Do ESG Pillar Scores Affect CEO Turnovers?

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Abstract

Over the last fifty years, chief executive officers (CEOs) have evolved into some of the world's most influential figures. The topic of CEO turnover (CEOs leaving a firm), and specifically, forced CEO turnover, has long been an important issue in the literature. While company profitability and other financial metrics have been traditional benchmarks for CEO performance, the emergence and rapid growth in the importance of ESG (environmental, social and governance) performance as a complementary measure of firm performance necessitates the need for further study.

This research study examines the relationship between ESG component scores and the odds of forced CEO turnover. To the best of our knowledge, this study is the first to examine how the individual components of ESG performance affect the likelihood of a CEO being forced out of their position. Furthermore, due to emerging research on how board characteristics impact corporations, we further examine the moderating effect of board director independence on the aforementioned relationships. Using a sample of 14,717 firm-year observations of U.S. firms between 2000 and 2018, this relationship was modelled using multinomial logistic regression techniques.

The results of our study demonstrate that there is no significant relationship between environmental scores and forced CEO turnover with, or without, the moderating effect of board independence. As for social scores, a statistically significant correlation was only found when accounting for board independence, where board independence weakens the inverse relationship between social score and the odds of forced CEO turnover. This suggests that board independence explains much of the relationship between social score and forced CEO turnover, and that the CEO of a firm is better off trying to optimize the number of independent directors on the board based on the strength of the firm's social score. Finally, the governance score in isolation has an inverse causal effect on the odds of forced CEO turnover, cementing the importance of maintaining firm legitimacy through transparency and accountability with shareholders.

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Chapter 1: Introduction

Chief executive officers have always served the role of being the primary decision-maker within their respective firms, often within those that make up the vast majority of economic activity in their respective countries (Bertrand, 2009). Thus, these CEOs have been often responsible for many billions, if not trillions of dollars, of shareholder investments. As of the 21st century, there is an extensive literature on the many ways that modern-day CEOs influence their companies and what percentage of firm performance is attributable directly to the CEO and their abilities (Boeker, 1992; Hambrick & Quigley, 2014; Love et al., 2017; Mackey, 2008; Sridharan, 1996). Thus, their eventual departure from a firm and the circumstances around it, especially if it was forced by the board of directors for disciplinary reasons, can have significant implications on a firm's financial performance, and subsequently, on stockholder equity performance and volatility (Clayton et al., 2005; Dedman & Lin, 2002).

Ultimately, it will be in the best interest of shareholders to have a CEO in place who will serve their agenda and fulfil the role of an effective agent for as long as possible. Furthermore, having a longer tenure is often in the greater interest of the CEO themselves, and often comes with great financial perks. Depending on their power within the firm, a CEO might, for example, have a significant ability to adjust their compensation (Abernethy et al., 2015; Hill et al., 2016) or change pay-to-performance sensitivity (Edmans et al., 2012; Marinovic & Varas; 2019) to their benefit.

Thus, it will be in the best interests of CEOs, the board of directors, and the shareholders to understand not only what causes CEOs to leave a firm, but also what factors might mitigate or amplify the odds of this happening. The key to understanding this is understanding the metrics by which CEOs and other chief executives are judged, as well as what the most common reasons are for them leaving a firm.

For this study, it is important to distinguish between three different types of CEO turnover. The first type of CEO turnover will be referred to as *involuntary turnover*. This type of turnover is when a CEO has to leave their firm, but not because of their personal decision or that of the board. The most common types of involuntary turnovers are those caused by death or long-term illness. This type of turnover is of the least concern to academics as death and illness are not only quite uncommon compared to other causes of turnover, but are highly unlikely to be related to the competence and trustworthiness of a CEO.

The second type will be referred to *voluntary turnover*. Voluntary turnover is when a CEO chooses to leave a firm of their own free will. One of the most common kinds of voluntary turnover is CEO retirement. It is important to note that, in previous decades, CEOs in the United States were usually required to retire from their positions typically by the age of 64 or 65. This proxy is used in multiple papers in the literature to code for CEOs who were forced to end their tenure (Brookman & Thistle, 2009; Clayton et al., 2005; DeFond & Park, 1999; Ocasio, 1994; Shen & Canella Jr., 2002; Weisbach, 1988). However, according to Matteo Tonello, managing director of ESG research at The Conference Board and a well-cited source on mandatory retirement policies (MRPs) in the 21st century, the concept is now outdated and is rarely enforced by corporations (Woods, 2022).

MRPs used to be more useful when CEOs had significantly more influence on the composition of their board of directors, thus making it much more difficult to remove them. However, the introduction of reforms that were created to solidify the fiduciary responsibilities of firm management, as well as arising concerns of age discrimination allegations, convinced companies that MRPs no longer made sense, especially on a well-functioning board (Woods, 2022). In fact, as of 2017, The Conference Board stopped tracking the use of MRPs altogether (Telford, 2022). Thus, while retirement of a CEO may have been forced in the past, it will be classified as voluntary given the modern-day context of this study.

The third and final type of CEO turnover will be referred to as *forced turnover*. In this type of turnover, a CEO is removed, almost immediately, from a firm due to disciplinary reasons. This type of turnover will be the primary focus of this study. The most common type of forced turnover happens due to

poor financial performance. Especially for large corporations trading on very competitive stock exchanges like the NASDAQ or the NYSE, CEOs are under constant pressure to provide satisfactory performance for their shareholders or be inevitably pushed out. In fact, 38-55% of CEO turnovers were found to be performance-related (Jenter & Lewellen, 2021). Furthermore, another study found that a firm moving from the 90th percentile to the 10th percentile in industry performance doubles the probability of forced CEO turnover (Jenter & Kanaan, 2015).

Furthermore, situations where CEOs are removed for poor ethical decisions, especially those that have a significant negative impact on brand perception or shareholder wealth, also fall under forced turnover. One important example of a situation that can be used to illustrate this second kind of forced turnover are when firms file a financial restatement, which is when a firm revises an official financial statement that contains errors. There appears to be evidence that restatements in general are likely to increase the odds of forced CEO turnover, as found in Arthaud-Day et al. (2006). However, studies that extend on this concept also find that shareholders can distinguish between unintentional errors and intentional errors meant to defraud shareholders or provide some other undue benefit to firm management. Thus, these intentional errors are more likely to get a CEO forcefully removed (Hennes et al., 2008; Palmrose et al., 2004).

As discussed, the primary focus of this paper is to look at forced CEO turnover as a dependent variable. While it is true that financial performance is important to the likelihood of forced CEO turnover, a new measure of firm performance makes it important for future scholars to widen their scope on the factors that may induce forced CEO turnover. This study will be one of the first to examine the relationship between this new kind of firm performance and the odds of forced CEO turnover.

In 2004, the United Nations Global Compact released a new report entitled *Who Cares Wins.* The report, supported by 20 major financial institutions, including Morgan Stanley and Credit Suisse Group, goes on to say that companies that are successful in integrating environmental, social, and corporate governance factors will increase shareholder value, manage various risks, predict possible changes in

regulation and emerging markets, and contribute to sustainable development in the communities where they operate (UN Global Compact, 2004). It is in this report that the concept of environmental, social, and governance (ESG) factors was coined and used for the first time. These factors are used to evaluate a company beyond its financial performance, particularly in terms of its sustainable impact on society and its role as a responsible "citizen." Many rating agencies, such as MSCI and Bloomberg, have begun to measure firms' ESG performance by creating their own methodologies to calculate ESG scores.

Although the calculations of ESG scores vary between agencies, they generally have some commonalities. Most ESG scores consist of three components. The first is an environmental score, which generally looks at the impact of a company's operations on the natural environment. The second is a social score, which looks at how effectively a company manages relations with its shareholders. The third is a governance score, which usually measures transparency and accountability within the company by the executive suite and the board. Usually, these are cumulated into a single ESG score that can be used to compare against other companies. Sometimes, some agencies will include controversy scores, which generally involves lowering an ESG score based on a company's involvement in controversial "sin" industries, such as tobacco, military equipment, and oil and gas (London Stock Exchange Group, 2023).

Although its grow in prominence was slow, an increased focus on ESG investing accelerated in the global markets as of the late 2010s. This growth correlates with increasing pressure from investors, especially those who see ESG as having the potential to protect their investments from future uncertainties and risks, and thus better prepared for higher long-term performance. According to Bloomberg Intelligence, ESG assets around the world still continue to grow at a rapid rate, having already hit 30 trillion dollars in 2022, and are expected to grow to 40 trillion in the next five years (by 2030), thus making up over a quarter of all assets under management (Bloomberg, 2024).

Thus, by examining the relationships between ESG scores and forced CEO turnover, it will be possible to better understand the nuances of what might cause forced CEO turnover, and in turn, what strategies a firm can take to prevent this. For this particular study, the aim is to contribute to the literature

by modelling the CEO turnover dependent variable based on the new CEO turnover database created by Gentry et al. (2021), which was created to resolve some of the turnover coding issues that arose due to outdated or incomplete proxies used in previous studies on CEO turnover. Furthermore, as per our knowledge, this study will be the first to separate the pillars of ESG out and investigate each in a different regression equation to examine the effects of each individual pillar on CEO turnover, rather than how most previous studies have done in solely analyzing the relationship between a cumulative ESG (or similar score) and CEO turnover (Colak et al., 2024; Hubbard et al., 2017; Qin & Yang, 2022; Shin et al., 2022). Furthermore, given that the board of directors ultimately chooses whether a CEO is forced out or not, this study will also examine the moderating effect of board independence on the three ESG performance pillars in this context, and is also understood to be the first to do so.

Using a sample of 14,717 firm-year observations from U.S firms between 2000 and 2018, the above research questions are examined, taking into account several financial variables, board characteristics, and CEO characteristics.

For the environmental score, there appears to be no significant correlational effect or causal relationship with increased or decreased odds of CEO turnover, even when the moderating effect of board independence is considered.

For the social score, there is no significant relationship with the odds of CEO turnover in isolation. However, considering the interaction effect with board independence, it appears that there is a correlation between different levels of board independence and the odds of CEO turnover depending on the strength of the firm's social scores, thus suggesting the benefit of more independent directors for a firm with a low social score, and minimizing the number of independent directors for firms with strong social performance.

Finally, for governance score, there is a strong non-negative causal effect on the odds of forced turnover, accompanied by an insignificant coefficient on the interaction term with board independence.

This appears to suggest that most increases in the governance score would not be detrimental by contributing to forced CEO turnover.

It is important to note that ESG is unlikely to have any causal effect on involuntary turnover, as death or illness is personal to a CEO and their health and well-being. Furthermore, voluntary turnover occurs primarily due to personal reasons in the CEO's life that are unlikely to be related to the performance of the firm. Thus, within this study, voluntary and involuntary turnover are coded as a single type of turnover, or *unforced turnover*, to distinguish from forced turnover, which is the main focus of the study. Figure A summarizes this concept.

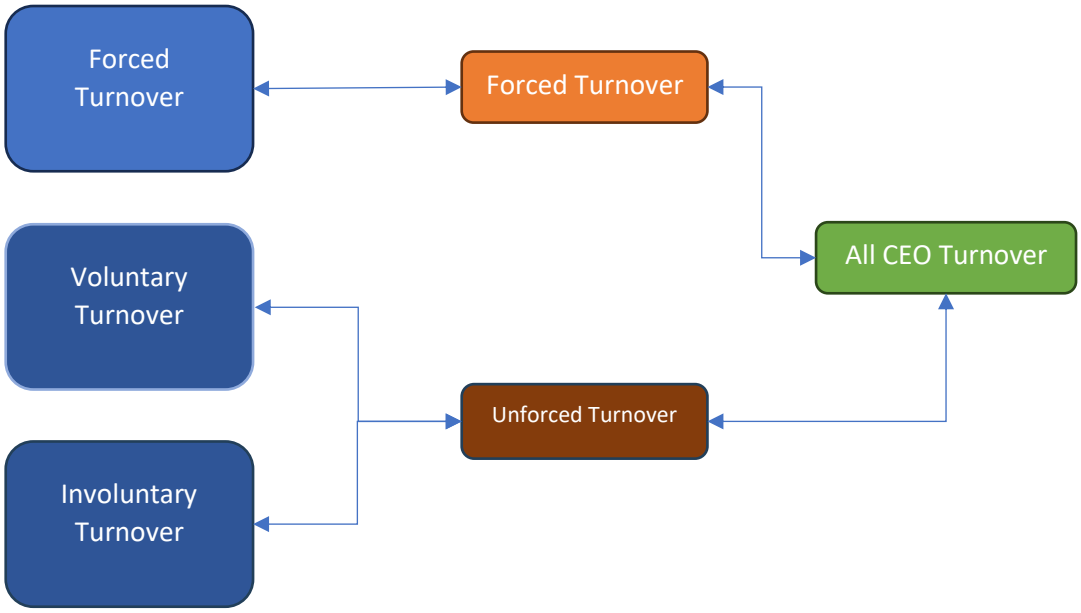

Figure A: Categorization between unforced and forced CEO turnovers

The rest of the study will be structured as follows. In Chapter 2 is the literature review. Chapter 3 describes data and methodology: the sources of data used in this study are identified, the primary regression equations are listed with context to the relevant hypotheses, and the summary statistics and correlation matrix are outlined and examined. Chapter 4 shows the study's findings. These include the primary

regression tables with their interpretations, along with a comprehensive explanation of the endogeneity test results. Finally, Chapter 5 is a discussion of the findings and their practical implications, as well as some possibilities for future research.

Chapter 2: Literature Review

2.1: A brief history of the CEO's role in a firm

During the 1950s and 1960s, chief executive officers (CEOs) served a very different corporate role than they did in the following decades and onwards into the 21st century. They were hardly the prominent and influential personalities we recognize today. Instead, they were bureaucratic types, described as "bland," "interchangeable," and "organization men." They were appointed after years of steady promotion within the company, rarely removed from their positions, and were not paid a much higher salary than their direct subordinates (Quigley & Hambrick, 2015). This was at a time when firms generally had relatively little competition and were also very profitable, meaning that CEOs could more easily grow the company as they saw fit without much external influence from shareholders (Mizruchi & Marshall, 2016). This describes an era often known as *managerial capitalism.*

The impetus for this managerial capitalism era is first described in detail by Adolf Berle and Gardiner Means in their book *The Modern Corporation and Private Property*. The main observation described in this text is that "in the largest American corporations, a new condition has developed where…[t]here are no dominant owners, and control is maintained in large measure apart from ownership (Berle & Means, 1932, p. 110-111)." In other words, most large corporations had fallen into a category they coined as "quasi-public corporations", where separation of control and ownership was caused by the large number of owners these corporations now have in securities markets. In this condition, it becomes much more difficult for a single person to retain majority control (Berle & Means, 1932). In the decades following, as opposed to when large corporations (or their predecessors) would often be run by family dynasties like the Rockefellers and the Carnegies, corporations would now be run by hired company professionals.

However, beginning in the 1970s and accelerating through the 1980s and 1990s, a new corporate movement would emerge, fundamentally changing the role of CEOs and the purpose of modern corporations themselves. Today, this movement is often known as the *shareholder primacy* or *shareholder maximization* movement. The logic behind this movement is often recognized in the literature as *shareholder theory*.

The movement arose shortly following the stability and productivity of the post-WW2 era in the United States. Increased economic competition from Western Europe and Japan, combined with increased regulation and changes in government spending due to the Vietnam War and the 1970s oil crisis (Boatright, 2009; Mizruchi & Marshall, 2016), put business leaders on the defense. The subsequent campaigns of the big business lobby were successful in making the United States more "pro-business" by the start of the Reagan administration, which helped to further their cause throughout the 1980s. However, despite these efforts, the stock market was still underperforming, and poor performance eventually came to be blamed instead on entrenched and inefficient managers.

Subsequently, the increase of institutional stockholders that followed made selling shares, the typical method for shareholders to express lack of satisfaction with a company, far more costly. This forced shareholders to further pressure and observe the governance activities of company management. Furthermore, the pro-shareholder-view Reagan administration enabled a business environment in the United States where corporate takeovers became much more feasible. In fact, by 1990, a third of the companies in the Fortune 500 had disappeared through primarily hostile takeovers (Mizruchi & Marshall, 2016).

The shareholder primacy movement follows a concept that is often described as "agency theory". Agency theory is succinctly described by American economist Milton Friedman, often called the father of shareholder theory, in his prominent article *A Friedman doctrine-- The Social Responsibility of Business Is to Increase Its Profits.* He believed that the primary interest of shareholders, as the managers in the agent-manager relationship, is to maximize their return on investment (ROI). As such, the primary responsibility

of all for-profit corporations should be to maximize the price of their company's stock by any means necessary (Friedman, 1970).

Furthermore, using shareholder money to support any other interests not related to this objective goes directly against this agent-manager relationship. In fact, one of the focuses of Friedman's article was to assert that social responsibility, or in other words, the civic and ethical responsibility to act in ways that contributes positively to the greater society, falls onto shareholders, but not the firm. A firm should not thus be allowed to participate in acts of social responsibility without the shareholders' explicit permission. Using the shareholders' money in any other way than to increase firm value goes against the agent-manager contract that exists between the shareholders and the firm (Friedman, 1970).

Following the theoretical set-up for the shareholder value movement was the introduction of the movement within the industry. Jack Welch, the former CEO of General Electric between 1981 and 2001, gave a speech in New York entitled *Growing Fast in a Slow-Growth Economy* at the start of his tenure, where he outlined his beliefs in the importance of selling underperforming business segments and aggressively cutting costs to derive optimal profits (Guerrera, 2009). It was using this strategy that Welch increased the valuation of his company from $13 billion in 1981 to $484 billion in 2001, the equivalent of roughly $820 billion in 2024 dollars over the 20-year tenure (Bureau of Labor Statistics, n.d.), earning him celebrity status and encouraging many executives to follow his techniques (Martin, 2010). In the present day, agency logic, and in particular, shareholder primacy, completely pervades the corporate world, with the CEOs of large firms being idolized as business celebrities with significant amounts of power as they manage billions of dollars in shareholder wealth that propel much of the global economy.

2.2: Introducing an alternative to stakeholder theory

While the pervading corporate perspective in the 21st century continues to be agency logic and shareholder primacy, another opposing viewpoint has been gradually increasing in prominence from as far back at the mid-1980s.

In 1984, Robert Edward Freeman, professor of business administration at the University of Virginia, published his book *Strategic Management: A Stakeholder Approach*. In this book, he introduces the concept of stakeholder theory. In this book, a stakeholder is defined as "any group or individual who can affect or is affected by the achievement of the organization's objectives (Freeman, 1984, pg. 46)." These include, but are not limited to consumers, suppliers, employees, competitors, and the government. Keeping this definition in mind, stakeholder theory describes the idea that businesses can only be successful if the interests of all stakeholder groups are successfully managed, and not just those of the shareholders.

To quote Freeman in a video interview with the Business Roundtable Institute for Corporate Ethics (2009): "Stakeholder theory is an idea about how business really works. It says that for any business to be successful, it needs to create value for customers, suppliers, employees…Their interest has to go together, and the job of a manager or entrepreneur is to work out how the interest of… (these groups) go in the same direction." In other words, all of these stakeholder groups provide value to a corporation, and managing relationships with each of these groups will be necessary to be successful in the long-term. A proponent of stakeholder theory could point to an example like that of Enron Corporation, where unethical and fraudulent accounting practices were used to artificially inflate the company's stock when the company was billions of dollars in debt, leading ultimately to the company going into bankruptcy and its shareholders, many of whom were employees investing in their stock-based retirement plans, each losing several thousands of dollars, if not more.

As presented in the introduction, a strong ESG strategy is being seen as a way to effectively manage the risks and opportunities that will help facilitate relationships with stakeholders. In fact, while research on corporate social responsibility (CSR), which describes a company's internal commitments to ethical and responsible business practices (as opposed to ESG, which goes further as to quantitatively measure these commitments), has existed for many decades ever since the term was coined in 1953 (Bowen, 1953), research with a greater primary focus on ESG began to accelerate primarily at the very end of the 2010s,

and into the early 2020s, many of which are showing promising benefits for firms and their respective shareholders.

In 2015, a meta-analysis of over 3,700 different study results from over 2,200 primary studies on the relationship between ESGP (environmental, social and governance performance, or related concepts) and CFP (corporate financial performance) was published. The result of this meta-analysis finds clear evidence in support of ESG; out of the over 2,200 studies, over 2,100 (over 91%) find a positive relationship between ESGP and CFP, while also reporting that this relationship remains stable over time. This is in comparison to the roughly 150 studies that found mixed or neutral results. However, the authors of the meta-analysis attribute this to the results of these roughly 150 studies being skewed by idiosyncratic and systemic portfolio risks, as well as the cost of implementation in the specific context of mutual funds (Friede et al., 2015).

This meta-analysis is further supported by a similar report that aggregates over 1,000 studies from 2015 to 2020. The report, although itself not peer-reviewed, was created by the New York University Stern Center for Sustainable Business in partnership with Rockefeller Asset Management, an asset management firm with 13.3 billion dollars in assets under supervision. The report, which separates studies into corporate-focused i.e., focusing on operational and financial metrics like ROA and ROE, and investor-focused i.e., focusing on risk-adjusted measures like the alpha or Sharpe ratio, found the following results: for corporate-focused studies (CFS), 58% of studies showed a positive relationship with ESG, 13% are neutral, 21% were mixed, and only 8% were negative. For investor-focused studies (IFS), 33% were positive, 26% neutral, 28% mixed, and 14% negative. This clearly shows that positive and neutral results (together making up 71% and 59% of the results in the CFS and IFS, respectively) dominate in these studies, and that negative results make up a small minority (Whelan et al., 2021).

It is clear from these over 3,000 results that there is indeed some significant positive correlation between ESG performance and financial performance. While this premise has been established, it is important to look at the individual cause-and-effect relationships in different contexts that might be causing

these correlations, and what the relative strength of those correlations will be. One such relationship that will be relevant to this specific study describes how risk affects financial performance, and more specifically, how ESG performance may mitigate or moderate these risk factors.

In recent years, a new area of study that has been arising in the ESG and CSR literature surrounds the insurance properties of ESG, or the idea that strong ESG performance can mitigate external financial shocks and various kinds of risk that may affect financial and operational performance. A paper by Godfrey (2009) states that… "moral capital can provide shareholders with insurance-like protection for a firm's relationship-based intangible assets, and (that) this protection contributes to shareholder wealth." Relationship-based intangible assets include such assets as trust, reputation and loyalty, which are derived through the quality of the relationships that a corporation has with its stakeholders. The concept that moral and social capital increases stakeholder trust, and therefore will continue to engage in activities with the corporation, is prominent in such established theories as legitimacy theory. Legitimacy theory (Dowling & Pfeffer, 1975) states that firms, by reducing information asymmetry (or an existing information gap) between themselves and their stakeholders, are able to increase the legitimacy of their firm activities with these interested parties, thus maintaining their 'societal license to operate.'

Another one of the most prominent current examples of this risk-mitigation effect in the literature arose in light of the recent COVID-19 pandemic. Many papers cover how ESG performance affect the performance and volatility of firms and other institutions during the pandemic (Broadstock et al., 2021; Engelhardt et al., 2021; Hwang et al., 2021; Pisani & Russo, 2021; Zhou & Zhou, 2022), as well as other major crises that affected industries and the global markets, such as the global financial crisis of 2008-2009 (Bouslah et al., 2018; Chiaramonte et al., 2022; Danisman & Tarazi, 2024). All of these papers suggest that higher ESG performance give firms an "insurance effect" when external economic and market conditions are less predictable, thus making it more likely that the firm will be able to better weather these events.

The positive results of these studies further solidify the idea that strong ESG performance lends itself well to strong financial performance overall despite the increasing number of risk factors in an increasingly globalized world. However, as previously mentioned, ESG performance may not have a consistently strong and positive effect on firm performance in all contexts, and thus, it remains important to examine the nuanced impacts of ESG performance. This includes understanding the individual impacts of the three individual components of ESG: environmental factors, social factors, and governance factors.

2.3: History of the CEO turnover literature

Even though the concept of modern CEOs, as managers of a firm independent of its owners, has existed since the early 1900s, the academic literature on CEO turnover is relatively new, with the earliest papers in the field being published in the mid-to-late 1980s (Weisbach, 1988; Warner et al., 1988). However, as the CEO departure research field begins to mature, several problems began to arise that, if not addressed, may undermine the future of the literature. A paper by Richard Gentry et al. (2021) summarizes these issues.

2.3.1: Distinguishing between forced and unforced turnovers

As in most empirical research, establishing causation is an important goal when finding credible and robust results. In the CEO departure literature in particular, this involves distinguishing between forced turnover, where a CEO is removed by the board of directors for disciplinary reasons, as opposed to involuntary or voluntary turnover, where the CEO leaves for personal or health-related reasons. However, one of the most critical problems faced by academics is that it is not usually entirely clear whether a CEO departure was or wasn't forced from publicly available information in corporate releases or media statements. Some statements made by corporations may even be intentionally misleading or false.

In fact, this problem is so common such that some researchers will code for overall turnover instead of forced turnover, even when forced turnover is more closely related to their research question or problem. For example, Arthaud-Day et al. (2006) discusses the likelihood of termination for a CEO who files a

financial misstatement. Even though the filing of a material financial misstatement can have a significant impact on a company's reputation and legitimacy among stakeholders (especially if done intentionally for fraudulent purposes), Arthaud-Day et al. defined turnovers based on CEOs based on who "retained their positions" in the 24 months following the restatement filing, of those who did "…were assigned a value of 0, and those who left were assigned a value of 1 (p.1125).

In particular, it appears that this study doesn't distinguish between unintentional and fraudulent misstatements. Thus, in cases where the misstatement involved a small, unintentional error that wouldn't result in the CEO getting fired, the real reason for the forced CEO turnover would be incorrectly labelled, even if the misstatement just happened to occur in the final years of a CEO's normally-planned succession.

Therefore, for future papers, it will be important to properly discern between forced i.e. for disciplinary reasons, involuntary e.g. for sickness and death, and voluntary turnover e.g. retirement or resignation, to determine how best to interpret the results of the research. The next subsection will describe some of the most updated methods for coding CEO turnover, some of which have been used in multiple papers. However, what will also be addressed is how Gentry et al. (2021) addressed the outdated assumptions in some of these approaches with their database.

2.3.2: Outdated CEO turnover proxies and turnover misclassification

The second problem is that a lot of researchers who study CEO departure will use vague, incomplete or outdated proxies to stand in for CEO turnover. One of the most common examples of this in older literature is the use of mandatory retirement ages as a proxy for forced turnover. Consider the case of Coughlan & Schmidt (1985). This paper separates outgoing CEOs into two cases by age: 64 and over; and therefore, more prone to retirement, and under 64 (Coughlan & Schmidt, 1985, p. 51). This assumption is well founded at the time of the publication of this paper. Based on a test sample taken between 1978-1980, there is a very significant increase in the likelihood of CEO departures at age 64, due to mandatory retirement at age 65. Other similar papers published in the late 1900s and in the following decades use very

similar proxies while still carrying some level of validity (Brookman & Thistle, 2009; Clayton et al., 2005; DeFond & Park, 1999). However, today there are many CEOs, and indeed several prominent ones, who continued in their roles far past the age of 65. This includes Warren Buffet (currently CEO of Berkshire Hathaway at age 93), Rupert Murdoch (former Chairman of Fox Corporation retiring in 2023 at age 92), and Fred Smith (former CEO of FedEx who was 77 upon retirement in 2022). As described earlier in the introduction chapter, mandatory retirement policies are no longer commonplace.

Other common methodologies that have been used to code for forced turnovers are the use of turnover announcements in the media and checking for board continuity in consecutive years (Campbell et al., 2011; Gao et al., 2012; Parrino, 1997; Parrino et al., 2003; Shen & Cannella, 2002). Many of these papers, like the commonly cited paper by Shen and Cannella (2002), use a similar or identical approach to Parrino (1997), which uses all three of retirement age, media announcements and board continuity in his approach to code for forced turnover.

To quote Parrino et al., 2003: "As in Parrino (1997), the classification is based on the following decision process: first, a succession is classified as forced if the Wall Street Journal reports that the CEO is fired, forced from the position, or departs due to unspecified policy differences. For the remaining cases, the succession is classified as forced if the departing CEO is under the age of 60 and the Wall Street Journal announcement of the succession: (1) does not report the reason for the departure as involving death, poor health, or the acceptance of another position (elsewhere or within the firm) or (2) reports that the CEO is retiring, but does not announce the retirement at least six months prior to the succession (Parrino et al., 2003, p.10)."

Although using this approach may have a relatively high level of accuracy, there are a lot of exceptions or misleading cases that are still unaccounted for. For example, some firms might publicly state a CEO left voluntarily so that the CEO may still receive their severance and retirement benefits, even if the CEO was actually forced out (Wiersema & Zhang, 2011, p. 1168). Furthermore, this classification rubric

doesn't appear to account for CEOs who have to leave their companies on short notice for personal reasons not related to personal health, such as the serious illness of family members.

The above two problems lead to this third and final problem: efforts to code CEO departures by academics are often unstandardized. Based on their own interpretations and acquisition of archival information about CEO departures, as well as the differences in coding methodologies, one researcher may categorize a turnover as forced, while another may categorize it as unforced. As more papers are produced and more of these earlier papers are cited, this will lead to conflicting findings in the literature. In fact, it was found that between three datasets of CEO departures, the correlation values of the event coding efforts fell between 0.43 and 0.62 (Gentry et al., 2021). Standardization of these categorizations would make research findings more consistent and will further strengthen research findings rather than creating more mixed results.

In trying to address this, Gentry et al. (2021) created a comprehensive rubric for use by researchers to categorize departures. In comparing the results from undergraduate student coders and an outsourcing firm, which were subsequently verified by an independent coder, a satisfactory coding agreement of 87% was found. *Table 1* below summarizes the categories created for the rubric:

Table 1: Gentry et al. coding scheme

Category/Code	Type (as categorized in this paper)	Explanation
CEO Death (1)	Involuntary (i.e. neither the board of directors or the CEO voluntarily affected this)	Died while in office.
CEO Illness (2)	Involuntary	Left for personal health concerns.
CEO dismissed for job performance (3)	Forced (i.e. the decision of the board of directors only; for disciplinary reasons)	Poor financial performance or other leadership shortcomings.
CEO dismissed for personal issues (4)	Forced	Immediate turnovers for poor behaviour or policy violations.
CEO retired (5)	Voluntary (i.e. the decision of the CEO only)	CEO retired voluntarily or due to retirement age.

CEO pursued new opportunity (6)	Voluntary	CEO left to join another company.
Other (7)	Not defined	The event does not fall in the above categories.
Missing (8)	Not defined	Not enough information.

2.4: Hypotheses

2.4.1: Examining the relationship between ESG and forced turnover

This study consists of two hypotheses to be examined, each consisting of three sub-hypotheses, one for each of the ESG component scores: environmental score, social score, and governance score, respectively.

Hypothesis 1 examines the individual effects of the three ESG scores on forced turnover. First, the effect of the environmental score on forced turnover, as in Hypothesis 1.1, is examined.

The indicators examined in the ESG KLD STATS Environment category scores describe the strength (or weakness) of a firm's environmental performance. Examples of this include:

i) Whether the company uses a large number of recycled materials to produce its goods.

ii) Whether the company is highly proactive in emissions reduction and toxic waste reduction.

iii) Whether a company was awarded a certification like ISO 14001 that demonstrates high commitment to strong environmental management.

Although the literature on the effects of environmental performance on CEO tenure or turnover appears to be greatly lacking, there is a small but growing literature on the relationship between environmental performance (EP) and financial performance (FP). For example, Horváthová (2012) finds

that while the relationship is negative when EP is lagged for one year, it becomes positive when lagged for two years. Furthermore, a study by Ramanathan (2018) finds that there is a curvilinear relationship between EP and FP, and more specifically, an accelerating rate in FP for an increase in EP.

While many of the studies show that there is a positive impact on EP on FP, other papers seem to disagree. For example, a paper by Elsayed & Paton (2005) says that many studies do not account for dynamic effects and heterogeneity. It suggests that EP actually has a neutral effect on FP, based on the notion that firms will only invest in environmental initiatives and performance until the marginal cost equals the marginal benefit.

Due to these findings, the expectation is that there may be a negative effect on the environmental scores on forced turnover (especially in cases of forced turnover due to poor performance) but that it will be quite modest. As such, the following is proposed:

Hypothesis 1.1: Environmental score has a positive association with the odds of forced CEO turnover.

The indicators included in this study's social score come from KLD's human rights, employee, community, diversity, and product categories. As a summation, these indicators measure a firm's stakeholder relations and commitments to the needs and interests of various stakeholder groups. Examples of this include:

i) Whether a company's CEO is a woman or from a minority group.

ii) Whether the company has taken strong initiative to treat its unionized workforce fairly.

iii) Whether a company has established respectful relations with indigenous people in areas of operation.

iv) Whether a company has a zero-layoff policy.

v) Whether a company has implemented progressive policies for its LGBTQ+ employees.

vi) Whether the company had investments in certain regions during periods of war or unrest or in controversial regimes e.g. investments in Northern Ireland between 1991 to 1994.

vii) Whether the company is an industry leader in research and development (R&D).

viii) Whether the company has a very strong volunteer program.

Due to a very limited literature on this specific topic, *a priori*, it is difficult to make any predictions. For this hypothesis, the positive conclusions about the effects of cumulative ESG scores on various operational and financial performance aspects of a firm, as introduced in the Literature Review, are used to derive the hypothesis statement. This is because most cumulative ESG scores generally look at a company's ability to manage risks related to maintaining relationships with different stakeholder groups, although possibly from slightly different angles.

Due to the general findings in the literature review regarding the effects of ESG performance on financial performance and risk mitigation, the expectation is that there may be some sort of positive relationship between social score and forced turnover (especially in cases of forced turnover due to poor performance). For this reason, as well, the cumulative ESG score will be expected to have the same effect, especially given the almost perfect correlation between social score and cumulative ESG score as demonstrated in the correlation matrix (see Data and Methodology chapter). To avoid redundancy, a hypothesis for the cumulative ESG score will not be included in this study. However, the regression and endogeneity tests results with a cumulative ESG score as the primary independent variable will be shown to show that the results are almost identical to that of the social score. Regardless, the following is proposed for social score as follows:

Hypothesis 1.2: Social score has a positive association with the odds of forced CEO turnover.

The indicators examined in the ESG KLD STATS Corporate Governance category scores describe the strength (or weakness) of a firm's responsible governance. In other words, these indicators measure

whether a firm's governance and disclosure practices are congruent with strong business ethics and strong CSR performance. Examples of this include:

i) Whether or not a firm is allocating resources in ways that provide undue benefit and compensation to management.

ii) Whether or not a firm provides comprehensive reporting on several social and environmental performance criteria.

iii) Whether or not a firm is highly transparent about its involvement in domestic or international politics (excluding local U.S. politics).

For the governance component, limited research on the effects of firm transparency on firm performance (particularly for Category 3 turnover) and the effects of firm scandals on CEO turnover (for Category 4) are used to make the hypothesis.

Kim et al. (2013) looks at four different kinds of firm transparency: financial, governance, operational, and social transparency. Upon personal evaluation, the factors in financial governance and social transparency seem most closely related to those factors listed in the KLD CGOV category. Both social and financial transparency are found to be related to an increase in firm value at the 5% significance level in this paper. Another paper by Yu et al. (2018) looks specifically at the effects of ESG disclosure and firm value. Using Bloomberg's ESG disclosure scores as the independent variable and Tobin's Q as the dependent variable, they find a U-shaped relation, where between a disclosure score of 0 and 0.1038, there is a slight dip in Tobin's Q, and from that point to a disclosure of 1, there is an increasing change in the positive rate of the Tobin's Q which slows as the ESG disclosure approaches 1.

With respect to the effect of firm scandals, Colak et al. (2024) finds that extreme and high levels of ESG risk firms are exposed to after an ESG scandal increases the probability of forced CEO turnover. This continues to be true even in the cases where board members are not motivated by non-monetary concerns, such as outbursts in the media.

Another paper by Lee et al. (2012) looks at the relationship between management forecast accuracy and CEO turnover, and finds that overall, forecast errors of greater magnitude when a firm is performing poorly is positively related to CEO turnover, especially holding in the case of unentrenched CEOs. Although this is not related to intentional firm transparency, this demonstrates how much shareholders value reliable information and accurate forecasts, and overall, less information asymmetry.

Due to these more consistent findings, there is a higher expectation that there may be a reasonable positive and statistically significant effect on the governance scores on forced turnover (especially in cases of forced turnover due to poor performance) As such, the following is proposed:

Hypothesis 1.3: Governance score has a positive association with the odds of forced CEO turnover.

2.4.2: Examining the moderating effect of board independence

One of the topics in the literature that seems to be emerging that may have an effect on CEO turnover is the effect of board director independence. The board of directors is tasked with advising firm executives and monitoring their actions to ensure they are acting in the best interest of shareholders (Adams & Ferreira, 2007; Adams et al., 2010; Dah et al., 2014; Udhe et al., 2017). Consequently, they also have the discretion to remove a CEO from their position if they feel that the CEO's actions are not conducive to the well-being of the firm.

Independent directors are those directors that have no material relationship with the company for which they serve on the board, or in other words, they do not have any relationships within the firm e.g. not an employee of the firm, has no family within upper management or within the company, etc. that would cause them to be biased in favour of the CEO or other upper management (Armstrong et al., 2014; Crespí-Cladera & Pascual-Fuster, 2014; Ravina & Sapienza, 2010).

Ultimately, one can argue that there are two opposing views on the effectiveness of the board of directors, or the effectiveness of a larger proportion of independent directors on the board. The first is known as agency theory. Agency theory is often attributed to Jensen and Meckling's *Theory of the Firm*

(1976), and refers to the disagreements and conflicts of interest that may exist between firm management and the shareholders (also known as the agency problem). The board of directors are responsible for maintaining the interests of the shareholders (or principals) of the firm. However, the firm management (or agents), while also having similar interests to the shareholders, with regards to making the company more profitable, may not always do so fully in the way that the shareholders might want. In fact, sometimes firm management may try to bolster their own interests, sometimes in unethical or illegal ways. Agency theory would assert that more independent directors might make it more possible for firm management to be carefully monitored to ensure the best interests of shareholders are always met.

On the other hand, there is the opposing stewardship theory. First described by Davis et al. (1997) in their paper *Toward a Stewardship Theory of Management,* describes the supposedly intrinsic need of the firm's management to act as good stewards of the firm, or in other words, that even without monitoring, managers will control the assets of their firm responsibly and work with the board in a collaborative and responsible way to provide maximum value to shareholders.

There are currently limited circumstances in the literature where board independence does have equal benefits for shareholders and CEOs (Liu et al., 2015; Neville et al., 2019; Nguyen & Nielsen, 2010; Wu & Li, 2015). For example, Jenwittayaroje & Jiraporn (2019) examines the effect of board independence on firm value during and outside of financial crises, looking specifically at the Great Recession of 2008. After controlling for several robustness tests, found that firm value increased by 4.29% during the crisis due to board independence, but did not change outside the crisis period.

However, many findings, if not most, show that even though increasing the number of independent directors might have benefits for shareholders, it generally doesn't favour firm management who approve of stronger ESG strategies. Consider the example of Chintrakarn et al. (2020). This paper finds that outside of crisis periods such as the Great Recession, the more independent directors in a firm, the less favored ESG investments will be by the board. In fact, a one standard deviation increase in board independence causes an 8.22% decrease in ESG investments. At the same time, firm managers will, as previously

discussed, invest more greatly in ESG during periods of crisis to mitigate risk exposure, as it is shown to effectively do.

Furthermore, a paper by García-Sánchez & Martínez-Ferrero (2016) finds that in general, firms with greater proportions of independent directors are generally against ESG disclosures, where the exception is firms with higher costs of equity capital (inspired by the findings on Dhaliwal et al. (2011)) and lower proprietary costs (CSR disclosures could be used by third parties and competitors to bolster their competitive advantage). Furthermore, independent directors are more inclined to agree to ESG disclosures if their reputations are protected in the event of misleading ESG disclosures. This makes sense since the simple act of ESG disclosure is not forward-looking, and therefore not in the primary interests of the board of directors. It may even be possible that if a CEO's managerial ability or personality is not conducive enough to the well-being of the firm, strong ESG disclosures in the past might not be enough to dissuade the board from removing them.

Given these findings, I expect that for Hypothesis 2.1-2.3, the coefficient of the interaction terms will be positive, thus weakening the main effect of the ESG scores. Thus, in summation:

Hypothesis 2.1: Board independence will have a weakening moderating effect on environmental score.

Hypothesis 2.2: Board independence will have a weakening moderating effect on social score.

Hypothesis 2.3: Board independence will have a weakening moderating effect on governance score.

Chapter 3: Data and Methodology

In this next section, the data sources, regression equations, and summary statistics for the study are introduced.

3.1: Data sources

For this study, all firm observations are taken from US-based companies in the Compustat database between the years 2000 and 2018, as this was the time period described in the paper by Gentry et al. (2021). The financial variables were collected from the Compustat (North America > Fundamentals Annual) database. The board and governance variables are taken from the BoardEx – North America database (Organization Summary > Analytics). CEO characteristic variables are taken from the Execucomp Annual Compensation database. If not directly available in the database(s), necessary control variables were calculated using those available. All of these databases are accessed through the Wharton Research Data Services (WRDS) portal.

The primary dependent variable is forced CEO turnover. The provided dummy variable 'ceo_turnover' is attained through the CEO departure database (Gentry et al., 2023) based on the paper by Gentry et al. (2021), which codes 1 for forced turnovers (Category 3 and 4 in *Table 1 in* that paper), and 0 otherwise (categories 1-2, 5-7; voluntary and involuntary, or unforced turnover) is used. However, despite the original database having 8,892 CEO departures, 1,795 observations remained after data cleaning and merging. As this is likely an insufficient number of observations for a reliable regression, the decision was made to also include Execucomp firm-year observations for years in which there was not any CEO turnover, forced or unforced. As a result, the final cleaned dataset had 14, 856 firm-year observations.

The primary independent variable is one of three ESG scores: environmental score, social score or governance score. These were calculated using data from the MSCI ESG KLD STATS (Social Ratings (Full)) database from MSCI (formerly KLD and GMI). This database has been used in a large number in CSR and ESG-related studies (Bardos et al., 2020; Baron et al., 2011; Harjoto & Laksmana, 2018; Kim et al., 2012).

The database consists of seven categories of ESG factors: ENV (environment), HUM (human rights), CGOV (corporate governance), EMP (employee), COM (community), DIV (diversity) and PRO (product), Within each category are (usually) multiple ESG factors that can be categorized as 'strengths' or 'concerns', where strengths increase the ESG score for a firm, while a concern decreases it. For each

company, each company is assigned with a value of '1' if that strength or concern is present, and 0 if it is not. There are also six 'controversial issue' categories, which only contain 'concerns': ALC (alcohol) TOB (tobacco), FIR (firearms), GAM (gambling), MIL (military contracting), and NUC (nuclear power). However, these are excluded as being in these "sin industries" are not a discretionary activity on behalf of the corporation or the board (Harjoto et al., 2018; Kim et al., 2012). To generate the cumulative ESG score (ESG_kld) for a company in a specific year, the sum of the concern values is subtracted from the sum of the strength values (Harjoto et al., 2018; Kim et al., 2012). However, it is important to note that this is not a complete database, and that there are many missing values. As per the methodology in Harjoto & Laksmana (2018), the missing values are replaced with a '0', thus taking a conservative approach to estimating the ESG scores.

On top of generating cumulative ESG scores, scores are generated for each ESG pillar (environmental factors, social factors, and governance factors, respectively). For the environmental pillar, only the ENV category was considered. For the governance pillar, only the CGOV category was considered, For the social pillar, all remaining categories (HUM, EMP, PRO, DIV, and COM) were added together. For easier comparison between the ESG scores, all four scores (cumulative ESG score, environmental score, social score, and governance score) are standardized to have a mean of 0 and a standard deviation of 1.

It should be noted that the number of factors in each strength/concern category is not the same between 2000 and 2018. As such, using the methods provided in such papers as Bae et al. (2021), Deckop et al. (2006), and Lins et al. (2017), the total strength and concern scores are adjusted by dividing the original score by the number of factors in each strength/concern category for that year. As such, for any strength category, the adjusted scores will range from -1 to 1. As an example, suppose the community strength/weakness score for a given firm ABC in the year 2006 is 3. The number of factors or indicators in the community strength category in the year 2006 is 8. Thus, the final adjusted community strength score for firm ABC in 2006 is 3/8 = 0.375.

Finally, CEO managerial ability is also included as an additional control. To attain the managerial ability data, the updated database (Demerjian, 2024) provided by Dr. Peter Demerjian, based on the paper Demerjian et al. (2012), was used. The specific variable added as a control is called 'ma_score_2022'. This variable provides the managerial ability (MA) score calculated for each firm using the using a data envelopment analysis (DEA)-based approach created by Demerjian et al. (2012).

The definitions of all variables included in the regression are described in *Table 2.*

Table 2. List of Variables and Meanings

Full variable name	**Variable name in regression equations**	**Meaning**	**Source for controls**	**Lagged?**
Cumulative ESG Score	ESGScore	The cumulative ESG score.	N/A	Yes
Environmental Score	EnvironmentalScore	Environmental component of the cumulative ESG score.	N/A	Yes
Social Score	SocialScore	Social component of the cumulative ESG score.	N/A	Yes
Governance Score	GovernanceScore	Governance component of the cumulative ESG score.	N/A	Yes
Profitability	ROE	Return on equity as a profitability measure.	Bushman et al., 2010; Campbell et al., 2011	Yes
Leverage	Leverage	Long term debt to total assets as leverage ratio.	Fiordelisi & Ricci, 2014; Qin & Yang, 2022	Yes

Firm Size	FirmSize	Natural logarithm of sales or revenue as firm size	Qin & Yang, 2022; Jenter & Lewellen, 2021	Yes
Independent Directors Ratio	IndependenceRatio	Ratio of independent directors, ranging from 0 to1 where 1 is fully independent.	Gupta et al., 2020; Park et al., 2020	No
Number of Directors	NumberofDirectors	Number of directors on the board.	Gupta et al., 2020; Wiersema & Zhang, 2011	No
Gender Ratio	DirectorGenderRatio	Gender ratio of directors, ranging from 0 to 1, where 1 is all-male board.	Gupta et al., 2020	No
CEO Gender Dummy	CEOGender	Dummy variable for CEO gender, where 1 if female.	Fiordelisi & Ricci, 2014; Wiersema & Zhang, 2011	No
CEO Tenure	CEOTenure	Number of years CEO has served in their role	Fiordelisi & Ricci, 2014; Park et al., 2020	No
CEO Duality Dummy	CEODuality	Dummy for CEO duality, where 1 if CEO is also the chair	Fiordelisi & Ricci, 2014; Gentry et al., 2021; Gupta et al., 2020	No
Managerial Ability	ManagerialAbility	Managerial ability score for CEO based on Demerjian et al. (2012)	Chyz & Gaertner, 2018	No

Chapter 3.2: Regression equations

We use the following multinomial logistic regression model to examine our research questions, including year and industry fixed-effects (Cooper, 2017; Rekker et al., 2014). The dependent variable for CEO turnover, shown in the equation as Y, codes as 1 for unforced turnover, 2 for forced turnover, and 0 for no turnover (base outcome). For the 14,856 firm-year observations, there are 13,061 in category 0, 1,408 in category 1, and 387 in category 2. However, only 14,717 observations will remain once the regression is run. For each hypothesis, there is one regression equation for each non-base outcome (Y = 1 or Y = 2).

In the following equations, the relationships between the ESG scores and CEO turnover (forced or unforced) are being determined, as in Hypothesis 1 (and its relevant sub-hypotheses). All variables included in these regressions are listed in *Table 2.*

As the ESG scores have been standardized, their respective coefficients in each regression represent the change in the log-odds of an unforced turnover (Y=1) or a forced turnover (Y=2) relative to no turnover (Y=0) for a one standard deviation increase in the score (as opposed to a one-unit change for the other variables), while all other variables are constant.

Equations 1.1.1 and 1.1.2 describe the existing relationship of the environmental score with Y=1 and Y=2, respectively, as in Hypothesis 1.1.

$$\ln\left(\frac{P(Y=1)}{P(Y=0)}\right) = b_0 + b_1 EnvironmentalScore_{t-1} + b_2 ROE_{t-1} + b_3 Leverage_{t-1} + b_4 FirmSize_{t-1} + b_5 IndependenceRatio_t + b_6 NumberofDirectors_t + b_7 DirectorGenderRatio_t + b_8 CEOGender_t + b_9 CEOTenure_t + b_{10} CEODuality_t + b_{11} ManagerialAbility + b_{12} YearFixedEffects + b_{13} IndustryFixedEffects + \varepsilon \quad (1.1.1)$$

$$\ln\left(\frac{P(Y=2)}{P(Y=0)}\right)$$

$$= b_0 + b_1 EnvironmentalScore_{t-1} + b_2 ROE_{t-1} + b_3 Leverage_{t-1}$$
$$+ b_4 FirmSize_{t-1} + b_5 IndependenceRatio_t + b_6 NumberofDirectors_t$$
$$+ b_7 DirectorGenderRatio_t + b_8 CEOGender_t + b_9 CEOTenure_t$$
$$+ b_{10} CEODuality_t + b_{11} ManagerialAbility + b_{12} YearFixedEffects$$
$$+ b_{13} IndustryFixedEffects + \varepsilon \qquad (1.1.2)$$

We will repeat this set of two equations two more times for each other ESG score (social and governance). All other parameters will remain the same throughout.

Equations 1.2.1 and 1.2.2 describe the existing relationship of the social score with Y=1 and Y=2, respectively, as in Hypothesis 1.2.

$$\ln\left(\frac{P(Y=1)}{P(Y=0)}\right)$$

$$= b_0 + b_1 SocialScore_{t-1} + b_2 ROE_{t-1} + b_3 Leverage_{t-1} + b_4 FirmSize_{t-1}$$
$$+ b_5 IndependenceRatio_t + b_6 NumberofDirectors_t$$
$$+ b_7 DirectorGenderRatio_t + b_8 CEOGender_t + b_9 CEOTenure_t$$
$$+ b_{10} CEODuality_t + b_{11} ManagerialAbility + b_{12} YearFixedEffects$$
$$+ b_{13} IndustryFixedEffects + \varepsilon \qquad (1.2.1)$$

$$\ln\left(\frac{P(Y=2)}{P(Y=0)}\right)$$

$$= b_0 + b_1 SocialScore_{t-1} + b_2 ROE_{t-1} + b_3 Leverage_{t-1} + b_4 FirmSize_{t-1}$$
$$+ b_5 IndependenceRatio_t + b_6 NumberofDirectors_t$$
$$+ b_7 DirectorGenderRatio_t + b_8 CEOGender_t + b_9 CEOTenure_t$$
$$+ b_{10} CEODuality_t + b_{11} ManagerialAbility + b_{12} YearFixedEffects$$
$$+ b_{13} IndustryFixedEffects + \varepsilon \qquad (1.2.2)$$

Equations 1.3.1 and 1.3.2 describe the existing relationship of the governance score with Y=1 and Y=2, respectively, as in Hypothesis 1.3.

$$\ln\left(\frac{P(Y=1)}{P(Y=0)}\right)$$

$$= b_0 + b_1 GovernanceScore_{t-1} + b_2 ROE_{t-1} + b_3 Leverage_{t-1}$$
$$+ b_4 FirmSize_{t-1} + b_5 IndependenceRatio_t + b_6 NumberofDirectors_t$$
$$+ b_7 DirectorGenderRatio_t + b_8 CEOGender_t + b_9 CEOTenure_t$$
$$+ b_{10} CEODuality_t + b_{11} ManagerialAbility + b_{12} YearFixedEffects$$
$$+ b_{13} IndustryFixedEffects + \varepsilon \qquad (1.3.1)$$

$$\ln\left(\frac{P(Y=2)}{P(Y=0)}\right)$$

$$= b_0 + b_1 GovernanceScore_{t-1} + b_2 ROE_{t-1} + b_3 Leverage_{t-1}$$
$$+ b_4 FirmSize_{t-1} + b_5 IndependenceRatio_t + b_6 NumberofDirectors_t$$
$$+ b_7 DirectorGenderRatio_t + b_8 CEOGender_t + b_9 CEOTenure_t$$
$$+ b_{10} CEODuality_t + b_{11} ManagerialAbility + b_{12} YearFixedEffects$$
$$+ b_{13} IndustryFixedEffects + \varepsilon \quad (1.3.2)$$

In the following equations, the moderating effect of board independence on the relationship between the ESG component scores and CEO turnover (forced or unforced) is being determined, as in Hypothesis 2 (and its relevant sub-hypotheses). Apart from the addition of an interaction term, all other parameters will remain the same as in Hypothesis 1.

The coefficients for the interaction term (between the ESG score and board independence ratio) represents how much one of the interacted variable's effects on the dependent variable changes at different levels of the other interacted variable. This is known as the interaction effect.

Equations 2.1.1 and 2.1.2 describe the relationship of the environmental component score with Y=1 and Y=2, respectively, as in Hypothesis 2.1.

$$\ln\left(\frac{P(Y=1)}{P(Y=0)}\right)$$

$$= b_0 + b_1 EnvironmentalScore_{t-1} + b_2 ROE_{t-1} + b_3 Leverage_{t-1}$$
$$+ b_4 FirmSize_{t-1} + b_5 IndependenceRatio_t + b_6 NumberofDirectors_t$$
$$+ b_7 DirectorGenderRatio_t + b_8 CEOGender_t + b_9 CEOTenure_t$$
$$+ b_{10} CEODuality_t + b_{11} ManagerialAbility + b_{12} YearFixedEffects$$
$$+ b_{13} IndustryFixedEffects$$
$$+ b_{14} EnvironmentalScore_{t-1} X IndependenceRatio_t$$
$$+ \varepsilon \qquad (2.1.1)$$

$$\ln\left(\frac{P(Y=2)}{P(Y=0)}\right)$$

$$= b_0 + b_1 EnvironmentalScore_{t-1} + b_2 ROE_{t-1} + b_3 Leverage_{t-1}$$
$$+ b_4 FirmSize_{t-1} + b_5 IndependenceRatio_t + b_6 NumberofDirectors_t$$
$$+ b_7 DirectorGenderRatio_t + b_8 CEOGender_t + b_9 CEOTenure_t$$
$$+ b_{10} CEODuality_t + b_{11} ManagerialAbility + b_{12} YearFixedEffects$$
$$+ b_{13} IndustryFixedEffects$$
$$+ b_{14} EnvironmentalScore_{t-1} X IndependenceRatio_t$$
$$+ \varepsilon \qquad (2.1.2)$$

Equations 2.2.1 and 2.2.2 describe the relationship of the social component score with Y=1 and Y=2, respectively, as in Hypothesis 3.1.

$$\ln\left(\frac{P(Y=1)}{P(Y=0)}\right)$$

$$= b_0 + b_1 SocialScore_{t-1} + b_2 ROE_{t-1} + b_3 Leverage_{t-1} + b_4 FirmSize_{t-1}$$
$$+ b_5 IndependenceRatio_t + b_6 NumberofDirectors_t$$
$$+ b_7 DirectorGenderRatio_t + b_8 CEOGender_t + b_9 CEOTenure_t$$
$$+ b_{10} CEODuality_t + b_{11} ManagerialAbility + b_{12} YearFixedEffects$$
$$+ b_{13} IndustryFixedEffects + SocialScore_{t-1} X IndependenceRatio_t$$
$$+ \varepsilon \qquad (2.2.1)$$

$$\ln\left(\frac{P(Y=2)}{P(Y=0)}\right)$$

$$= b_0 + b_1 SocialScore_{t-1} + b_2 ROE_{t-1} + b_3 Leverage_{t-1} + b_4 FirmSize_{t-1}$$
$$+ b_5 IndependenceRatio_t + b_6 NumberofDirectors_t$$
$$+ b_7 DirectorGenderRatio_t + b_8 CEOGender_t + b_9 CEOTenure_t$$
$$+ b_{10} CEODuality_t + b_{11} ManagerialAbility + b_{12} YearFixedEffects$$
$$+ b_{13} IndustryFixedEffects + SocialScore_{t-1} X IndependenceRatio_t$$
$$+ \varepsilon \qquad (2.2.2)$$

Equations 2.3.1 and 2.3.2 describe the relationship of the governance component score with Y=1 and Y=2, respectively, as in Hypothesis 4.1.

$$\ln\left(\frac{P(Y=1)}{P(Y=0)}\right)$$

$$= b_0 + b_1 GovernanceScore_{t-1} + b_2 ROE_{t-1} + b_3 Leverage_{t-1}$$
$$+ b_4 FirmSize_{t-1} + b_5 IndependenceRatio_t + b_6 NumberofDirectors_t$$
$$+ b_7 DirectorGenderRatio_t + b_8 CEOGender_t + b_9 CEOTenure_t$$
$$+ b_{10} CEODuality_t + b_{11} ManagerialAbility + b_{12} YearFixedEffects$$
$$+ b_{13} IndustryFixedEffects + GovernanceScore_{t-1} X IndependenceRatio_t$$
$$+ \varepsilon \qquad (2.3.1)$$

$$\ln\left(\frac{P(Y=2)}{P(Y=0)}\right)$$

$$= b_0 + b_1 GovernanceScore_{t-1} + b_2 ROE_{t-1} + b_3 Leverage_{t-1}$$
$$+ b_4 FirmSize_{t-1} + b_5 IndependenceRatio_t + b_6 NumberofDirectors_t$$
$$+ b_7 DirectorGenderRatio_t + b_8 CEOGender_t + b_9 CEOTenure_t$$
$$+ b_{10} CEODuality_t + b_{11} ManagerialAbility + b_{12} YearFixedEffects$$
$$+ b_{13} IndustryFixedEffects + GovernanceScore_{t-1} X IndependenceRatio_t$$
$$+ \varepsilon \qquad (2.3.2)$$

3.3: Summary statistics

Table 3 shows the descriptive statistics for the full sample of firms in this study, including the total number of observations (Obs.), the average value (Mean), the standard deviation (Std. Dev.), and the maximum and minimum values (Min. and Max., respectively). Based on the methodology in Rekker et al. (2014), All ESG-related score variables, all firm-related and financial variables i.e. ROE, leverage, and

firm size, are lagged by one year to reduce potential endogeneity, while board-related and CEO-related variables are measured contemporaneously.

In most ESG and CSR-related studies, including in others that use the KLD STATS ESG scores, the cumulative ESG score is used as the primary independent variable. However, for the purposes of this study, examining the effects of the individual three "pillars" of ESG, and their respective scores as independent variables, provides much-needed context that examining the ESG cumulative score in isolation would not provide. This is because each pillar of ESG will impact a company's operations and impact, and subsequently, possible CEO turnover, through different channels and mechanisms.

If someone wishes to use ESG scores to determine a company's ability to manage its overall ESG risk by itself, perhaps in comparison to similar firms (e.g. those of a similar size or in a similar industry), a cumulative score may be sufficient. On the other hand, using a cumulative ESG score can make it difficult to determine as to what channels or mechanisms are having the greatest effect on a chosen dependent variable. For example, in the case of CEO performance and turnover, a company's environmental score is the most likely to reflect a company's ability to reduce costs through waste and emissions management, while a company's governance score might be the best to examine how company transparency is affecting their brand's reputation impact on annual sales. Using a cumulative ESG score, without additional information, makes it difficult to interpret how each pillar is playing an impact on the company's overall ESG performance, and subsequently, how ESG performance is affecting any other chosen variable. This is why separating out the ESG pillars may be beneficial in some studies, such as this, where there is an attempt to establish causality.

Consider the following simplified example: Company A has an E score of 1, an S score of 1, and a G score of 7. Meanwhile, Company B has an E, S and G each being 3. Both companies A and B have a total unscaled ESG score of 9. However, it is clear that Company A is putting significantly more effort into good governance and transparency over their environmental and social impacts. Meanwhile, Company B

is much more balanced in prioritizing all three pillars equally. However, these conclusions could not have been made using the final cumulative ESG scores alone.

Separating the three pillars is especially important for the KLD STATS ESG scores because the three pillars are not equally weighted in the cumulative score; of the seven categories in the cumulative ESG score, the social pillar contains five of those categories, while the environment and governance pillars only contain one each of the remaining two. The correlation table in *Table 3* shows a perfect correlation between the social score and the cumulative ESG score, and following regression tables will show very similar results for the multinomial logistic regressions and the instrument variable probit regressions in a future chapter.

As will be seen in the following *Table 3*, one other important statistic to note is the minimum value for the lagged ROE variable. This is the result of the lowest two ROE values, -790.6083 and -624.2115, which are outliers, with z-scores of -92.984 and -73.415, respectively. These two outliers withstanding, the next lowest non-outlier lagged ROE value stands at only -57.433. However, including the two outliers doesn't result in any negligible change to the regression results.

Table 3: Descriptive Statistics

Table 3 provides the descriptive statistics for all non-dummy independent and control variables in the study, excluding any interaction terms included in the regressions for Hypothesis 1.1, 2.1, 3.1, respectively. It should be further noted that the first four variables listed are used independently as the primary independent variable in separate regressions, and as such, are never used together in a single equation.

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
ESG Cumulative Score	14858	-.156	1.166	-10.636	1.732
Environmental Score	14858	-.046	1.186	-10.821	4.92
Social Score	14858	-.156	1.166	-10.682	1.72
Governance Score	14858	-.213	1.125	-7.441	2.087
ROE	14858	.036	8.503	-790.608	81
Leverage	14858	.196	.201	0	3.73
Firm Size	14858	7.511	1.565	1.14	13.116
Managerial Ability	14858	.009	.141	-.266	.644
Independent Directors Ratio	14858	.741	.125	0	1
Number of Directors	14858	9.236	2.22	1	22
Director Gender Ratio	14858	.871	.105	.25	1
CEO Tenure	14858	7.701	7.362	0	61

The correlation matrix in *Table 4* below shows overall that all the variables have a low correlation at best. The overall very low or low correlations (ranging from 0.141 and 0.362) between cumulative ESG and the individual pillar scores are expected, and confirms the notion described on page 38, where it is stated that the three pillars affect a company's operations and impact through differing mechanisms and channels.

However, cumulative ESG score and the social score show an almost perfect correlation, presenting as 0.9997 in the STATA output but rounded to 1.0000 in the final table. This is also expected because the formulas for the cumulative ESG score and social score are almost identical, with the exception being that the cumulative ESG score formula includes the ENV and CGOV categories that make up the environment and governance scores, respectively, and the social score does not.

It should be noted that bi-variate correlations with the various ESG scores because, as mentioned previously, the KLD ESG STATS database was incomplete, and a very conservative approach was used to generate the ESG scores for the studies. This means that the strength and concern scores for each category are the minimum that they may be given the provided information, and may be larger. For future studies, using another database, possibly with more complete information, may provide more accurate insights into these correlations.

To show the maximum range of the ESG scores from the KLD database, another calculation is performed where the maximum value of '1' replaces the missing values. Therefore, the true range for these ESG (and ESG component scores) will be between the minimum value in *Table 3* and the maximum value in *Table 3.1*, where the descriptive estimates for the liberal score estimates are shown.

At the end of the chapter is *Table 4*, which shows the correlation matrix of all variables in the regressions from this study.

Table 3.1: Descriptive Statistics for ESG score) – liberal approach

Table 3.1 shows the descriptive statistics for the largest possible estimates for the ESG (and ESG component) scores. The statistics for all other important variables remain the same, and are, as such, excluded. These liberal estimates are not used in other summary statistics, regression results, or endogeneity tests.

Variable	Obs	Mean	Std. Dev.	Min	Max
ESG Cumulative Score	14856	.034	1.02	-7.147	2.252
Environmental Score	14856	.029	1.148	-9.776	4.879
Social Score	14856	.034	1.019	-7.188	2.266
Governance Score	14856	-.129	1.086	-7.143	2.459

Table 4 : Correlation Matrix

Table 4 provides the correlation matrix for all variables included in *Table 2*, i.e. all variables excluding CEO turnover (dependent variable), any factor or dummy variables, or any interaction terms.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) CEO Dismissal	1.000												
(2) ESG Cum. Score	0.001	1.000											
(3) Environmental score	0.013	0.362***	1.000										
(4) Social Score	0.001	1.000***	0.338***	1.000									
(5) Governance Score	-0.022***	0.335***	0.141***	0.333***	1.000								
(6) ROE	-0.016*	-0.013	0.010	-0.013	0.007	1.000							
(7) Leverage	0.012	-0.061***	-0.029***	-0.061***	0.009	-0.004	1.000						
(8) Firm Size	0.021**	-0.359***	-0.161***	-0.358***	-0.198***	0.035***	0.197***	1.000					
(9) Managerial Ability	-0.006	-0.081***	-0.062***	-0.080***	-0.076***	0.022***	-0.046***	0.197***	1.000				
(10) Indep. Dir. Ratio	-0.006	-0.067***	-0.028***	-0.067***	-0.018**	0.014*	0.039***	0.177***	0.003	1.000			
(11) Num. of Directors	0.016**	-0.266***	-0.125***	-0.265***	-0.125***	0.027***	0.153***	0.604***	0.084***	0.143***	1.000		
(12) Dir. Gender Ratio	-0.021***	0.016**	-0.054***	0.018**	-0.015*	-0.019**	-0.113***	-0.343***	-0.058***	-0.209***	-0.308***	1.000	
(13) CEO Tenure	0.014*	0.077***	0.030***	0.077***	0.056***	-0.010	-0.078***	-0.135***	0.004	-0.064***	-0.167***	0.148***	1.000

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

;

In this next section, the results and endogeneity tests used in this study are introduced and analysed.

Chapter 4: Findings

4.1 Regression results

To examine the research questions introduced in Chapter 2, 16 different multinomial logistic regressions are performed. Again, to recall, the reason multinomial logistic regression is used in this study is because the dependent variable in this study i.e. CEO turnover type, is a nominal variable, where there are three categories: no turnover, forced turnover, and unforced turnover. This kind of regression will be optimal to interpret the relationship between the ESG scores and the two kinds of CEO turnover (forced and unforced) versus the default case in which the CEO does not depart for any reason.

There are four regressions for each independent variable (ESG cumulative score, environment score, social score, and governance score). For each set of four regressions, two are used to analyze the relationship between the independent variable i.e. the ESG scores and the two dependent variables, forced turnover and unforced turnover, respectively. The other two regressions are identical to the first two, except that they include the addition of a term interacting an ESG score variable and the board independence ratio, and again, test the independent variable against forced or unforced turnover. These latter two regressions will be used to interpret the moderating effect of board independence on the relationship between the ESG scores and CEO turnover.

For all interpretations, the coefficients will be interpreted as a change in the log-odds of either type of turnover occurring relative to no turnover, as well using relative risk ratios or RRRs (Stata, n.d.), which is interpreted as a percentage change in the odds of either type of turnover occurring relative to no turnover, where the percentage change is (RRR-1) X 100%. The RRR in turn can be calculated as e^(coefficient).

Even though there is not a hypothesis for a cumulative ESG score, one was calculated as discussed as described in the Data and Methodology chapter. Results for a hypothetical regression where the ESG cumulative score stands in for any of the ESG scores are provided to show that the social score and the cumulative ESG score are almost identical in the magnitude, direction, and statistical significance of the coefficients (*Table 5* and *Table 7)*.

Furthermore, Model 1 and Model 3 in *Tables 5-8* (shown as M1 and M3) report results where unforced turnover is the dependent variable. Although these are being reported in these tables, the results in these tables are much less statistically relevant, especially in the context of this study. This is because the events coded as unforced are primarily due to personal reasons in the CEO's life that are irrelevant to his role or performance within the firm e.g. unexpected death of a CEO or retirement, and thus unlikely to be impacted in any way by a firm's ESG performance. As a result, the findings and discussion of this study will focus primarily on the relationship of ESG performance components on *forced* CEO turnover, which will present as Model 2 and Model 4 (shown as M2 and M4) in *Tables 5-8*.

First, the multinomial logistic regression results for cumulative ESG score and forced CEO turnover in *Table 5* are displayed. Again, due to the similarity with the results for the social score, the results in this table will not be interpreted.

Table 5. Multinomial Logistic Regression – Cumulative ESG Score

In *Table 5*, the multinomial logistic regression results with the cumulative ESG score as the independent variable, and CEO turnover type as the dependent variable, are shown. From the right, M1 and M2 represent the equations for unforced and forced turnover, respectively, as in hypothesis 1.0, which examines the relationship between the cumulative ESG score and CEO turnover. Meanwhile, M3 and M4 represent the equations for unforced and forced turnover, respectively, with the addition of a term interacting governance score and the board independence ratio, as in hypothesis 1.1. The coefficients of the variables represent the change in the log-odds of a turnover (either forced or unforced) relative to those of no turnover, for each one standard deviation increase in the case of the governance score, or a one unit increase in the case of all other variables, as they are non-standardized. These regressions control for industry and year fixed effects. Robust standard errors are in the brackets, and symbols ***, **, * represent significance at 1%, 5%, and 10%, respectively.

VARIABLES	(M1) Unforced Turnover	(M2) Forced Turnover	(M3) Unforced Turnover	(M4) Forced Turnover

ESG Cumulative Score	-0.0179	0.0424	-0.4569***	-0.4598*
	(0.0284)	(0.0530)	(0.1221)	(0.2610)
ROE	-0.0021	-0.0695***	-0.0009	-0.0687***
	(0.0139)	(0.0171)	(0.0138)	(0.0174)
Leverage	0.3291***	0.1967	0.3097***	0.1814
	(0.1177)	(0.2457)	(0.1194)	(0.2451)
Firm Size	-0.0169	0.1312***	-0.0145	0.1336***
	(0.0267)	(0.0504)	(0.0266)	(0.0501)
Managerial Ability	-0.2849	-0.4193	-0.2923	-0.4423
	(0.2033)	(0.3626)	(0.2041)	(0.3640)
Independent Directors Ratio	-0.5668**	0.2609	-0.4125	0.4391
	(0.2591)	(0.4893)	(0.2628)	(0.4867)
Number of Directors	0.0509***	-0.0520	0.0502***	-0.0526
	(0.0169)	(0.0356)	(0.0168)	(0.0353)
Director Gender Ratio	-0.6164*	-0.4980	-0.5922*	-0.4688
	(0.3275)	(0.6386)	(0.3286)	(0.6389)
CEO Gender Dummy	-0.4494**	-0.0650	-0.4513***	-0.0615
	(0.1750)	(0.2941)	(0.1750)	(0.2940)
CEO Tenure	0.0247***	-0.0289***	0.0244***	-0.0291***
	(0.0041)	(0.0086)	(0.0041)	(0.0086)
CEO Duality Dummy	0.3720***	-0.1212	0.3837***	-0.1120
	(0.0956)	(0.1777)	(0.0960)	(0.1779)
ESG Score X Ind. Dep.			0.5843***	0.6762*
			(0.1612)	(0.3549)
Constant	-2.4062***	-2.4708**	-2.6835***	-2.7230**
	(0.7927)	(1.2060)	(0.7825)	(1.2195)
Observations	14,717	14,717	14,717	14,717
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Next, the multinomial logistic regression results with environmental score as the independent variable are shown in *Table 6*.

Table 6. Multinomial Logistic Regression – Environmental Score

In *Table 6*, the multinomial logistic regression results with the environmental score as the independent variable, and CEO turnover type as the dependent variable, are shown. From the right, columns M1 and M2 represent the equations for unforced and forced turnover, respectively, as in hypothesis 2.0. Meanwhile, columns M3 and M4 represent the equations for unforced and forced turnover, respectively, with the addition of a term interacting governance score and the board independence ratio, as in hypothesis 2.1. All other controls remain consistent with all other regressions. The coefficients of the variables represent the change in the log-odds of a turnover (either forced or unforced) relative to those of no turnover, for each one standard deviation increase in the case of the governance score, or a one unit increase in the case of all

other variables. As with other models, these regressions control for industry and year fixed effects. Robust standard errors are in the brackets, and symbols ***, **, * represent significance at 1%, 5%, and 10%, respectively.

VARIABLES	(M1) Unforced Turnover	(M2) Forced Turnover	(M3) Unforced Turnover	(M4) Forced Turnover
Environmental Score	0.0202	0.0335	0.0511	-0.2374
	(0.0256)	(0.0519)	(0.1627)	(0.2376)
ROE	-0.0022	-0.0688***	-0.0022	-0.0685***
	(0.0139)	(0.0170)	(0.0139)	(0.0170)
Leverage	0.3291***	0.1968	0.3302***	0.1898
	(0.1179)	(0.2457)	(0.1183)	(0.2459)
Firm Size	-0.0100	0.1205**	-0.0100	0.1177**
	(0.0248)	(0.0495)	(0.0248)	(0.0492)
Managerial Ability	-0.2801	-0.4113	-0.2815	-0.3996
	(0.2038)	(0.3627)	(0.2039)	(0.3625)
Independent Directors Ratio	-0.5651**	0.2570	-0.5674**	0.2957
	(0.2593)	(0.4890)	(0.2597)	(0.4819)
Number of Directors	0.0514***	-0.0524	0.0514***	-0.0521
	(0.0169)	(0.0356)	(0.0169)	(0.0354)
Director Gender Ratio	-0.5972*	-0.4926	-0.5970*	-0.4835
	(0.3276)	(0.6408)	(0.3275)	(0.6416)
CEO Gender Dummy	-0.4476**	-0.0651	-0.4474**	-0.0672
	(0.1751)	(0.2952)	(0.1751)	(0.2971)
CEO Tenure	0.0246***	-0.0287***	0.0246***	-0.0288***
	(0.0041)	(0.0086)	(0.0041)	(0.0086)
CEO Duality Dummy	0.3773***	-0.1195	0.3771***	-0.1218
	(0.0959)	(0.1784)	(0.0959)	(0.1787)
Env. Score X Index. Dir.			-0.0400	0.3575
			(0.2048)	(0.3108)
Constant	-2.4718***	-2.3966**	-2.4664***	-2.4273**
	(0.7920)	(1.2053)	(0.7930)	(1.2031)
Observations	14,717	14,717	14,717	14,717
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The coefficients for environmental score and board independence ratio in M2 and M4, as well as the coefficient for the interaction term in M4, are all statistically insignificant. The results consistently show that there is no statistically significant correlation between environmental score and forced CEO turnover.

Thirdly, the multinomial logistic regression results with social score as the independent variable are shown.

Table 7. Multinomial Logistic Regression – Social Score

In *Table 7*, the multinomial logistic regression results with the social score as the independent variable, and CEO turnover type as the dependent variable, are shown. From the right, columns M1 and M2 represent the equations for unforced and forced turnover, respectively, as in hypothesis 3,0. Meanwhile, columns M3 and M4 represent the equations for unforced and forced turnover, respectively, with the addition of a term interacting social score and the board independence ratio, as in hypothesis 3.1. All other controls remain consistent with all other regressions. The coefficients of the variables represent the change in the log-odds of a turnover (either forced or unforced) relative to those of no turnover, for each one standard deviation increase in the case of the social score, or a one unit increase in the case of all other variables. As with other models, these regressions control for industry and year fixed effects. Robust standard errors are in the brackets, and symbols ***, **, * represent significance at 1%, 5%, and 10%, respectively.

VARIABLES	(M1) Unforced Turnover	(M2) Forced Turnover	(M3) Unforced Turnover	(M4) Forced Turnover
Social Score	-0.0186	0.0417	-0.4645***	-0.4590*
	(0.0283)	(0.0528)	(0.1229)	(0.2630)
ROE	-0.0021	-0.0695***	-0.0009	-0.0687***
	(0.0139)	(0.0171)	(0.0138)	(0.0174)
Leverage	0.3291***	0.1967	0.3098***	0.1817
	(0.1177)	(0.2457)	(0.1194)	(0.2451)
Firm Size	-0.0171	0.1310***	-0.0147	0.1335***
	(0.0267)	(0.0504)	(0.0266)	(0.0501)
Managerial Ability	-0.2848	-0.4197	-0.2930	-0.4433
	(0.2033)	(0.3626)	(0.2041)	(0.3641)
Independent Directors Ratio	-0.5670**	0.2612	-0.4100	0.4382
	(0.2591)	(0.4893)	(0.2629)	(0.4867)
Number of Directors	0.0509***	-0.0520	0.0502***	-0.0526
	(0.0169)	(0.0356)	(0.0168)	(0.0353)
Director Gender Ratio	-0.6164*	-0.4987	-0.5921*	-0.4701
	(0.3275)	(0.6386)	(0.3285)	(0.6389)
CEO Gender Dummy	-0.4494**	-0.0650	-0.4514***	-0.0614
	(0.1750)	(0.2941)	(0.1751)	(0.2939)
CEO Tenure	0.0247***	-0.0288***	0.0244***	-0.0291***
	(0.0041)	(0.0086)	(0.0041)	(0.0086)
CEO Duality Dummy	0.3720***	-0.1215	0.3839***	-0.1122
	(0.0956)	(0.1777)	(0.0960)	(0.1779)
Soc. Score X Indep. Dir.			0.5933***	0.6735*
			(0.1621)	(0.3574)
Constant	-2.4046***	-2.4691**	-2.6855***	-2.7198**
	(0.7925)	(1.2059)	(0.7818)	(1.2199)
Observations	14,717	14,717	14,717	14,717

Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Looking at M2 in Table 7, it is observed that the coefficient for the social score, all other variables held constant, is statistically insignificant. However, in Model M4, the coefficient of the social score is -0.4590 at 10% significance, equivalent to an RRR of 0.632. This means that when board independence is and stays at 0, a one standard deviation increase (+1.166 points) reduces the odds of forced turnover by 36.8% (1-0.632). Meanwhile, the coefficient of the interaction term is 0.6735, which corresponds to a Relative Risk Ratio (RRR) of 1.96. This indicates that for a one standard deviation increase in the social score, the effect of this increase on the odds of forced turnover is modified by a multiplicative factor of 1.96. In other words, the effect of the social score on the odds of forced turnover, relative to no turnover, is increased by 96% due to the interaction with the other variable. This coefficient is significant at the 10% level.

In conclusion, while there is no correlation between social score and forced CEO turnover on its own, board independence does appear to possibly have some effect on the relationship between social score and forced CEO turnover. As to whether a causal relationship exists for the latter, this will have to be confirmed using endogeneity testing, which will be conducted through an instrument variable analysis (see Addressing Endogeneity Concerns).

Finally, the multinomial regression results with governance score as the independent variable are shown.

Table 8. Multinomial Logistic Regression – Governance Score

In *Table 8*, the multinomial logistic regression results with the governance score as the independent variable, and CEO turnover type as the dependent variable, are shown. From the right, columns 1 and 2 represent the equations for unforced and forced turnover, respectively, as in hypothesis 4. Meanwhile, columns 3 and 4 represent the equations for unforced and forced turnover, respectively, with the addition of a term interacting governance score and the board independence ratio, as in hypothesis 4.1. All other controls remain consistent with all previous regressions. The coefficients of the variables represent the

change in the log-odds of a turnover (either forced or unforced) relative to those of no turnover, for each one standard deviation increase in the case of the governance score, or a one unit increase in the case of all other variables. As with previous models, these regressions control for industry and year fixed effects. Robust standard errors are in the brackets, and symbols ***, **, * represent significance at 1%, 5%, and 10%, respectively.

VARIABLES	(M1) Unforced Turnover	(M2) Forced Turnover	(M3) Unforced Turnover	(M4) Forced Turnover
Governance Score	-0.0434	-0.1235**	-0.2857**	-0.4387*
	(0.0306)	(0.0488)	(0.1305)	(0.2342)
ROE	-0.0019	-0.0687***	-0.0014	-0.0682***
	(0.0138)	(0.0174)	(0.0138)	(0.0175)
Leverage	0.3294***	0.2054	0.3190***	0.1964
	(0.1182)	(0.2449)	(0.1190)	(0.2451)
Firm Size	-0.0206	0.0910*	-0.0212	0.0904*
	(0.0256)	(0.0506)	(0.0256)	(0.0508)
Managerial Ability	-0.2903	-0.4398	-0.3018	-0.4596
	(0.2035)	(0.3632)	(0.2039)	(0.3646)
Independent Directors Ratio	-0.5662**	0.2628	-0.4630*	0.4528
	(0.2588)	(0.4888)	(0.2726)	(0.5062)
Number of Directors	0.0515***	-0.0503	0.0515***	-0.0508
	(0.0169)	(0.0354)	(0.0169)	(0.0354)
Director Gender Ratio	-0.6126*	-0.5086	-0.6052*	-0.4894
	(0.3271)	(0.6374)	(0.3276)	(0.6375)
CEO Gender Dummy	-0.4483**	-0.0574	-0.4470**	-0.0532
	(0.1753)	(0.2945)	(0.1754)	(0.2937)
CEO Tenure	0.0249***	-0.0280***	0.0248***	-0.0281***
	(0.0041)	(0.0086)	(0.0041)	(0.0086)
CEO Duality Dummy	0.3675***	-0.1395	0.3759***	-0.1253
	(0.0957)	(0.1780)	(0.0958)	(0.1778)
Gov. Score X Indep. Dir.			0.3289*	0.4261
			(0.1714)	(0.3083)
Constant	-2.3748***	-2.1579*	-2.4743***	-2.3298*
	(0.7899)	(1.2244)	(0.8003)	(1.2257)
Observations	14,717	14,717	14,717	14,717
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Looking at M2, it is observed that the coefficient for the governance score, all else held constant, is 0.1235 at a 5% significance level, suggesting that for a one standard deviation (or +1.125 points) increase in the governance score, the log-odds of a forced turnover decrease by 0.1235. Reporting this as a relative

risk ratio, which comes to roughly 0.883, it is shown that the odds of a forced CEO turnover occurring, over no turnover occurring (the base outcome), is roughly 11.6% less for each one standard deviation increase (or +1.086 points) in governance score. Looking at M4, the coefficient of the governance score is -0.4387 (RRR of 0.645) at a 10% significance, meaning that if board independence is 0, a one standard deviation increase in governance score will reduce the odds of forced dismissal by 35.5% (1-0.645). Meanwhile, the coefficient of the interaction term, however, it appears to be statistically insignificant.

These results indeed suggest that there is a reasonable large and statistically significant correlation between the governance score and forced CEO turnover, but that board independence does not appear to have a significant moderating effect. However, to see if there is a causational relationship in the former, endogeneity testing will again be needed.

4.2: Addressing endogeneity concerns

While the multinomial regression results are sufficient to determine whether a statistically significant *correlational* relationship exists between the ESG scores and forced turnover, some possible endogeneity concerns exist that prevent the ability to ascertain as to whether there is an existing *causational* relationship.

The four ESG scores can be identified as possible endogenous regressors. One possible source of endogeneity may be reverse causality or simultaneity; if it is true that one or more of the ESG scores leads to less forced CEO turnover; perhaps it may be also true that a CEO turnover may also encourage a firm to re-examine its ESG strategy to change its scores and lower the rate of CEO turnovers in the future.

Another possible source could be omitted variable bias. While the regression models in this study attempt to control for financial variables, CEO characteristics, and board characteristics that have been shown in other studies to impact ESG scores, and in turn, CEO turnover, there may indeed exist other factors. For example, a company's culture might dictate their commitment to social impact and transparency in their business operations (Bai, Shang, & Huang; 2024). Another example could be adverse or abnormal

market conditions might impact how many resources firms might allocate to ESG initiatives. This may be especially true given the consistent findings that higher ESG performance has an insurance effect in times of economic crisis, such as during the COVID-19 pandemic (Broadstock et al., 2021; Engelhardt et al., 2021; Hwang et al., 2021; Pisani and Russo, 2021; Zhou & Zhou, 2022).

The decision was made that a two-stage instrument variable (IV) analysis will be used to test for potential endogeneity. Inspired by papers like Attig et al. (2013), El Ghoul et al. (2011), and Yu & Xiao (2022), who are also investigating the individual components of the cumulative ESG score and use the industry-year average of the firm as an IV, this study uses the industry-state average of the relevant ESG (where the state is the US state where the firm is headquartered).

This IV meets the inclusion criteria because i) different industries are more susceptible to ESG risk than others, and thus need to have higher scores to be competitive (International Organization of Securities Commission, 2021) and ii) different state governments will have different ESG regulations and incentives that will impact the overall ESG environment within the state (Chang & Lee, 2022; Garcia et al., 2017). Both of these factors will have an impact on individual firm ESG scores.

Furthermore, this IV also meets the exclusion criteria since this study is examining how ESG score averages for firms in a given state or given industry cannot directly induce the forced turnover of any individual CEO e.g. it cannot directly impact an individual CEO's inability to attain high poor firm performance compared to industry competitors or cause them to engage in unethical business practices. The only mechanism through which the state-industry average scores can affect an individual CEO's turnover is through the channels described for the inclusion criteria.

STATA, the software being used for the analyses in this study, does not have any available command to perform a two-stage IV regression for multinomial logistic regressions. However, a command is available for probit regressions. Thus, to perform the IV analysis, a new independent variable is generated where there are only two categories of turnover; as opposed to in the multinomial logistic regression, where

there are three categories (forced turnover, unforced turnover, and no turnover), this new variable combines no turnover and unforced turnover into a single category to end up with only categories: forced turnover and no forced turnover.

Next, the two stages of the instrument variable probit regression are shown. The 'outreg2' function in STATA was used to print the following *Tables 13-14*. However, using this function only printed the second stage of the IV probit regression. Thus, to include the first stage of the regression, as in *Tables 9-12,* the results were copied directly from the STATA results window.

Tables 9-12 show the first stage of the IV probit regression below (see next page).

Table 9- First Stage of IV Regression – Cumulative ESG Score

In *Table 9*, the first stage of the IV probit regression is shown. The presumed endogenous variable is the cumulative ESG score, and the IV is the industry-state average of the cumulative ESG scores.

Source	SS	df	MS	Number of obs =	14,333
				F(64, 14268) =	161.57
Model	7736.9788	64	120.8903	Prob > F =	0.0000
Residual	10675.7091	14,268	0.7482	R-squared =	0.4202
				Adj R-squared =	0.4176
Total	18412.6880	14,332	1.2847	Root MSE =	0.8650

Endogenous variable: cumulative ESG score

	Coefficient	Std. err.	t	P>|t|	[95% conf.	
Instrument variable: industry-state average of cum. ESG score	0.7458	0.0158	47.17	0.0000	0.7148	0.7768
Profitability (ROE)	0.0077	0.0039	1.96	0.0500	0.0000	0.0153
Leverage	0.0218	0.0394	0.55	0.5810	-0.0555	0.0990
Managerial Ability	0.0271	0.0547	0.5	0.6200	-0.0802	0.1344
Firm Size	-0.2042	0.0070	-29.28	0.0000	-0.2179	-0.1905
Independent Directors Ratio	-0.0266	0.0648	-0.41	0.6820	-0.1536	0.1005
Number of Directors	-0.0117	0.0044	-2.67	0.0080	-0.0202	-0.0031
Gender Ratio	-0.2558	0.0853	-3	0.0030	-0.4231	-0.0886
CEO Gender Dummy	-0.0189	0.0418	-0.45	0.6510	-0.1009	0.0630
CEO Tenure	-0.0005	0.0010	-0.44	0.6630	-0.0025	0.0016
CEO Duality Dummy	-0.0818	0.0247	-3.32	0.0010	-0.1302	-0.0335

Table 10- First Stage of IV Regression – Environmental Score

In *Table 10*, the first stage of the IV probit regression is shown. The presumed endogenous variable is the environmental score, and the IV is the industry-state average of the environmental scores.

Source	SS	df	MS	Number of obs. =	14,333
				F(64, 14268) =	115.96
Model	6815.75135	64	106.4961	Prob > F =	0.0000
Residual	13103.1748	14,268	0.9184	R-squared =	0.3422
				Adj R-squared =	0.3392
Total	19918.9261	14,332	1.3898	Root MSE =	0.9583

Endogenous variable: environmental score

	Coefficient	Std. err.	t	P>|t|	[95% conf.	
Instrument variable: industry-state average of environmental score	0.9631	0.0184	52.34	0.000	0.9270	0.9992
Profitability (ROE)	0.0021	0.0043	0.49	0.626	-0.0064	0.0106
Leverage	0.0621	0.0437	1.42	0.155	-0.0234	0.1477
Managerial Ability	-0.1877	0.0606	-3.1	0.002	-0.3065	-0.0689
Firm Size	-0.0541	0.0075	-7.22	0.000	-0.0688	-0.0394
Independent Directors Ratio	0.0301	0.0718	0.42	0.675	-0.1107	0.1708
Number of Directors	-0.0073	0.0048	-1.52	0.129	-0.0168	0.0021
Gender Ratio	-0.3622	0.0946	-3.83	0.000	-0.5477	-0.1768
CEO Gender Dummy	-0.0597	0.0463	-1.29	0.197	-0.1505	0.0311
CEO Tenure	-0.0004	0.0011	-0.38	0.706	-0.0027	0.0018
CEO Duality Dummy	-0.1857	0.0273	-6.79	0.000	-0.2393	-0.1321

Table 11- First Stage of IV Regression – Social Score

In *Table 11*, the first stage of the IV probit regression is shown. The presumed endogenous variable is the environmental score, and the IV is the industry-state average of the environmental scores (see next page)

Source	SS	df	MS	Number of obs. =	14,333
				F(64, 14268) =	159.89
Model	7679.4463	64	119.9913	Prob > F =	0.0000
Residual	10707.7975	14,268	0.7505	R-squared =	0.4177
				Adj R-squared =	0.4150
Total	18387.2438	14,332	1.2830	Root MSE =	0.8663

Endogenous variable: social score

	Coefficient	Std. err.	t	P>t	[95% conf.	
Instrument variable: industry-state average of social score	0.7463	0.0158	47.12	0.000	0.7152	0.7773
Profitability (ROE)	0.0077	0.0039	1.96	0.050	0.0000	0.0153
Leverage	0.0206	0.0395	0.52	0.601	-0.0567	0.0980
Managerial Ability	0.0326	0.0548	0.60	0.551	-0.0748	0.1401
Firm Size	-0.2043	0.0070	-29.24	0.000	-0.2180	-0.1906
Independent Directors Ratio	-0.0276	0.0649	-0.42	0.671	-0.1548	0.0997
Number of Directors	-0.0115	0.0044	-2.64	0.008	-0.0201	-0.0030
Gender Ratio	-0.2468	0.0854	-2.89	0.004	-0.4143	-0.0793
CEO Gender Dummy	-0.0173	0.0419	-0.41	0.679	-0.0994	0.0648
CEO Tenure	-0.0005	0.0010	-0.44	0.660	-0.0025	0.0016
CEO Duality Dummy	-0.0773	0.0247	-3.13	0.002	-0.1258	-0.0289

Table 12- First Stage of IV Regression – Governance Score

In *Table 12* the first stage of the IV probit regression is shown. The presumed endogenous variable is the environmental score, and the IV is the industry-state average of the governance scores

Source	SS	df	MS	Number of obs. =	14,333
				F(64, 14268) =	116.55
Model	6148.0749	64	96.0637	Prob > F =	0.0000
Residual	11759.7289	14,268	0.8242	R-squared =	0.3433
				Adj R-squared =	0.3404
Total	17907.8038	14,332	1.2495	Root MSE =	0.9079

Endogenous variable: governance score

	Coefficient	Std. err.	t	P>t	[95% conf.	
Instrument variable: industry-state average of governance score	0.7586	0.0229	33.12	0.0000	0.7137	0.8035
Profitability (ROE)	0.0050	0.0041	1.22	0.2230	-0.0030	0.0130
Leverage	-0.0062	0.0414	-0.15	0.8800	-0.0873	0.0748
Managerial Ability	-0.0725	0.0575	-1.26	0.2070	-0.1851	0.0402
Firm Size	-0.1582	0.0072	-22.03	0.0000	-0.1723	-0.1441
Independent Directors Ratio	0.0656	0.0680	0.96	0.3350	-0.0678	0.1990
Number of Directors	0.0044	0.0046	0.95	0.3410	-0.0046	0.0133
Gender Ratio	-0.0305	0.0895	-0.34	0.7340	-0.2059	0.1450
CEO Gender Dummy	0.0098	0.0439	0.22	0.8230	-0.0762	0.0958
CEO Tenure	0.0041	0.0011	3.76	0.0000	0.0019	0.0062
CEO Duality Dummy	-0.1123	0.0259	-4.33	0.0000	-0.1630	-0.0615

The most important thing to look for in *Tables 9-12* is the p-value of the instrumental variable. A statistically significant instrument variable (p-value of 0.05 or less) will signify that there is sufficient evidence that the instrument variable used meets the requirements for a valid instrument variable. For all four sub-tables, a p-value of 0.000 is shown, suggesting a very, very high statistical significance at the 1% level. Thus, the industry-state score average(s) are confirmed to be a valid instrument variable.

Now that the validity of the instrument validity has been established, the second stage of the IV probit regression will be needed to establish as to whether there is indeed a causal relationship between any given ESG score and forced turnover. This is shown in *Tables 13-14.*

Table 13- Second Stage of IV Regression – Cumulative ESG Score and Environmental Score

In *Table 13*, the second stage of the IV probit regression is shown for the cumulative ESG score and the environmental score, where the IVs are the state-industry average of the cumulative ESG scores and the state-industry average of the environmental scores, respectively. The results for the social score and governance score are shown in *Table 14*

	(1)	(2)
INSTRUMENT VARIABLE	STATE-INDUSTRY CUMULATIVE ESG SCORE AVERAGE	STATE-INDUSTRY ENVIRONMENTAL SCORE AVERAGE
Cum. ESG Score	-0.04738	
	(0.06307)	
ROE	-0.03342***	-0.03381***
	(0.01143)	(0.01144)
Leverage	0.09291	0.09129
	(0.11427)	(0.11418)
Managerial Ability	-0.15168	-0.15482
	(0.16939)	(0.16987)
Firm Size	0.03451	0.04763**
	(0.02776)	(0.02113)
Independent Dir.	0.13308	0.13985
	(0.20370)	(0.20369)
Total Dir.	-0.02292*	-0.02206
	(0.01353)	(0.01350)
Gender Ratio	-0.23678	-0.22921
	(0.25351)	(0.25461)
Female Dummy	0.00310	0.00024

	(0.11919)	(0.11924)
CEO Tenure	-0.01296***	-0.01301***
	(0.00371)	(0.00370)
Duality Dummy	-0.07988	-0.07591
	(0.07521)	(0.07576)
Environ. Score		-0.00458
		(0.05530)
Constant	-1.25499**	-1.35250**
	(0.56931)	(0.55486)
Observations	14,333	14,333
Industry FE	YES	YES
Year FE	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 14- Second Stage of IV Regression – Social Score and Governance Score

In *Table 14* the second stage of the IV probit regression is shown for the social score and the governance score, where the IVs are the state-industry average of the social scores and the state-industry average of the governance scores, respectively.

INSTRUMENT VARIABLE	(M3) STATE-INDUSTRY SOCIAL SCORE AVERAGE	(M4) STATE-INDUSTRY GOVERNANCE SCORE AVERAGE
S Score	-0.04752	
	(0.06305)	
ROE	-0.03341***	-0.03214***
	(0.01143)	(0.01141)
Leverage	0.09286	0.09653
	(0.11427)	(0.11593)
Managerial Ability	-0.15142	-0.19373
	(0.16940)	(0.17064)
Firm Size	0.03448	-0.00211
	(0.02777)	(0.02674)
Independent Dir.	0.13301	0.14558
	(0.20371)	(0.20481)
Total Dir.	-0.02292*	-0.02007
	(0.01353)	(0.01358)
Gender Ratio	-0.23609	-0.20735
	(0.25345)	(0.25343)
Female Dummy	0.00322	0.01866

	(0.11920)	(0.11958)
CEO Tenure	-0.01296***	-0.01177***
	(0.00371)	(0.00374)
Duality Dummy	-0.07961	-0.10833
	(0.07518)	(0.07625)
G Score		-0.25227***
		(0.08514)
Constant	-1.25567**	-0.98748*
	(0.56913)	(0.56930)
Observations	14,333	14,333
Industry FE	YES	YES
Year FE	YES	YES

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Looking at the statistical significance of the coefficients of the ESG scores in Table 13-14, we can see that the governance score is the only coefficient that is statistically significant at the 10% level. In particular, the coefficient is very, very significant, presenting as significant at the 1%, and the p-value in the results (not shown) presenting as 0.003. This allows for the conclusion that of all the four ESG scores, the governance score *definitively* has a causal effect on forced turnover.

In summary of the findings in the context of all hypotheses:

Hypothesis 1.1: Hypothesis is not supported; no statistically significant relationship found.

Hypothesis 1.2: Hypothesis is not supported; no statistically significant relationship found.

Hypothesis 1.3: Hypothesis supported at 5% significance, suggesting that there is a significant association between governance score and forced CEO turnover.

Hypothesis 2.1: Hypothesis is not supported; no statistically significant moderating effect of board independence.

Hypothesis 2.2: Hypothesis supported at 10% significance, suggesting that there is a significant (albeit weak) moderating effect of 'independence director' on the relationship between social score and forced CEO turnover.

Hypothesis 2.3: Hypothesis is not supported; no statistically significant moderating effect of board independence.

In the next section, the practical meaning of these results, and their confirmation or reject of the hypotheses, will be discussed in more detail. Finally, a brief section will be presented describing some limitations of the study and some possibilities for future research opportunities.

Chapter 5: Discussion

5.1: Research implications

After concluding this study, the following conclusions can be discerned.

Overall, we can see that a firm's ability to manage environmental risks do not appear to have any significant association change in the likelihood of a forced CEO turnover. For the environmental score, neither the coefficient without the interaction (M2), nor the interaction, show any statistically significant result. Therefore, this shows that, on average, environmental concerns are likely not a major concern for shareholders. However, given that these results primarily come from the 2000s and the early 2010s, prior to the United Nations Climate Change Conference in 2015, the failure of countries to meet its commitments to the Paris climate agreement, and the recent rise in devastating climate and weather-related events, a duplication of this study may find that, especially with increased activist pressures, managing environmental risks may be more valued in the 2020s and going forward. Future studies may be needed to see if there is a more nuanced relationship between environmental risk management, firm performance, and forced CEO turnover.

It can be seen that social score, when all other variables are held constant, does not have a significant relationship with CEO turnover. However, we can see that with the coefficient for the interaction term with board independence, although it does not fall at or below the 5% significance level, it is still very close (p-value of 0.0595; not shown), thus showing the existence of some correlation.

This might suggest that an increase in social score is more nuanced in its effect on forced CEO turnover than might be originally expected, and that factors like board independence may be needed to better understand the complexity of the relationship. Another possible reason for the former result could be possible heterogeneity that arises by including different social issues affecting various stakeholder groups under a single social score.

Meanwhile, the positive coefficient for the interaction term shows that in general, increasing board independence will weaken the inverse relationship between social score and forced CEO turnover. This appears to show that boards in the 2000-2018 period might not have seen a lot of value of stakeholder relationship management, at least compared to shareholder relationship management. However, it is unclear whether this finding will always hold consistent. Some studies are documenting a shift from a shareholder-focused orientation to a stakeholder-focused orientation, but given the systemic prominence of shareholder-oriented companies, seeing a major shift may take several years (Shin et al., 2022). Another possibility that might be driving this inverse relationship is that due to the increased oversight from a more independent board, a balanced approach on improving various firm performance metrics may be more valued. Thus, large increases in social score, especially over a short period, may not be received well by the board, especially if the increase leads to the firm failing or weakening on other performance metrics.

Overall, it seems that it will be important for companies to optimize their social scores and their board independence ratios. CEOs in firms with higher social scores will benefit from having as few independent directors as possible on the board, while CEOs in a firm with lower social scores might find that having more independent directors will benefit them more.

However, it can clearly be seen that the governance score has a causal effect on the odds of a forced CEO turnover, as is demonstrated through the significant coefficients in the multinomial logistic regression models, as well as the results of endogeneity testing. Recall that the governance scores demonstrate a firm's commitment to transparency and accountability. In M2, we can see that governance score reduces the odds of forced CEO turnover at the 5% level, and almost at the 1% level (p-value of 0.0113). However, we can see that the coefficient of the interaction term with board independence is not significant, likely suggesting different levels of board independence will not significantly change the impact of the governance score on the odds of forced turnover.

The findings for all three scores overall appear to lend itself well to the idea that, at least in the chosen time period, a shareholder-focused orientation is still much more valued than a stakeholder-focused orientation, although again, a duplication in this study might possibly find a shift with the increasing systemic recognition in the importance of a solid ESG strategy.

Furthermore, the strong causal effect of the governance score on lowering the odds of CEO turnover, accompanied by the statistically insignificant coefficient on the interaction term, lends at least a moderate amount of further evidence in support of legitimacy theory and signalling theory, the latter of which states there is some level of information asymmetry between the firm management and the shareholders, which can be mitigated by the firm management releasing information to the shareholders. The more inclined a corporation is to disclose information outside of what is legally required, such as financial and accounting information, the more inclined shareholders will be to trust that the firm is working within society's expectations of a legitimate organization. In other words, this would send a positive signal that the CEO is working in the better interests of the shareholders, and thus is probably not worried about the performance of their firm or is not hiding any scandalous activities that would lead the board to want to remove the CEO. It can be seen in the study that overall, increasing the governance score, which goes hand in hand with firm transparency, will lower odds of CEO turnover, and is unlikely to see a reverse or even opposite effect even at extremely high levels of board independence.

Ultimately, the conclusion from this paper is that while ESG scores are past and present-oriented, the board of directors are future-oriented. Good ESG scores might have provided benefits to the firm and its shareholders in the past, but the board of directors, especially on a majority-independent board, are more concerned with making sure all aspects of firm performance continue to be good in the future, which is why putting increasing focus on ESG and less on other priorities may be seen as unfavorable. However, the exception for this may be the governance score, where independent directors might see an increased governance score as validation that firm shareholders and stakeholders will be more likely to trust them more with future financial and operational performance.

It is important to reconnect the discussion from this entire paper back to the decades-long ongoing debate between the efficacy of shareholder theory versus stakeholder theory. The expectation is that if a significant causal effect is found between the environmental or social scores and forced CEO turnover, this means that the finding leans in favour of stakeholder theory, since these scores reflect a company's willingness to engage in initiatives that benefits certain stakeholder groups, like consumers, activists, employees, etc. However, a strong causal relationship between governance score and forced turnover would lean the findings in favour of shareholder theory, as a high governance score reflects a higher level of trust by investors in the respective firm as a result of increased transparency and information dissemination. This, in turn, would communicate to shareholders that the firm is effectively upholding their end of the agency agreement.

Given that the findings of the study show that only governance score has a causal relationship with forced CEO turnover, as well as an insignificant relationship between the environmental and social scores with forced CEO turnover, this clearly shows that the findings support shareholder theory to a much greater extent than stakeholder theory. However, as the prominence of ESG rises, the environmental and social score may increase in importance to investors. As a result, the gap between the interests of shareholder theory proponents and those of stakeholder theory proponents may slowly close. Even if the goal or agenda

of these two groups may continue to be very different, they may be able to find more similar ways to achieve them.

5.2: Limitations and future direction

In this next section, we will be discussing possible research opportunities that can be expanded on from this research study.

With respect to the use of ESG scores and measures, one of the most important possibilities would be to use ESG scores from a different ESG ratings agency or database. For this study, recall that the database from KLD (now MSCI) was used. Databases like Bloomberg and Sustainalytics offer their own ESG scorings. Conducting a similar study (or replicating this one) using ESG scores from these databases (especially for those databases where the environmental, social, and governance scores are separated out) would help determine if these findings always hold consistent, or if not, what factors may cause deviations in the results. It is also important to note that one possible reason why there may be such deviations is that ESG scores from different rating agencies do not always measure the same thing.

For example, to quote Sustainalytics (n.d.), "The ESG Risk Rating provides investors with an overall company score based on an assessment of how much of a company's exposure to ESG risk is unmanaged. The more of this risk that is unmanaged, then the higher the ESG Risk Rating score." Meanwhile, Bloomberg Adria (n.d.), Bloomberg's branch in Southeast Europe, describes Bloomberg's ESG scores as the following: "The scores measure a company's management of financially material industry-specific environmental and social (ES) issues and opportunities, as well as governance (G) policies and practices with adjustments for country-specific rules and regulations."

As can be seen from these two examples, Sustainalytics' focus is more on a company's ability (or inability) to manage) ESG risks, while Bloomberg focuses more on the ability of companies to manage ESG opportunities that might bring financial value to their firm. Even if two rating agencies supposedly measure very similar things, their methodologies might be very different. For example, some might make

adjustments in their scores for groupings such as industry or country of incorporation, while others may not. Many ESG ranking agencies incorporate ESG controversies into their scores i.e. adjustments or additional factors for a company's involvement in controversial industries like oil and gas (London Stock Exchange Group, 2023), while others may not. It will be important for future researchers to carefully examine the methodologies through which their chosen ESG scores are derived.

Another possibility may be more difficult to do in the short-term, but is worth further investigation. As discussed in this paper, separating the cumulative ESG score into the three component scores has a lot of value in research applications i.e. determining causality. In this study, it was only possible to get a statistically significant result for the governance component by separating the cumulative ESG score out. In the future, a researcher may devise a way to separate ESG (or a newly-created derivative of ESG) into more than the existing three components. This will allow academics to more specifically determine the nuanced relationships ESG factors have on a firm's operations and strategy.

With respect to the coding of CEO departures, the approach taken by Gentry et al. (2021) and those of other researchers are a good start. However, the number of observations in these databases are still quite low in number, and the only way it will grow is if they are regularly updated. For any database where this is the case, they can be used to get more accurate results only as more time passes and, inevitably, as more CEOs have to leave their firms. This will be useful especially for replicating studies like this where data cleaning removed a large percentage of the original observations. Furthermore, it is important for anyone creating such a database that not only adding observations will be important, but also that the nature of CEO departures will inevitably change over time. It may be possible that some categories of CEO turnover, such as the former example of mandatory retirement age, may not exist in the future. Both researchers and database developers will need to be aware of this.

Speaking further to the problems with the small size of the Gentry et al. (2021) database (and likely with similar databases) is the fact that the high possibility of unbalanced datasets. This is likely even with future studies as forced turnover as far less likely than unforced departures. In the original dataset, forced

turnovers made up only 25% of all departures, while in the cleaned dataset, it was only 20% in a final dataset of less than 1,900 observations. For this study, to achieve a sufficiently large dataset, firm-year observations where there was no turnover were included. However, in future, with enough observations in the database, it may be possible to have a large dataset which, even with some level of unbalanced data, more unbiased estimates may be achieved.

One final problem that future researchers can examine is looking at longer temporal effects and the increasing value of ESG. In our study, only a very short-term one-year lag was implemented on the ESG scores and the financial variables. It might be interesting to see if extending the lags will increase the statistical significance of any of the ESG variables.

Furthermore, as discussed earlier, ESG has become much more prominent and valued by corporations in the late 2010s. However, for the dataset in this study, the vast majority of the observations occurred before this period. In fact, as of 2017, all the observations in the dataset from the start date of 2000 to 2017 make up 93.85% of all observations in the dataset. Therefore, it will also be important to see the relationship between ESG scores and CEO turnovers at a time when ESG practices (or more specifically, corporate sustainability practices) are expected to become more commonplace, and ESG scores in general are expected to grow. As opposed to social and environmental performance, strong corporate transparency and accountability may have also had more value among shareholders in that same period, especially due to the noteworthiness of corporate and financial scandals like the bankruptcy of Enron Corporation in 2001 or the Bernie Madoff scandal in 2009 that lost investors billions of dollars.

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