S.D.	.14	.69	.33	.69	.62	1.00	.50	7.28	1.65	3.55	2.10	.11
VIF	-	1.58	1.05	1.04	1.21	2.53	1.15	1.14	2.44	1.00	1.62	1.18

Table 6. Cox hazards model for CEO dismissal with PFP 1

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CFO expertise 1		-3.15***	-2.97***			-2.99***
		(0.00)	(0.00)			(0.00)
CFO power 1				0.43**	0.41**	0.37*
				(0.02)	(0.04)	(0.06)
CFO expertise1 * PFP 1			-0.13			-0.14
			(0.18)			(0.18)
CFO power 1 * PFP 1					0.21	0.20
					(0.43)	(0.48)
PFP 1	0.43***	0.47***	0.46***	0.43***	0.42***	0.46***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO ownership	-24.80**	-24.36**	-24.54**	-24.75**	-24.73**	-24.53**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
CEO total compensation	-0.36***	-0.40***	-0.39***	-0.35***	-0.35***	-0.37***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

CEO duality	-0.98***	-0.98***	-0.98***	-1.00***	-1.00***	-1.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO age	0.22***	0.20***	0.20***	0.22***	0.22***	0.21***
	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Firm size	0.06	0.06	0.05	0.07	0.07	0.05
	(0.30)	(0.35)	(0.46)	(0.29)	(0.29)	(0.44)
Discretionary accruals	-0.00	-0.01	-0.01	-0.00	-0.00	-0.01
	(0.85)	(0.61)	(0.68)	(0.84)	(0.84)	(0.69)
Board size	0.03	0.02	0.02	0.02	0.02	0.02
	(0.55)	(0.71)	(0.68)	(0.62)	(0.62)	(0.74)
Independent director ratio	1.66**	1.60**	1.59**	1.83**	1.81**	1.75**
	(0.03)	(0.04)	(0.04)	(0.02)	(0.02)	(0.03)
Observations	11,819	11,670	11,670	11,819	11,819	11,670
Industry & Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	-1964	-1930	-1929	-1961	-1961	-1927
Chi-squared	368.5	326.9	342.2	9688	390.1	361.1
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1						

Table 7. Cox hazards model for CEO dismissal with PFP 2

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CFO expertise 1		-3.15***	-2.91***			-2.94***
		(0.00)	(0.00)			(0.00)
CFO power 1				0.43**	0.39**	0.36*
				(0.02)	(0.04)	(0.06)
CFO expertise 1 * PFP 2			-0.16*			-0.17**
			(0.05)			(0.04)
CFO power 1 * PFP 2					0.40**	0.41**
					(0.02)	(0.03)
PFP 2	0.42***	0.47***	0.44***	0.43***	0.41***	0.43***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO ownership	-24.89**	-24.25**	-24.61**	-24.87**	-24.91**	-24.75**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
CEO total compensation	-0.36***	-0.40***	-0.39***	-0.36***	-0.35***	-0.37***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

CEO duality	-0.98***	-0.98***	-0.98***	-1.00***	-1.00***	-1.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO age	0.21***	0.20***	0.20***	0.21***	0.21***	0.20***
	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
Firm size	0.08	0.07	0.05	0.08	0.07	0.05
	(0.22)	(0.26)	(0.43)	(0.21)	(0.23)	(0.44)
Discretionary accruals	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.73)	(0.51)	(0.60)	(0.72)	(0.70)	(0.60)
Board size	0.03	0.02	0.02	0.02	0.03	0.02
	(0.55)	(0.70)	(0.67)	(0.62)	(0.60)	(0.71)
Independent director ratio	1.66**	1.64**	1.63**	1.83**	1.79**	1.74**
	(0.03)	(0.04)	(0.04)	(0.02)	(0.02)	(0.03)
Observations	11,819	11,670	11,670	11,819	11,819	11,670
Industry & Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	-1961	-1928	-1926	-1959	-1958	-1923
Chi-squared	9103	337.3	376.9	5941	7068	401.9
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1						

Table 8. Alternative measurements of CFO expertise and power with PFP 1

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CFO expertise 2		-4.03***	-3.79***			-3.79***
		(0.00)	(0.00)			(0.00)
CFO power 2				2.71*	3.02**	2.85**
				(0.09)	(0.03)	(0.04)
CFO expertise 2 * PFP 1			-0.23**			-0.22*
			(0.04)			(0.06)
CFO power 2 * PFP 1					-0.80	-0.77
					(0.34)	(0.40)
PFP 1	0.43***	0.41***	0.55***	0.42***	0.45***	0.57***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO ownership	-24.80**	-25.80**	-25.56**	-26.43**	-25.80**	-26.53**
	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
CEO total compensation	-0.36***	-0.41***	-0.41***	-0.35***	-0.35***	-0.41***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

CEO duality	-0.98***	-0.97***	-0.97***	-0.99***	-1.00***	-0.99***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO age	0.22***	0.22***	0.22***	0.21***	0.23***	0.23***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Firm size	0.06	0.06	0.05	0.07	0.07	0.06
	(0.30)	(0.35)	(0.46)	(0.27)	(0.24)	(0.37)
Discretionary accruals	-0.00	-0.01	-0.01	-0.00	-0.00	-0.00
	(0.85)	(0.80)	(0.80)	(0.81)	(0.86)	(0.81)
Board size	0.03	0.02	0.03	0.03	0.03	0.02
	(0.55)	(0.63)	(0.60)	(0.56)	(0.58)	(0.62)
Independent director ratio	1.66**	1.61**	1.61**	1.71**	1.83**	1.78**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)
Observations	11,819	11,819	11,819	11,798	11,798	11,798
Industry & Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	-1964	-1956	-1954	-1962	-1962	-1952
Chi-squared	368.5	368.9	386.4	368.7	393.3	406.7
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1						

Table 9. Alternative measurements of CFO expertise and power with PFP 2

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CFO expertise 2		-4.00***	-3.68***			-3.66***
		(0.00)	(0.00)			(0.01)
CFO power 2				2.65	2.82*	2.65*
				(0.11)	(0.06)	(0.08)
CFO expertise 2 * PFP 2			-0.26***			-0.26***
			(0.00)			(0.01)
CFO power 2 * PFP 2					-0.49	-0.17
					(0.55)	(0.85)
PFP 2	0.42***	0.40***	0.55***	0.41***	0.43***	0.56***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO ownership	-24.89**	-25.88**	-25.66**	-26.52**	-25.91**	-26.97**
	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
CEO total compensation	-0.36***	-0.42***	-0.41***	-0.36***	-0.36***	-0.41***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

CEO duality	-0.98***	-0.96***	-0.96***	-0.99***	-0.99***	-0.97***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO age	0.21***	0.21***	0.22***	0.21***	0.22***	0.23***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Firm size	0.08	0.07	0.05	0.08	0.08	0.06
	(0.22)	(0.27)	(0.42)	(0.20)	(0.18)	(0.38)
Discretionary accruals	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.73)	(0.69)	(0.70)	(0.70)	(0.73)	(0.69)
Board size	0.03	0.02	0.03	0.03	0.03	0.03
	(0.55)	(0.63)	(0.58)	(0.56)	(0.58)	(0.60)
Independent director ratio	1.66**	1.61**	1.63**	1.71**	1.81**	1.73**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)
Observations	11,819	11,819	11,819	11,798	11,798	11,798
Industry & Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	-1961	-1954	-1950	-1960	-1960	-1949
Chi-squared	9103	370.3	413.6	365.4	389.3	438.2
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1						

Table 10. Panel probit and logit model with PFP 1

	Panel probit					Panel logit				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
CFO expertise 1	0.05	0.06			0.04	0.13	0.14			0.11
	(0.32)	(0.31)			(0.46)	(0.33)	(0.30)			(0.43)
CFO power 1			0.19**	0.19**	0.18**			0.46**	0.45**	0.42**
			(0.02)	(0.02)	(0.03)			(0.01)	(0.02)	(0.03)
CFO expertise * PFP 1		-0.01			-0.02		-0.05			-0.06
		(0.75)			(0.73)		(0.57)			(0.55)
CFO power * PFP 1				0.05	0.04				0.12	0.09
				(0.61)	(0.73)				(0.60)	(0.71)
PFP 1	0.22***	0.21***	0.20***	0.19***	0.21***	0.46***	0.45***	0.41***	0.40***	0.45***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO ownership	-0.54*	-0.54*	-0.54*	-0.54*	-0.53*	-2.05*	-2.05*	-2.00*	-2.00*	-2.01
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)
CEO total	-0.14***	-0.14***	-0.12***	-0.12***	-0.13**	-0.35***	-0.35***	-0.31***	-0.31***	-0.33**

compensation										
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
CEO duality	-0.30***	-0.30***	-0.30***	-0.30***	-0.30***	-0.69***	-0.70***	-0.70***	-0.70***	-0.71***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO age	-0.02***	-0.02***	-0.03***	-0.03***	-0.03***	-0.05***	-0.05***	-0.05***	-0.05***	-0.05***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO tenure	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
	(0.91)	(0.89)	(0.93)	(0.93)	(0.97)	(0.82)	(0.80)	(0.83)	(0.83)	(0.87)
Firm size	0.03	0.03	0.04	0.04	0.03	0.08	0.07	0.09	0.09	0.07
	(0.20)	(0.21)	(0.15)	(0.15)	(0.21)	(0.22)	(0.26)	(0.17)	(0.17)	(0.25)
Discretionary accruals	-0.00	-0.00	-0.00	-0.00	-0.00	-0.01	-0.01	-0.00	-0.00	-0.00
	(0.78)	(0.79)	(0.86)	(0.86)	(0.80)	(0.74)	(0.77)	(0.93)	(0.93)	(0.78)
Board size	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
	(0.70)	(0.69)	(0.76)	(0.76)	(0.74)	(0.69)	(0.68)	(0.73)	(0.73)	(0.72)
Independent director ratio	0.67**	0.66**	0.77***	0.77***	0.73**	1.45**	1.44**	1.78**	1.78**	1.61**
	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.04)	(0.04)	(0.01)	(0.01)	(0.03)

Constant	-0.06	-0.05	-0.26	-0.26	-0.14	0.88	0.89	0.36	0.35	0.68
	(0.92)	(0.93)	(0.66)	(0.66)	(0.82)	(0.57)	(0.56)	(0.80)	(0.81)	(0.66)
Observations	11,584	11,584	11,733	11,733	11,584	11,584	11,584	11,733	11,733	11,562
Industry & Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	-1084	-1084	-1096	-1095	-1081	-1084	-1083	-1096	-1096	-1081
Chi-squared	171.9	173.6	177	180.9	184.8	192.4	194.7	197.1	202.8	211.8
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1										

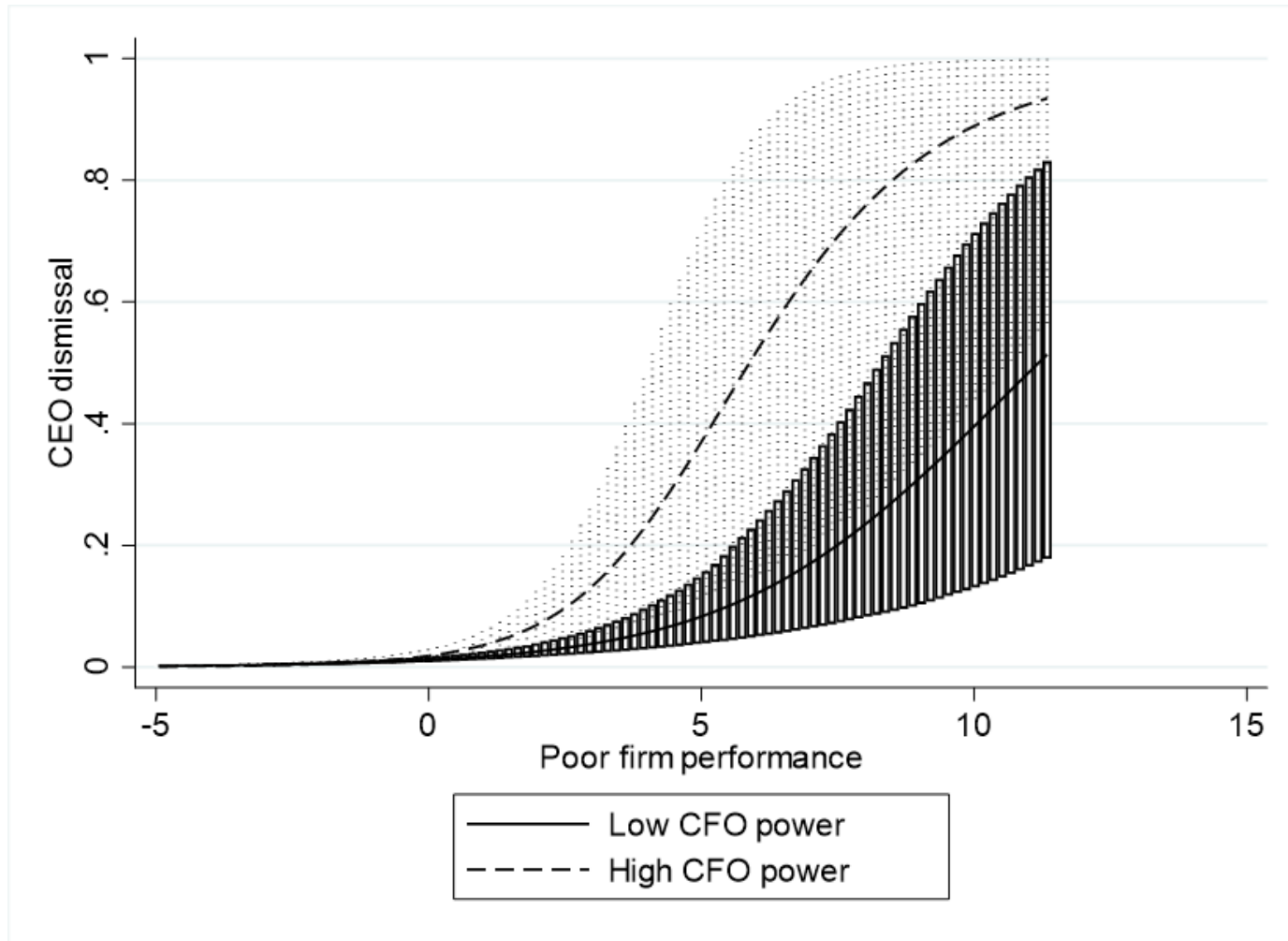
Table 11. Panel probit and logit model with PFP 2

	Panel probit					Panel logit				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
CFO expertise 1	0.05	0.06			0.04	0.12	0.14			0.11
	(0.38)	(0.31)			(0.47)	(0.38)	(0.29)			(0.41)
CFO power 1			0.19**	0.18**	0.18**			0.46**	0.44**	0.41**
			(0.02)	(0.02)	(0.03)			(0.01)	(0.02)	(0.03)
CFO expertise * PFP 2		-0.05			-0.05		-0.10			-0.11
		(0.29)			(0.23)		(0.25)			(0.20)
CFO power * PFP 2				0.12	0.11				0.28*	0.26
				(0.13)	(0.17)				(0.09)	(0.11)
PFP 2	0.22***	0.22***	0.20***	0.19***	0.21***	0.46***	0.44***	0.41***	0.40***	0.43***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO ownership	-0.54*	-0.54*	-0.54*	-0.54*	-0.53*	-2.04*	-2.04*	-2.00*	-2.00*	-2.00
	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)	(0.10)	(0.10)	(0.09)	(0.09)	(0.10)
CEO total compensation	-0.14***	-0.13***	-0.12***	-0.12***	-0.12**	-0.35***	-0.34***	-0.32***	-0.31***	-0.32**

	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
CEO duality	-0.29***	-0.29***	-0.30***	-0.30***	-0.30***	-0.69***	-0.70***	-0.70***	-0.70***	-0.71***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO age	-0.02***	-0.02***	-0.03***	-0.03***	-0.03***	-0.05***	-0.05***	-0.05***	-0.05***	-0.05***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CEO tenure	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
	(0.91)	(0.87)	(0.92)	(0.92)	(0.95)	(0.83)	(0.78)	(0.82)	(0.82)	(0.84)
Firm size	0.04	0.04	0.04	0.04	0.04	0.09	0.08	0.10	0.09	0.08
	(0.13)	(0.18)	(0.10)	(0.11)	(0.19)	(0.17)	(0.22)	(0.13)	(0.13)	(0.24)
Discretionary accruals	-0.00	-0.00	-0.00	-0.00	-0.00	-0.01	-0.01	-0.00	-0.00	-0.01
	(0.64)	(0.67)	(0.74)	(0.73)	(0.68)	(0.62)	(0.67)	(0.83)	(0.82)	(0.68)
Board size	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
	(0.70)	(0.68)	(0.77)	(0.76)	(0.72)	(0.70)	(0.68)	(0.74)	(0.74)	(0.72)
Independent director ratio	0.67**	0.67**	0.78***	0.77***	0.73**	1.47**	1.46**	1.80**	1.78**	1.61**
	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.04)	(0.04)	(0.01)	(0.01)	(0.03)
Constant	-0.06	-0.03	-0.25	-0.24	-0.12	0.89	0.94	0.39	0.39	0.73

	(0.92)	(0.96)	(0.68)	(0.68)	(0.85)	(0.56)	(0.54)	(0.79)	(0.79)	(0.63)
Observations	11,584	11,584	11,733	11,733	11,584	11,584	11,584	11,733	11,733	11,584
Industry & Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	-1080	-1080	-1092	-1092	-1077	-1081	-1080	-1093	-1092	-1077
Chi-squared	175.7	177.3	180.2	189.9	193.8	196.4	199	201.8	218.4	227.9
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1										

Figure 1. The moderating effect of CFO power and PFP 2



III. CFO CHANGE AND STOCK MARKET REACTION

INTRODUCTION

Studies based on agency theory implicitly assume that the CEO is the sole agent of the principal(s) (Jensen & Meckling, 1976), although recent examples suggest that multiple agents may exist and that these agents should cooperate to achieve a common goal: enhancing shareholder value (Nilakant & Rao, 1994; Shapiro, 2005). Other management studies have also provided evidence that CEOs work with other executives and not alone (e.g., Georgakakis, Greve, & Ruigrok, 2017; Menz, 2012). For instance, in a firm's strategic decisions, the CEO works with a top executive team (Georgakakis et al., 2017; Ling, Simsek, Lubatkin, & Veiga, 2008) or certain executives (Hambrick, 2007; Jackson, 1992). In this collective contribution to the firm's strategic decisions and, ultimately, performance, asserting that the CEO's contribution is the most significant is difficult (Alchian & Demsetz, 1972). Therefore, rather than assuming that the CEO is the sole agent of the firm, believing that another agent is assisting is reasonable, we call this agent the *co-agent*, alongside the CEO.

Among corporate executives, this study focuses on the CFO. Based on anecdotal and systematic research evidence, the CFO can be recognized as a co-agent (e.g., Chen, Meyer-Doyle, & Shi, 2018; Datta & Iskandar-Datta, 2014). For instance, given recent changes in regulations or law enforcement, such as the Sarbanes-Oxley Act of 2002 (SOX-2002) (Nelson, 2006) and the institutionalized financial logic of organizations (Fligstein, 1990), the CFO has received more managerial discretion and attained a higher level of visibility than other executives. Therefore, the CFO has been considered a strategic partner of the CEO, and the two have been recognized as dynamic duo in

modern American corporations (Zorn, 2004). Moreover, the CFO, as a representative of corporate leadership, communicates with the board of directors, shareholders, and potential investors about financial outcomes (Chen, Li, & Lin, 2022; Howell, 2006). All these evidence suggest that the CFO, as a co-agent, contributes to the firm's strategy and performance as much as the CEO. Furthermore, this implies that the CFO may be recognized as a co-agent not only inside the firm but also in the stock market outside the firm.

In light of the above, to determine whether the CFO is recognized in the stock market as an agent comparable to the CEO, this paper examines the stock market reaction to CFO succession announcements. Specifically, drawing on signaling theory, this study argues that, just as in the CEO case, the stock market will perceive CFO succession as a signal for changes in firm leadership, strategy, and performance. Thus, this paper further argues that the stock market will react differently to information that reduces or increases future firm uncertainty contained in the CFO succession signal. Specifically, the stock market response to key elements in the CFO succession announcement (i.e., no replacement, interim replacement, internal replacement, or external replacement) is examined. Also, as a moderating effect, this study examines the substitution effect of internal financial experts.

In a sample of 241 CFO succession announcements between 2010 and 2019, the study found that the stock market reacted negatively to CFO succession announcements with no replacement information. Furthermore, when there was information about appointing an interim successor, the stock market reacted negatively; it reacted positively when the announcement included internal succession information; and there was no

significant reaction to external CFO succession. Also, as expected, it was found that there was a positive interaction between internal financial experts and external succession, whereas a negative interaction was found between interim succession and internal financial experts, contrary to the hypothesis. These findings are largely supported by additional endogeneity tests.

This study contributes to existing research in several ways. First, it offers a co-agency view by suggesting that the literature may need to focus its attention on the possibility of agents other than the CEO. The finding that the stock market is concerned about CFO succession supports the argument that the board of directors and the stock market perceive the CFO as a co-agent. Second, the study contributes to the body of recent studies in the functional executive literature (e.g., Menz, 2012), highlighting the expanded role and importance of executives by extending the research to CFOs. Despite the importance of functional executives, the management literature has devoted minimal attention to their succession. Finally, at the broadest level, this study responds to the strategic leadership literature that has called for research examining non-CEO executives beyond the CEO (e.g., Guadalupe, Li, & Wulf, 2014; Hambrick, 2007; Menz, 2012). More specifically, this study extends the current state of the literature, which falls short in that “few functional TMT member studies address succession and turnover issues” (Menz, 2012, p. 60), by investigating the relationship between CFO succession announcements and stock market reactions. This study is also important because it complements the majority of previous research that has devoted significant attention to how a firm’s stock price is a function of CEO succession (e.g., Schepker, Kim, Patel, Thatcher, & Campion, 2017; Shen & Cannella, 2002). Thus, this study advances our

understanding of functional executive succession by examining the stock market reaction to CFO succession.

CFO CO-AGENCY VIEW

In modern corporations, ownership and management are separated (Fama & Jensen, 1983; Jensen & Meckling, 1976). An agent is appointed to manage firms on behalf of the shareholders—the principal(s). According to the original agency theory, an agent usually refers to the CEO as the sole agent (Jensen & Meckling, 1976). A large body of follow-up research has, while adhering to the sole agent assumption, investigated the compensation and turnover of an agent, which are central topics of agent theory (e.g., Coughlan & Schmidt, 1985; Daily & Dalton, 1995; Ertugrul & Krishnan, 2011; Farrell & Whidbee, 2003; Li, 2018; Weisbach, 1988). However, later works based on agency theory suggest that more than one agent may exist in a firm. Specifically, Lambert (2006) and Shapiro (2005) suggested that firms can have multiple agents rather than just one. Moreover, Nilakant and Rao (1994, p. 657) suggested that a firm’s internal goal conflicts are more convincing when “there are multiple principals and/or multiple agents.”

Agency theory and other management studies have also suggested that other agents may exist besides the CEO. Even though it has been established that the CEO is the chief executive with overall responsibility for the strategy and performance of firms (e.g., Fitza, 2014; Hambrick & Quigley, 2014; Lieberman & O’Connor, 1972; Mackey, 2008; Quigley & Graffin, 2017), the CEO does not make all decisions alone, nor is the CEO the only one contributing to firm performance (Bertrand & Schoar, 2003; Jarosiewicz & Ross, 2023). Rather, the CEO works with the top executive team

(Bachrach, Kim, Patel, & Harms, 2023; Georgakakis et al., 2017; Ling et al., 2008) or certain executives by forming a small group of top executives (Hambrick, 2007; Jackson, 1992). In an earlier upper echelon study, Hambrick and Mason (1984) suggested that the top executive team, including the CEO, makes firm decisions. The CEO and other executives choose firm strategies through “behavioral integration,” sharing tasks and powers. The concept of “behavior integration” has been extensively expanded in strategic leadership studies. For instance, CEO–executive interface studies have suggested that CEOs and executives determine firm processes and outcomes through various forms of interaction, including functional, social, and structural interactions (Georgakakis, Heyden, Oehmichen, & Ekanayake, 2022). In addition, another stream of research suggests that the CEO may work with certain executives, not with an entire executive team, in firm-level decision-making processes (Hambrick, 2007; Jackson, 1992). CEOs tend to choose the most visible or influential corporate leaders as their partners. For example, CEOs work with engaged outside directors and are often involved in dual leadership with the COO (Hambrick & Cannella, 2004; Marcel, 2009), CIO (Feeny, Edwards, & Simpson, 1992; Johnson & Lederer, 2010), or CFO (Zorn, 2004; Zorn, Dobbin, Dierkes, & Kwok, 2005). In conclusion, all of the above evidence indicate that the CEO is not the sole agent of the principal(s) and that multiple agents or, at least, co-agents exist in a firm.

As noted above, this study suggests that the CFO is a co-agent among executives for several reasons. First, the CFO is now the most visible executive in the firm due to changes in the business environment (Tulimieri & Banai, 2010; Zorn et al., 2005). Specifically, industry consolidation, firm strategy shifts (e.g., diversification and mergers

& acquisitions), and regulation changes have led firms to adopt finance logic rather than manufacturing, sales, or marketing logic (Fligstein, 1990). Thus, the status of the CFO, who is in charge of corporate finance, has been dramatically elevated from bean counter to strategic partner to CEO (Zorn, 2004).

Second, the passage of SOX-2002 has provided CFO authority similar to that of the CEO (Nelson, 2006). Specifically, Section 302 requires that the CEO and CFO personally certify that their firm's financial statements are accurate and complete, confirm that they have reviewed all internal controls, and accept personal responsibilities. The implementation of SOX places CFOs on the radar of board members (Uhde, Klarner, & Tuschke, 2017) and the stock market (Datta, Doan, Guha, Iskandar-Datta, & Kwon, 2022; Zhang & Wiersema, 2009). For example, in the post-SOX environment, the board of directors pays more attention to ensuring that the CFO's compensation structure is well aligned with firm performance and financial reporting quality (e.g., Hoitash, Hoitash, & Johnstone, 2012; Indjejikian & Matějka, 2009). The stock market also shows great interest in and responds to the CFO's certification, compensation, or credentials (Zhang & Wiersema, 2009).

Third, the CFO actively participates in long-term strategy formulation and implementation as a strategic partner with the CEO (Chen et al., 2018). For instance, the CFO is in charge of the mergers and acquisitions deal processes, completion, and post-integration (Balsam, Irani, & Yin, 2012; Karaevli & Özcan, 2022; Shi, Zhang, & Hoskisson, 2019) and contributes to other important firm strategies, such as research and development (Ginesti, Spano, Ferri, & Caldarelli, 2021) and corporate social responsibility (Xu, Shi, Qin, Zhang, & Tang, 2022). In addition, the CFO significantly

contributes to the firm's accounting and market performance (Bertrand & Schoar, 2003; Jarosiewicz & Ross, 2023).

Finally, unlike other executives, the CFO is institutionalized across all industries. Historical review studies have suggested that CFOs play a crucial role in business since the 19th century, although under different names, such as accountants (Franco, Feeney, Quinn, & Hiebl, 2017; Zorn, 2004). Furthermore, in modern times, the prevalence of COOs, another important executive position, continues to decline, whereas the prevalence of CFOs continues to increase (Tulimieri & Banai, 2010; Zorn et al., 2005).

This evidence suggests that the CFO is recognized not only as a co-agent within the firm but also as a co-agent outside the firm (i.e., in the stock market). In fact, since SOX-2002 was passed, CFO has been a focus of much media attention (Nelson, 2006; Zhang & Wiersema, 2009), and the fact that the CFO frequently attends important public events of the firm, such as initial public offerings or investor meetings (Brinkhuis & Scholtens, 2018; Brau, Ryan, & DeGraw, 2006; Chen et al., 2022), is sufficient grounds to state that the public agent acknowledges the CFO as much as the CEO of the firm.

If the CFO is recognized as a co-agent from inside and outside the firm, CFO succession should be considered a critical event. In particular, the stock market, which has a great interest in the future value and performance of firms, should react immediately to such events.

EXECUTIVE SUCCESSION AND STOCK MARKET REACTION

Executive succession, the most important event in a firm's life cycle, has attracted significant attention from management literature (e.g., Berns & Klarner, 2017; Cragun,

Nyberg, & Wright, 2016; Kesner & Sebor, 1994; Nyberg, Cragun, & Schepker, 2021). From an organizational perspective, executive succession has been considered an instance of change in a firm's strategy, structure, and operations (Schepker et al., 2017). Adaptation theorists have specifically suggested that the resulting changes produce positive consequences because, through executive succession, firms can reorient their strategy to suit the business environment (e.g., Bailey & Helfat, 2003; Tushman & Rosenkopf, 1996; Tushman, Virany, & Romanelli, 1985; Virany, Tushman, & Romanelli, 1992). By contrast, disruption theorists argue that these changes cause negative outcomes because executive succession disrupts organizational routines, internal stability, and relationships with internal and external parties (Georgakakis & Ruigrok, 2017; Grusky, 1960; 1963; Karaevli, 2007). In summary, although executive turnovers are arguably symbolic events (Gamson & Scotch, 1964; Pfeffer & Salancik, 1978), a general consensus states that executive succession results in significant changes, affecting future firm performance.

Drawing on signaling theory (Spence, 1973, 1974; Stiglitz, 1981), studies have argued that executive succession is a signal of the stock market that implies a change in the firm. According to previous studies, executive succession meets the criteria for being a signal—a signal that should be observable, costly, and irreversible (Connelly, Certo, Ireland, & Reutzel, 2011). Specifically, executive succession is clearly observable. Many media outlets cover news of executive succession, and this information almost always reaches the stock market (Kesner & Sebor, 1994). In addition, executive succession is costly. For instance, an executive succession event is accompanied by costs incurred in the turnover and selection processes and the onboarding process of new executives

(Rowe, Cannella, Rankin, & Gorman, 2005). Finally, given the time and resources invested, an executive succession announcement is almost irreversible (Graffin, Carpenter, & Boivie, 2011). Thus, the stock market is likely to pay attention to or react to executive succession, which has the following signaling characteristics.

Stock market reactions do not follow perfect rationality and are based on reasoning from signals (Fama, 1970). Information asymmetry between the stock market and firms, as well as bounded rationality, explains the stock market's inability to grasp every aspect of firm events, such as executive succession. Thus, the stock market perceives events as uncertain signals, and rather than reacting to an executive succession event itself, it focuses on the information embedded in the executive succession event (e.g., Davidson, Worrell, & Dutia, 1993; Davidson, Nemec, & Worrell, 2001; Friedman & Singh, 1989; Kavadis, Heyden, & Sidhu, 2022; Worrell & Davidson, 1987). Furthermore, the stock market infers unobservable firm attributes from the event and the embedded information and then utilizes the inferred firm attributes in the firm's evaluation and investment decision making. In summary, stock market reactions can be contextualized by signal information embedded in the executive succession event (Connelly, Ketchen, Gangloff, & Shook, 2016; Gangloff, Connelly, & Shook, 2016).

Consistent with this argument, studies that mainly focus on CEOs have reported that the negative or positive reactions of the stock market depend on the information in the signals. First, studies that found negative stock market reactions have focused on situations with high uncertainty about the future leadership and performance of firms. For instance, when signals increase uncertainties regarding a firm's future leadership or performance, such as when a successor has no available information (e.g., Borstadt,

1985), when the departing CEO has concentrated power (e.g., Worrell, Nemec, & Davidson, 1997), or when a minority CEO (e.g., Lee & James, 2007) or interim CEO (e.g., Kavadis et al., 2022) is appointed, the stock market reacts negatively to the CEO succession announcement. Moreover, after adverse events in a firm, such as poor firm performance or financial wrongdoing, the stock market reactions to a CEO succession announcement are negative when the abilities or initiatives of the new CEO in fixing existing problems are uncertain (e.g., Connelly et al., 2016; Gangloff et al., 2016). Finally, studies have reported generally negative stock market reactions to disruptive events, suggesting that CEO change entails uncertainty regarding future firm leadership and performance (e.g., Beatty & Zajac, 1987; Dedman & Lin, 2002).

Second, studies that found positive stock market reactions have focused on situations in which embedded signal information serves to reduce future uncertainty. In particular, the stock market reacts either positively or at least less negatively to the CEO turnover announcement when information on successors is available (e.g., Furtado & Rozeff, 1987; Gangloff et al., 2016), when the new CEO seems likely to inherit a good legacy from the predecessors (e.g., Chung, Rogers, Lubatkin, & Owers, 1987; Kavadis et al., 2022), when the new CEO seems to have either the ability or the willingness to fix the firm's problems (e.g., Connelly et al., 2016; Gangloff et al., 2016), or when the current CEO is dismissed following poor firm performance (e.g., Denis & Denis, 1995).

[Insert Table 1 Here]

TESTING CFO AGENCY IN THE CONTEXT OF THE STOCK MARKET REACTION TO A CFO SUCCESSION ANNOUNCEMENT

As previously discussed, if the CFO is recognized as a co-agent by the stock market, it will react to the CFO succession announcement. In other words, if the CFO, as a co-agent, has strategic responsibilities beyond the fiduciary responsibilities of financial management, the stock market will perceive the CFO succession as a signal of future changes in the firm's strategic leadership and performance.

Even if the CEO is primarily responsible for a firm's strategy, the CFO also plays a crucial role in the firm's strategy formulation and implementation (Chen et al., 2018). In particular, given that the partnership between the CEO and CFO (e.g., Chen et al., 2018; Zorn, 2004), as well as the CFO's financial management skills, which are critical to firm strategy (Myers, 1984), a change in the CFO position will produce significant changes in a firm's future strategic leadership and performance.

However, even if this possibility, prior CFO succession studies only focused on post-succession changes in firm financial policies or financial reporting qualities, as summarized in Table 1. Specifically, while studies on the succession of the main agent, the CEO, already provide plentiful empirical evidence on the stock market reaction, studies on the CFO do not.

For this reason, this study suggests that the stock market will react to a CFO succession announcement as it would to a CEO succession announcement. Furthermore, consistent with previous studies, the argument is that the reaction depends on the information contained in the signal (Connelly et al., 2011). Specifically, this study examines the stock market reaction to successor information (i.e., no information, interim

successors, internal successors, and external successors). As aptly suggested by Friedman and Singh (1989, p. 726), successor information is “a highly visible attribute [that] seems to convey the clearest signal among the messages implicit in successions.” Thus, this study suggests that CFO successor information is an important factor influencing the level of uncertainty.

CFO succession announcement with no replacement

First, this study argues that the stock market reaction will be negative to a CFO succession when no information about a successor is available. This is because even though CFO succession may have positive effects on firms, such as introducing new knowledge and skills, changing the strategic view (e.g., Bailey & Helfat, 2003; Geiger & North, 2006), or reorienting firm strategy (e.g., Tushman & Rosenkopf, 1996), the stock market perceives any CFO succession without information about a successor to be a highly uncertain signal. Specifically, from a CFO succession announcement lacking information about a successor, the stock market can only know that the loss of accumulated human capital can occur in the form of the departing CFO (Shaw, Park, & Kim, 2013). However, the stock market will not know whether the new CFO will inherit the firm’s ongoing strategy or bring in a new one (Westphal & Fredrickson, 2001; Zhang & Rajagopalan, 2010) or how quickly the new CFO will be able to replace the position’s missing human capital (Dierickx & Cool, 1989) until the next CFO gets down to the task.

More importantly, it is highly uncertain whether the new CFO will promote team cohesion and harmony with the CEO and other executives (Andrus, Withers, Courtright, & Boivie, 2019). Furthermore, the kind of finance strategy that the new CFO will

implement (Zhang, 2008; Zhang & Rajagopalan, 2004) and whether the individual will follow existing finance regulations remain uncertain.

Thus, the stock market cannot be certain about the firm's future leadership, strategy, and performance, and due to this uncertainty, the stock market will react negatively. Therefore, the following hypothesis is proposed:

H1. A CFO succession announcement with no replacement is associated with a negative stock market reaction.

CFO succession announcement with interim replacement

Second, the stock market reaction will also be negative to a CFO succession with interim succession. According to the executive succession literature, some firms have clear succession plans, whereas others do not (Rowe et al., 2005). The latter are often less prepared for succession events, which results in the appointment of an interim successor (Ballinger & Marcel, 2010). This appointment may signal to the stock market that the board of directors either lacks confidence in their executive succession decisions or may not have a clear vision for their firm's strategic leadership (Lorsch & Khurana, 1999).

In addition, the stock market may not expect positive changes from interim successors, who typically have considerably limited managerial discretion and short tenures (Ballinger & Marcel, 2010; Mooney, Semadeni, & Kesner, 2017). Thus, the stock market may already know that interim succession cannot create long-term value for a firm. Furthermore, interim succession may signal power struggles among executives due to the lack of hierarchical power of the interim successor (Kavadis et al., 2022).

Likewise, the appointment of an interim CFO may signal to the stock market that the firm lacks a clear succession plan for financial leadership, which is without a clear future financial strategy, or potentially has conflicts or power struggles regarding the CFO position. Hence, the following hypothesis is offered:

H2. A CFO succession announcement with interim replacement is associated with a negative stock market reaction.

CFO succession announcement with internal replacement

Third, this study argues that the stock market reaction will be positive to CFO succession with internal succession. Internal succession generally implies the outcome of a planned succession (Berns & Klarner, 2017; Rowe et al., 2005). In other words, following the predecessor's retirement, the firm appoints someone groomed for the position (Cannella & Lubatkin, 1993; Shen & Cannella, 2003; Zhang & Rajagopalan, 2006).

An internal succession signal mitigates the stock market's concerns about a firm's future uncertainty because internal succession can be an expression of a firm's commitment to its current strategy (e.g., Kesner & Sebora, 1994; Schepker, Nyberg, Ulrich, & Wright, 2018; Zhang & Rajagopalan, 2006). Thus, the stock market can expect continuity in firm strategy or incremental adaptation effects and relatively low disruption effects from the succession event.

In the same manner, the appointment of an internal CFO may signal a smooth transition of the firm's financial leadership to the stock market. Given that CFO internal

succession is a planned result, power struggles will occur less often among the executives in the CFO position. In addition, an internal CFO successor would decrease stock market concerns by already having experience working with the current CEO (Ling, Wei, Klimoski, & Wu, 2015; Thatcher & Patel, 2012). Thus, the following hypothesis is proposed:

H3. A CFO succession announcement with internal replacement is associated with a positive stock market reaction.

CFO succession announcement with external replacement

Finally, the stock market will react negatively to the CFO external succession. According to the perspective of disruption theory on executive succession, external succession causes disruptions in firm strategy, routine, and internal/external networks (Andrus et al., 2019; Georgakakis & Ruigrok, 2017; Grusky, 1960, 1963; Karaevli, 2007). This is because external successors have a low level of firm-specific knowledge (Bailey & Helfat, 2003) and a low commitment level to the current strategy (Bigley & Wiersema, 2002; Karaevli, 2007).

Thus, the appointment of an external successor is considered to signal the firm's plan to change its strategy (Bigley & Wiersema, 2002). However, due to information asymmetry, the stock market cannot fully know what strategy an external successor will come up with and whether that strategy will be appropriate for the firm (Cummings & Knott, 2018; Zhang & Rajagopalan, 2010).

Likewise, the appointment of an external CFO can signal a change in the firm's financial strategy, which is a key factor in the overall firm strategy. However, in this case, the stock market is unsure of whether the changes derive from the external CFO's fit with the firm (Schepker et al., 2017). In addition, the stock market may raise questions about whether an external CFO successor would harmonize with the CFO and other executives (Andrus et al., 2019; Friedman & Saul, 1991). This leads to the following hypothesis:

H4. A CFO succession announcement with external replacement is associated with a negative stock market reaction.

Moderating effect of internal financial experts

Qualified internal experts, even if they do not hold titles, can minimize task vacancies caused by executive departures. For instance, concerns about disruption could be lessened if someone internal to the firm could 'hold the fort' sort of speak until a permanent candidate is found and has settled into her position (e.g., Messersmith, Lee, Guthrie, & Ji, 2014). These benefits are expected to apply to all types of CFO succession. Specifically, even if in the CFO succession announcement, there is no information on the replacement, the presence of internal financial experts could signal that the task disruptions from the CFO's departure could be minimized (Gore, Matsunaga, & Yeung, 2011). Moreover, it signals that the firm can appoint a new CFO from among its internal finance experts soon (Chen, Luo, Tang, & Tong, 2015) or that even if the firm hires a

CFO from external, it can reduce the trial and error of the new CFO. Thus, the negative stock market reaction to no replacement succession will be alleviated.

Also, the presence of internal financial experts can reduce worries about the firm future leadership following interim succession. It could make a signal that the interim period will be ended soon and there will be a new CFO appointment in the near future. Thus, the negative stock market reaction to interim succession will be alleviated.

The appointment of one of the other internal finance experts as CFO is a signal that the new CFO has his/her abilities proven. Also, other internal experts favor the new CFO appointed from the internal because of their fellowship or already established work experiences (Schepker et al., 2017). So, the stock market thinks that the new firm strategy implemented by the new CFO will be well conducted. As such, the stock market will react more in favor of the internal CFO succession.

Lastly, the presence of internal financial experts is expected to reduce disruption following the external CFO succession. Even if the new coming CFO from externally has great skills or experiences in finance or leadership in general, the CFO may not have enough firm-specific knowledge. Internal financial experts can help smooth the onboarding of a new CFO from external (e.g., Messersmith et al., 2014), so it could be a positive signal to the stock market by decreasing the firm uncertainties. As such, the negative stock market reaction to external CFO succession will be alleviated. More formally:

H5. The negative stock market reaction to the CFO succession announcement with no replacement will be alleviated when the firm has internal finance experts.

H6. The negative stock market reaction to the CFO succession announcement with interim replacement will be alleviated when the firm has internal finance experts.

H7. The positive stock market reaction to the CFO succession announcement with internal replacement will be enhanced when the firm has internal finance experts.

H8. The negative stock market reaction to the CFO succession announcement with external replacement will be alleviated when the firm has internal finance experts.

METHODS

Sample

The study began with all Standard and Poor's (S&P) 500 firms between 2010 and 2019. Data were added from various sources. Firm financial information was collected from COMPUSTAT, executive information from ExecuComp, and firm governance and internal control information from Institutional Shareholder Services, BoardEX, and Thomson Reuters Institutional (13F) holdings. Stock market data were obtained from Eventus performing event studies using stock price data from the Center for Research in CRSP. CFO succession announcement information was obtained from Capital IQ Key Development. Missing data reduced the study sample to 241 CFO succession announcements.

Main variables

Dependent variable. The stock market reaction is measured as firms' cumulative abnormal returns (CAR) immediately following the announcement of the succession. This study collected data on each firm's daily returns and the returns of a weighted index (S&P 500) from Eventus. Following previous studies (e.g., Kavadis et al., 2022; McWilliams & Siegel, 1997; Shen & Cannella, 2003), the average CAR around CFO succession announcements is examined using a 255-day period as the estimation period (-300, -46) and two alternative event windows: a seven-day window [-3, +3]; and a five-day window [-2, +2].

Independent variables. To identify the CFO succession announcement, this study collected announcement data from Capital IQ Key Development. From 2010 to 2019, 728 CFO succession announcements were made at S&P 500 firms. CFO succession announcements with confounding events (e.g., mergers or acquisitions) within six days prior to or following the succession event were excluded to control for confounding effects (e.g., Graffin et al., 2011; McWilliams & Siegel, 1997; Riley, Michael, & Mahoney, 2017). As a result, 241 CFO succession announcements were identified. Detailed information on confounding effects is reported in Table 2.

Furthermore, this study identified and coded four CFO succession categories based on succession type (i.e., no successor named and interim, internal, and external succession). Among the 241 CFO succession announcements, 65 were of the *no replacement* type, 51 were of the *interim replacement* type, 84 were of the *internal replacement* type, and 41 were of the *external replacement* type. Specifically, in the announcement, if the CFO successor had a title such as "interim" or "acting," it was

coded as “interim replacement.” In the announcement, if the next CFO successor had less than 2 years of tenure prior to the CFO appointment, it was coded as “external replacement” (Georgakakis & Ruigrok, 2017; Shen & Cannella, 2002).

Moderating variable. The *internal financial experts* variable was measured as a dummy. Specifically, this study treated it as 1 if the top management team had an executive with a financial expert title other than CFO, such as chief accounting officer, treasurer, controller, or financial director, and 0 otherwise.

Control variables

In the regression analysis, two-level control variables were included. First, at the industry level (NAICS 2 digits), this study controlled for industry *munificence*, *dynamism*, and *complexity*, since these industry factors influence firms’ stock prices (Gangloff et al., 2016; Kavadis et al., 2022). Specifically, industry *munificence* and *dynamism* were obtained by first regressing the total industry demand on a year-count variable for 5 years. Munificence was then measured as the slope coefficient divided by the mean industry sales value for the 5 years. Finally, dynamism was calculated as the standard error of the regression slope coefficient divided by the mean industry sales value for the examined period (Fainshmidt, Nair, & Mallon, 2017). Next, *complexity* was measured in this study by computing the squared market shares of firms within each industry and year. Specifically, the market share of each firm was generated as the ratio of its sales to total industry sales. The market share variable was then squared to capture the nonlinear relationship between market share and complexity. Finally, the sum of the squared market shares for each industry and year was computed (Chen, Zeng, Lin, & Ma, 2017; Keats & Hitt, 1988).

Second, at the firm level, several variables influencing stock market actors' decisions were included. *Firm size*, measured as the natural log of firm assets (Schuler, Shi, Hoskisson, & Chen, 2017), and *firm performance*, measured as the firm's Tobin's Q (Kumar, Dixit, & Francis, 2015), were included. In addition, *CEO tenure*, measured as the length of time the CEO has served in their position, and *TMT size*, measured as the total number of TMT members were included (Gangloff et al., 2016; Kavadis et al., 2022). All firm variables lag behind the focal observation by one year. *CFO change type* was added since the type of change (e.g., routine succession or dismissal) influences stock market reaction. Specifically, in the announcement, when the CFO's reason for departure was retirement, the CFO resigned to pursue a specific position in another firm or remained at the focal firm to participate in the search for a successor, the variable was labeled as voluntary turnover, and otherwise, it is coded as dismissal. In the dummy coding, the dismissal case takes 1, and voluntary turnover takes 0. Lastly, this study included year dummies to control for unobserved year effects.

Data analysis

This study used Eventus from the Wharton Research Data Service to conduct an event study (e.g., Godfrey, Merrill, & Hansen, 2009; Jeong, Mooney, Zhang, & Quigley, 2021; Kumar, 2011; Meyer-Doyle, Lee, & Helfat, 2019; Steinbach, Holcomb, Holmes, Devers, & Cannella, 2017; Quigley, Crossland, & Campbell, 2017). Eventus allows users to gather market data capturing abnormal returns at the individual firm level. This study employed a value-weighted index following standard event study methods. Furthermore, following previous studies (e.g., Gangloff et al., 2016), a linear regression model was

used to supplement the financial event methodology. The regression model allowed for further investigation of the hypotheses.

[Insert Tables 2, 3, 4, and 5 Here]

RESULTS

Table 3 presents a correlation matrix and descriptive statistics for the variables. High correlation coefficients are not reported, except for correlations between dependent variables (CAR [-3, +3] and CAR [-2, +2]). Table 4 presents the findings from the financial event methodology. In Panel A, the first column reports the stock market reaction to the CFO succession announcements overall. The findings consistently report negative reactions, indicating that the stock market perceives CFO succession as a disruptive event for firms (Beatty & Zajac, 1987; Dedman & Lin, 2002). The second column reports the results of H1. The findings for the CFO succession announcement with no replacement report consistently negative stock market reactions across all windows. Specifically, the average negative abnormal returns of -1.10% are reported. Thus, H1 is supported. The column for interim replacement also reports consistently negative stock market reactions across all windows. The average negative abnormal returns of -1.84% are reported. These findings support H2, which predicts a negative stock market reaction to the appointment of an interim CFO. However, the findings under the columns for CFO internal and external replacements do not report any stock market reactions at a significant level. Additionally, event study results according to change type were reported in Panels B and C. Results similar to the main finding, such as negative

market reactions for no replacement and interim replacement, were reported. In Table 5, event study findings according to the presence of internal financial experts are presented. Regardless of the significance level, in no replacement and interim replacement, when firms have internal financial experts, the stock market reacts more negatively.

The regression analysis generally supplements the financial event methodology with control variables. The findings are reported in Tables 6 and 7. The first model in each table includes only the control variables. As expected, firm size shows a positive association with the CAR. Model 2 reports the findings pertaining to H1. According to Tables 6 and 7, the no replacement dummy shows a significant negative coefficient ($b = -0.01$, $p < 0.1$; -0.01 , $p < 0.05$), thus supporting H1. Across Tables 6 and 7 in Model 4, the interim replacement dummy reports significant negative coefficients ($b = -0.01$, $p < 0.05$; $b = -0.01$, $p < 0.1$), thus supporting H2. Also, across Tables 6 and 7, in Model 6, the internal replacement dummy reports significant positive coefficients ($b = 0.01$, $p < 0.05$; $b = 0.01$, $p < 0.05$), thus supporting H3. In all tables, H4 was not supported. The moderating test only supports H8 stating that the firm internal finance experts alleviated the negative stock market reaction to the external replacement. Also, the moderating test for H2 that the firm internal finance experts alleviated the negative stock market reaction to the interim replacement reports the opposite findings. This is contrary to the hypothesis, and it will be discussed in the following section.

Endogeneity test

As reported in Table 2, 11 CFO stock options were dropped because of missing stock price data. This issue may create potential sampling bias. Therefore, the Heckman selection procedure (Heckman, 1979) was conducted. In the first-stage regression, it was

predicted, based on all 252 succession announcements, whether a given CEO succession announcement would be included in the event-study sample (the 241 announcements for which daily stock-price data were available). In the first-stage regression, predictors including firm size, firm performance, and firm age at time $t - 2$ were included, which are different variables from those used in the second-stage regression. Then, in the second-stage regression, the inverse Mills ratio, generated using the first-stage residuals, is included. The findings are reported in Tables 8 and 9 and are largely similar to the main findings.

[Insert Tables 6, 7, 8, and 9 Here]

DISCUSSION AND CONCLUSION

This study argues that the CFO is considered a co-agent who has a strategic responsibility similar to that of the CEO (Jensen & Meckling, 1976; Nilakant & Rao, 1994; Shapiro, 2005), further suggesting that outside the firm, the stock market also supports the CFO co-agent view. In line with this argument, this study reports the stock market reaction to CFO succession. Specifically, the stock market reacts negatively to the CFO succession announcement, and depending on the information contained in the announcement, stock market reactions vary.

When a CFO succession announcement lacks any successor information, the stock market perceives it as a very uncertain signal about the firm's future because it is difficult to infer the firm's future leadership, strategy, or performance (e.g., Borstadt,

1985; Gangloff et al., 2016). The findings of this study support this argument by reporting negative stock market reactions in this case.

The findings also support a negative stock market reaction to interim CFO replacement. When the announcement is about interim replacement after the departure of the CFO, the stock market is concerned about the firm's future because long-term and stable firm strategy and leadership cannot be expected (Ballinger & Marcel, 2010; Mooney et al., 2017).

The findings further show a positive stock market reaction to internal CFO replacement. This is because the new CFO with firm-specific human capital is expected to be able to run the firm stably and well (e.g., Zhang & Rajagopalan, 2004). Additionally, the fact that the new CFO already has experience working with the current CEO and executives reduces uncertainty about the firm's future (Ling et al., 2015; Thatcher & Patel, 2012).

However, the findings do not support the argument regarding a negative stock market reaction to external CFO replacement. This is contrary to previous studies on CEO succession. The insignificant findings may imply that the stock market does not expect a high level of disruption following external CFO succession. Thus, future studies can examine whether the consequential changes following external CFO succession are significantly different from those following external CEO succession.

In the moderation test, as expected, the interaction between internal financial experts and external replacement is positively associated with the stock market reaction. Thus, the stock market expects firm internal financial experts to help settle new CFOs from external. However, other moderating hypotheses are rejected. In particular, the

findings report that the interaction between internal financial experts and interim succession is negatively and significantly associated with the stock market reaction. It may mean that despite the presence of an internal financial expert, the appointment of an interim CFO leaves the stock market questioning a firm's leadership plans, and the stock market perceives it as a very uncertain signal about the firm future.

Based on the findings and arguments of this study, future research can expand the CFO agency view in several ways. First, future studies can examine whether the CFO succession is caused by scapegoating logic (Boeker, 1992; Leone & Liu, 2010) or by taking accountability for poor firm performance (Indjejikian & Matějka, 2009; Mian, 2001). So far, these two theories have been developed independently; however, by examining stock market reactions, they could be tested together. Second, future studies could examine the stock market reaction to CFO succession in different contexts. For example, future studies could examine the different reactions to forced or voluntary succession (Gentry, Harrison, Quigley, & Boivie, 2021).

From a practitioner standpoint, this study also highlights the expanded role and accountability of CFOs by showing the stock market's reaction to their departure.

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Table 1: Prior research and study positioning

	CEO change	CFO change
Stock Market Reaction	<p>Prior work: The CEO is the agent, and thus, the stock market perceived the CEO change as a signal of firm strategy and performance change.</p> <p>Sample studies:</p> <ul style="list-style-type: none"> - Worrell, Davidson, & Glascock (1993): Positive market reactions to permanent replacements and outside succession. The stock market perceives the permanent replacement of CEOs as a sign of a rational adaptation view for firms. - Friedman & Singh (1989): Positive market reaction to poor pre-succession performance and negative market reaction to good pre-succession. The stock market perceives the change of CEO as a signal that poor-performing firms are willing to fix the problems. - Furtado & Rozeff (1987): Positive market reactions to internal CEO succession and negative market reactions to external succession in large firms. The stock market perceives internal succession as a signal expecting an improvement in firm value from the firm-specific human capital view. - Gangloff et al. (2016): Positive market reaction to external CEO succession and negative market reaction to internal, interim, and no named succession after firm financial wrongdoing. The stock market perceives the external CEO 	<p>This Study: The CFO is also an agent, and thus, like the CEO case, the stock market perceives the CFO change as a signal of firm strategy and performance change.</p>

	<p>succession as a signal that firms are willing to change and fix problems.</p> <p>- Chung et al. (1987): Positive market reaction to external CEO succession. The stock market perceives the external CEO will bring competitiveness.</p> <p>- Kavadis et al., (2022): Negative market reaction to interim succession. The stock market perceives the interim succession as a signal that the firm future leadership has limited managerial discretion and will be struggled with conflicts.</p> <p>- Connelly et al. (2016): Positive market reaction to external CEO succession and negative to internal succession, following firm wrongdoings. The stock market perceives the external CEO succession as a signal that firms are willing to change and fix problems.</p>	
Other Consequences	<p>Prior work: The CEO is the agent, and thus, studies on the post-succession largely focused on firm strategy and performance by contextualizing succession origin (e.g., internal/external succession)</p> <p>Sample studies on firm performance:</p> <p>External succession on firm performance</p> <ul style="list-style-type: none"> - Georgakakis & Ruigrok (2017) - Karaevli (2007) <p>Internal succession on firm performance</p>	<p>Prior work: The CFO is a financial expert executive, and thus, studies on post-succession largely forced on changes in financial manipulations and wrongdoing or firm policies and risk and return.</p> <p>Sample studies on financial manipulations and wrongdoing:</p> <p>Financial misreporting and restatements</p> <ul style="list-style-type: none"> - Chychyla, Leone, & Minutti-Meza

	<ul style="list-style-type: none"> - Boeker & Goodstein (1993) - Shen & Cannella (2002) - Zhang & Rajagopalan (2004) <p>Sample studies on firm strategy:</p> <p>External succession on strategic changes</p> <ul style="list-style-type: none"> - Wiersema & Bantel (1993) - Shimizu & Hitt (2005) <p>Internal succession on strategic status quo</p> <ul style="list-style-type: none"> - Helmich & Brown (1972) - Wiersema (1992) 	<p>(2019)</p> <ul style="list-style-type: none"> - Curtis, Donelson, & Hopkins (2019) - Zhang (2019) - Gupta, Mortal, Chakrabarty, Guo, & Turban (2020) - Ham, Lang, Seybert, & Wang (2017) <p>Earnings Management</p> <ul style="list-style-type: none"> - Geiger & North (2006) - Ham, Lang, Seybert, & Wang (2017) - Chen et al. (2015) <p>Other financial reporting quality issues</p> <ul style="list-style-type: none"> - Chen, Cheng, & Lo (2014) - Cohen, Malloy, & Nguyen (2020) - Chyz, Gaertner, Kausar, & Watson (2019) - Ettredge, Johnstone, Stone, & Wang (2011) - Johnstone, Li, & Rupley (2011) - Li, Sun, & Ettredge (2010) <p>Sample studies on firm policies and risk and return:</p> <p>Firm risk and return</p> <ul style="list-style-type: none"> - Chava, Huang, & Johnson (2018) - Chen et al. (2013) - Geiger, Lennox, & North (2008)
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		<ul style="list-style-type: none">- Pan, Yue Wang, & Weisbach (2018)- Mian (2001)- Seabright, Levinthal, & Fichman (1992)- Tufano (1996) <p>Other firm decisions and policy choices</p> <ul style="list-style-type: none">- Brochet, Faurel, & McVay (2011)- Kim, Su, & Zhu (2017)
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Table 2. Sample summary

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
CFO succession announcements	51	49	75	67	75	80	83	72	87	89	728
Lawsuits & legal issues	0	1	2	0	0	3	0	1	0	0	7
Earnings announcements	7	7	8	11	7	10	15	6	4	7	82
Product announcements	3	1	3	6	3	2	6	4	7	8	43
Dividend affirmations	3	2	3	3	5	5	2	1	3	7	34
M&A	1	1	0	0	1	1	1	1	2	2	10
CEO succession	3	2	5	4	4	3	2	3	4	3	33
Mixed more than two events	9	7	9	6	10	8	14	8	16	12	99
Not a CFO change - albeit marked as so	11	11	24	13	15	21	16	18	15	24	168
CRSP data missing	2	3	1	2	0	2	0	0	1	0	11
Final sample	12	14	20	22	30	25	27	30	35	26	241

Table 3. Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) CAR [-3, +3]	1.00														
(2) CAR [-2, +2]	0.91	1.00													
(3) No Replacement	-0.06	-0.10	1.00												
(4) Interim replacement	-0.16	-0.17	-0.30	1.00											
(5) Internal replacement	0.12	0.17	-0.44	-0.37	1.00										
(6) External replacement	0.08	0.08	-0.28	-0.24	-0.35	1.00									
(7) Internal financial experts	-0.17	-0.20	-0.06	0.03	0.04	-0.01	1.00								
(8) Munificence	0.11	0.09	0.06	-0.09	-0.07	0.12	0.01	1.00							
(9) Dynamism	0.08	0.01	0.05	0.00	0.05	-0.12	-0.01	-0.36	1.00						
(10) Complexity	0.04	0.09	-0.07	-0.04	0.12	-0.02	0.04	-0.13	-0.02	1.00					
(11) Firm size	0.14	0.19	-0.03	-0.11	0.13	-0.02	0.05	-0.04	0.10	0.36	1.00				
(12) Firm performance	-0.07	-0.12	0.06	0.01	-0.08	0.03	-0.03	-0.06	0.03	-0.11	-0.52	1.00			
(13) CEO tenure	0.03	0.04	0.07	-0.01	0.02	-0.08	0.04	0.17	-0.06	0.10	0.11	0.08	1.00		

(14) TMT size	-0.10	-0.10	-0.01	0.04	0.00	-0.03	0.34	-0.13	-0.03	0.02	0.06	-0.08	-0.12	1.00	
(15) CFO change type	-0.08	-0.09	-0.20	0.11	0.05	0.07	-0.09	0.05	0.03	0.09	-0.08	0.07	-0.07	-0.02	1.00
Mean	-.01	-.01	.27	.21	.35	.17	.12	.97	3.24	62.00	9.34	2.38	6.29	5.63	.59
S.D.	.04	.04	.44	.41	.48	.38	.33	.10	2.52	216.39	1.14	1.81	4.67	.90	.49

Table 4. Financial event methodology results (in percentages)

Panel A	CFO change				
Event window	All	No replacement	Interim replacement	Internal replacement	External replacement
CAR [-3, +3]	-0.82**	-1.20*	-2.02***	-0.15	-0.12
CAR [-2, +2]	-0.74**	-1.32**	-1.88***	0.07	-0.07
CAR [-1, +1]	-0.56**	-0.78*	-1.61***	-0.04	-0.01
CAR [0, +1]	-0.61***	-0.76*	-1.43***	-0.29	-0.02
CAR [0, +2]	-0.65**	-0.99*	-1.51***	-0.19	0.00
CAR [0, +3]	-0.80***	-1.07*	-1.55***	-0.51*	-0.03
CAR [+1, +365]	-2.98	3.51	-9.93	-3.73	-3.08
N	241	65	51	84	41
Panel B	Voluntary turnover				
Event window	All	No replacement	Interim replacement	Internal replacement	External replacement
CAR [-3, +3]	-0.46	-0.98*	-1.39*	0.51	-0.17
CAR [-2, +2]	-0.34	-0.84*	-1.41*	0.58*	0.19
CAR [-1, +1]	-0.23	-0.38	-0.77	0.29	-0.36
CAR [0, +1]	-0.35	-0.43	-1.18**	0.13	-0.23

CAR [0, +2]	-0.34	-0.65	-1.48**	0.38	0.17
CAR [0, +3]	-0.63	-0.91*	-1.88**	0.11	-0.10
CAR [+1, +365]	4.22	13.72 ⁺	6.39	-0.85	-12.14
N	98	37	16	31	14
Panel C					
	Dismissal				
Event window	All	No replacement	Interim replacement	Internal replacement	External replacement
CAR [-3, +3]	-1.07**	-1.49	-2.30***	-0.53	-0.10
CAR [-2, +2]	-1.01**	-1.95*	-2.09**	-0.22	-0.21
CAR [-1, +1]	-0.79**	-1.30*	-1.99***	-0.23	0.17
CAR [0, +1]	-0.80***	-1.21 ⁺	-1.55***	-0.54*	0.09
CAR [0, +2]	-0.87**	-1.44 ⁺	-1.53**	-0.52 ⁺	-0.09
CAR [0, +3]	-0.92***	-1.29	-1.40**	-0.87**	0.00
CAR [+1, +365]	-7.91 ⁺	-9.97	-17.39	-5.41	1.61
N	143	28	35	53	27
The symbols +, *, **, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test.					

Table 5. CFO change impact and internal financial experts

Event window	CFO change impact and internal financial experts							
	No replacement		Interim replacement		Internal replacement		External replacement	
	Internal financial experts	No internal financial experts	Internal financial experts	No internal financial experts	Internal financial experts	No internal financial experts	Internal financial experts	No internal financial experts
CAR [-3, +3]	-5.29*	-0.78	-6.50***	-1.30**	-0.32	-0.12	0.90	-0.27
CAR [-2, +2]	-5.18*	-0.93*	-5.88**	-1.24**	-0.52	0.16	0.09	-0.10
CAR [-1, +1]	-3.41*	-0.51	-4.70***	-1.11**	-0.81	0.07	0.42	-0.07
CAR [0, +1]	-3.67*	-0.47	-4.06***	-1.02**	-0.86	-0.20	1.22	-0.19
CAR [0, +2]	-4.45*	-0.64	-4.75***	-1.00**	-0.57	-0.13	1.33	-0.19
CAR [0, +3]	-4.08 ⁺	-0.77	-4.79***	-1.03*	-0.34	-0.54*	1.25	-0.21
N	6	59	7	44	11	73	5	36
The symbols +, *, **, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test.								

Table 6. Linear regression of stock market reaction, CAR [-3, +3]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
No Replacement		-0.01*	-0.01						
		(0.09)	(0.21)						
No Replacement * Internal financial experts			-0.04						
			(0.20)						
Interim replacement				-0.01*	-0.01				
				(0.06)	(0.34)				
Interim replacement * Internal financial experts					-0.05**				
					(0.04)				
Internal replacement						0.01**	0.01		
						(0.04)	(0.20)		
Internal replacement * Internal financial experts							0.03		
							(0.12)		
External replacement								0.01	0.00
								(0.20)	(0.61)

External replacement * Internal financial experts									0.05**
									(0.02)
Internal financial experts	-0.02**	-0.02**	-0.01	-0.02**	-0.01	-0.02**	-0.03**	-0.02**	-0.03***
	(0.03)	(0.02)	(0.22)	(0.03)	(0.27)	(0.02)	(0.02)	(0.03)	(0.01)
Munificence	0.06	0.06*	0.07*	0.05	0.05	0.06	0.06	0.06	0.06*
	(0.11)	(0.08)	(0.06)	(0.15)	(0.14)	(0.11)	(0.12)	(0.11)	(0.06)
Dynamism	0.00*	0.00*	0.00**	0.00*	0.00*	0.00	0.00*	0.00*	0.00**
	(0.10)	(0.07)	(0.03)	(0.09)	(0.09)	(0.11)	(0.08)	(0.06)	(0.03)
Complexity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.40)	(0.40)	(0.44)	(0.45)	(0.27)	(0.47)	(0.39)	(0.38)	(0.35)
Firm size	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.40)	(0.44)	(0.41)	(0.53)	(0.59)	(0.51)	(0.46)	(0.45)	(0.52)
Firm performance	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.85)	(0.87)	(0.86)	(0.76)	(0.72)	(0.87)	(0.88)	(0.77)	(0.69)
CEO tenure	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.80)	(0.84)	(0.67)	(0.83)	(0.92)	(0.76)	(0.76)	(0.90)	(0.75)
TMT size	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00

	(0.74)	(0.78)	(0.68)	(0.77)	(0.86)	(0.77)	(0.67)	(0.77)	(0.88)
CFO change type	-0.01	-0.01*	-0.01*	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.17)	(0.09)	(0.09)	(0.25)	(0.29)	(0.14)	(0.17)	(0.15)	(0.13)
Constant	-0.10*	-0.10*	-0.10**	-0.08*	-0.09*	-0.10*	-0.10*	-0.10*	-0.10**
	(0.06)	(0.05)	(0.05)	(0.09)	(0.08)	(0.06)	(0.06)	(0.05)	(0.04)
Observations	241	241	241	241	241	241	241	241	241
R-squared	0.11	0.12	0.14	0.12	0.15	0.13	0.14	0.12	0.14
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	448.7	450.4	452.2	450.5	453.7	450.9	452.4	449.8	452.5
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1									

Table 7. Linear regression of stock market reaction, CAR [-2, +2]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
No Replacement		-0.01**	-0.01*						
		(0.04)	(0.07)						
No Replacement * Internal financial experts			-0.03						
			(0.34)						
Interim (internal) replacement				-0.01*	-0.01				
				(0.10)	(0.37)				
Interim (internal) replacement * Internal financial experts					-0.04*				
					(0.09)				
Internal replacement						0.01**	0.01*		
						(0.01)	(0.07)		
Internal replacement * Internal financial experts							0.02		
							(0.18)		

External replacement								0.01	0.00
								(0.18)	(0.54)
External replacement * Internal financial experts									0.03*
									(0.05)
Internal financial experts	-0.02***	- 0.03***	-0.02*	- 0.02***	-0.02*	- 0.02***	-0.03**	- 0.02***	- 0.03***
	(0.01)	(0.01)	(0.07)	(0.01)	(0.09)	(0.01)	(0.01)	(0.01)	(0.00)
Munificence	0.03	0.03	0.04	0.02	0.02	0.03	0.03	0.03	0.03
	(0.36)	(0.26)	(0.23)	(0.45)	(0.44)	(0.34)	(0.36)	(0.36)	(0.27)
Dynamism	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.69)	(0.53)	(0.34)	(0.69)	(0.69)	(0.72)	(0.63)	(0.56)	(0.41)
Complexity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.26)	(0.26)	(0.28)	(0.30)	(0.17)	(0.31)	(0.26)	(0.25)	(0.23)
Firm size	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.11)	(0.13)	(0.12)	(0.16)	(0.18)	(0.17)	(0.15)	(0.12)	(0.14)
Firm performance	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.80)	(0.84)	(0.82)	(0.70)	(0.66)	(0.83)	(0.84)	(0.72)	(0.64)

CEO tenure	-0.00	0.00	-0.00	0.00	0.00	-0.00	-0.00	0.00	-0.00
	(0.97)	(0.98)	(0.88)	(0.99)	(0.92)	(0.93)	(0.93)	(0.94)	(0.94)
TMT size	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.76)	(0.81)	(0.73)	(0.79)	(0.87)	(0.80)	(0.71)	(0.79)	(0.88)
CFO change type	-0.01*	-0.01**	-0.01**	-0.01	-0.01	-0.01*	-0.01*	-0.01*	-0.01*
	(0.10)	(0.04)	(0.04)	(0.15)	(0.18)	(0.07)	(0.09)	(0.08)	(0.08)
Constant	-0.07	-0.07*	-0.07*	-0.06	-0.06	-0.07	-0.07	-0.07	-0.07*
	(0.12)	(0.10)	(0.09)	(0.17)	(0.15)	(0.11)	(0.12)	(0.11)	(0.09)
Observations	241	241	241	241	241	241	241	241	241
R-squared	0.12	0.14	0.15	0.14	0.16	0.15	0.16	0.13	0.14
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Log-Likelihood	478.2	480.9	482.1	479.9	482.6	481.4	482.7	479.1	481
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1									

Table 8. Heckman selection estimation of stock market reaction, CAR [-3, +3]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
No Replacement		-0.01	-0.01						
		(0.11)	(0.23)						
No Replacement * Internal financial experts			-0.04						
			(0.31)						
Interim (internal) replacement				-0.01*	-0.01				
				(0.08)	(0.38)				
Interim (internal) replacement * Internal financial experts					-0.05*				
					(0.07)				
Internal replacement						0.01*	0.01		
						(0.05)	(0.21)		
Internal replacement * Internal financial experts							0.03		
							(0.16)		
External replacement								0.01	0.00
								(0.22)	(0.63)

External replacement * Internal financial experts									0.05*
									(0.06)
Internal financial experts	0.06	0.06*	0.07*	0.05	0.05	0.06	0.06	0.06	0.06*
	(0.13)	(0.10)	(0.09)	(0.18)	(0.17)	(0.13)	(0.14)	(0.13)	(0.08)
Munificence	0.00	0.00*	0.00**	0.00	0.00	0.00	0.00	0.00*	0.00**
	(0.12)	(0.09)	(0.05)	(0.12)	(0.12)	(0.13)	(0.11)	(0.08)	(0.05)
Dynamism	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.53)	(0.53)	(0.56)	(0.58)	(0.43)	(0.59)	(0.53)	(0.51)	(0.48)
Complexity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.41)	(0.44)	(0.41)	(0.53)	(0.59)	(0.51)	(0.47)	(0.45)	(0.52)
Firm size	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.92)	(0.97)	(0.94)	(0.84)	(0.80)	(0.95)	(0.95)	(0.87)	(0.79)
Firm performance	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.84)	(0.89)	(0.73)	(0.86)	(0.95)	(0.81)	(0.80)	(0.94)	(0.79)
CEO tenure	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.78)	(0.84)	(0.76)	(0.81)	(0.90)	(0.83)	(0.73)	(0.82)	(0.92)
TMT size	-0.02**	-0.02**	-0.01	-0.02**	-0.01	-0.02**	-0.03**	-0.02**	-0.03**

	(0.04)	(0.03)	(0.25)	(0.04)	(0.32)	(0.04)	(0.03)	(0.04)	(0.01)
CFO change type	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.19)	(0.11)	(0.11)	(0.27)	(0.31)	(0.15)	(0.19)	(0.16)	(0.15)
Inverse Mill's ratios	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	(0.68)	(0.54)	(0.62)	(0.70)	(0.68)	(0.61)	(0.65)	(0.63)	(0.66)
Constant	-0.10*	-0.11*	-0.11*	-0.09	-0.09*	-0.11*	-0.10*	-0.10*	-0.11*
	(0.07)	(0.06)	(0.06)	(0.11)	(0.09)	(0.07)	(0.08)	(0.06)	(0.05)
Observations	252	252	252	252	252	252	252	252	252
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1									

Table 9. Heckman selection estimation of stock market reaction, CAR [-2, +2]

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
No Replacement		-0.01**	-0.01*						
		(0.05)	(0.08)						
No Replacement * Internal financial experts			-0.03						
			(0.46)						
Interim (internal) replacement				-0.01	-0.01				
				(0.12)	(0.41)				
Interim (internal) replacement * Internal financial experts					-0.04				
					(0.15)				
Internal replacement						0.01**	0.01*		
						(0.01)	(0.07)		
Internal replacement * Internal financial experts							0.02		
							(0.23)		
External replacement								0.01	0.00
								(0.20)	(0.54)

External replacement * Internal financial experts									0.03
									(0.11)
Internal financial experts	0.03	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03
	(0.36)	(0.25)	(0.24)	(0.44)	(0.43)	(0.34)	(0.36)	(0.35)	(0.28)
Munificence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.67)	(0.51)	(0.35)	(0.67)	(0.68)	(0.70)	(0.62)	(0.54)	(0.41)
Dynamism	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.40)	(0.39)	(0.42)	(0.43)	(0.32)	(0.45)	(0.41)	(0.39)	(0.36)
Complexity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.12)	(0.13)	(0.13)	(0.17)	(0.19)	(0.18)	(0.16)	(0.13)	(0.15)
Firm size	-0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.93)	(0.99)	(0.98)	(0.85)	(0.81)	(0.97)	(0.97)	(0.88)	(0.81)
Firm performance	0.00	0.00	-0.00	0.00	0.00	-0.00	-0.00	0.00	-0.00
	(0.98)	(0.92)	(0.95)	(0.95)	(0.88)	(0.99)	(0.99)	(0.89)	(0.99)
CEO tenure	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.84)	(0.91)	(0.84)	(0.86)	(0.94)	(0.89)	(0.80)	(0.87)	(0.95)
TMT size	-0.02**	-0.02**	-0.02*	-0.02**	-0.02	-0.02**	-0.03**	-0.02**	-0.03***

	(0.02)	(0.01)	(0.10)	(0.01)	(0.12)	(0.01)	(0.02)	(0.01)	(0.01)
CFO change type	-0.01	-0.01**	-0.01**	-0.01	-0.01	-0.01*	-0.01*	-0.01*	-0.01*
	(0.10)	(0.05)	(0.05)	(0.16)	(0.19)	(0.08)	(0.09)	(0.09)	(0.08)
Inverse Mill's ratios	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	(0.36)	(0.24)	(0.28)	(0.37)	(0.35)	(0.29)	(0.32)	(0.32)	(0.34)
Constant	-0.08	-0.08*	-0.09*	-0.07	-0.07	-0.08*	-0.08	-0.08*	-0.08*
	(0.10)	(0.08)	(0.08)	(0.15)	(0.13)	(0.10)	(0.11)	(0.09)	(0.08)
Observations	252	252	252	252	252	252	252	252	252
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Robust pval in parentheses, *** p<0.01, ** p<0.05, * p<0.1									

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PUBLICATIONS AND PRESENTATIONS

Chacar, A., Heavey, A., Combs, D., Ozgen, S., & Sim, D. *The rise of the CFO from humble origins to a CEO partner and foe*. Presented at the 2019 Academy of Management Annual Conference in Boston, MA.

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