Balancing Stability and Fresh Perspectives: The Parabolic Impact of CEO Tenure on Sustainable Performance

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ABSTRACT

The research field of CEO turnovers and financial performance received a large body of attention over the past decades and there has been a significant shift in the level of attention and importance placed on sustainable performance (e.g., Kramer & Pfitzer., 2022; Sautner, Z., 2021). Yet the relationship between CEO turnovers and sustainable performance remains in its nascent stage. This research aims to extend the research field on this subject by using a panel data analysis for 516 firms included in the S&P500 between 2002-2021 to investigate the relationship between sustainable performance and a firm's (I) change in CEO, (II) CEO tenure, (III) turnover orientation (internal/external), and their respective sustainable performance.

The results show that (I) the impact of a CEO turnover on a company's sustainable performance is overshadowed by other factors, (II) CEO tenure has a positive and parabolic effect on sustainable performance, reaching its peak after 8 years and 4 months, and (III) companies who claim to favor internal promotions over external promotions have significantly higher levels of sustainable performance. These findings show that long, though not excessively long, CEO tenures, combined with internal promotion policy, strengthen sustainable performance.

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CHAPTER 1 - INTRODUCTION

The departure of a CEO, whether voluntary or forced, can have significant impact on a firm's performance and their reputation. One remarkable example is the case of the Wells Fargo bank in 2016, where it has been found out that the since 2007 active CEO John Stumpf created over two million fake accounts without customers' knowledge (Son, 2020). The scandal became headline news and within a month, Stumpf announced his retirement from the company, which was attributed to the scandal and the pressures from regulators and the public. The new, internally promoted, CEO Timothy J. Sloan implemented several reforms and changes aimed at rebuilding the relationship with their stakeholders. Thereafter, the externally promoted CEO Charles Scharf took over as the CEO of Wells Fargo and since his tenure, Scharf is outlining a long-term strategy for the bank that includes commitment to more responsible and ethical business practices, rebuilding trust with its stakeholders (WellsFargo, 2023).

This case highlights potential effects of CEO turnovers on developments regarding a firm's sustainable performance. A new leadership may bring a renewed focus on ethical and responsible business practices – or a signal thereof to stakeholders, customers, regulators, and investors (Bernard et al., 2016). Sustainable performance, in this research, is used as a collective noun that refers to a firm's ability to achieve and maintain its financial, social, and governmental goals over the long term (Eccles & Serafeim, 2013). Financial performance, on the other hand, is measured by profit margins, stock price, and other metrics based on monetary values (Eccles & Serafeim, 2013). Both are considered important; however, the growing interest in sustainable performance, together with recent policies mandating Economic, Social, and Governmental (ESG) disclosures, has elevated the significance of responsible business practices (Sautner, 2021; Kramer & Pfitzer, 2022; Bissoondoyal-Bheenick et al., 2023). By successfully implementing strategies to enhance sustainability, organizations can meet the evolving expectations of stakeholders and strengthen their value proposition over the long term.

Although the research field concerning the relationship between CEO turnovers and financial performance is broad (e.g., Coates & Kraakman, 2010; Kim et al., 2021; Haveman et al., 2001; Shen & Cho, 2005), the effect of a CEO turnover on sustainable performance seems to receive less attention. Upon examining the relationship between CEO turnovers and financial performance, various effects between have been discovered, which can be attributed to the less researched *tenure* of the CEO (i.e., the number of years a CEO is in his/her position) (Kim et al., 2021).Where on the one hand, frequent CEO changes can benefit financial performance by learning from previous mistakes and bring constantly renewing focus on a company's vision

and strategy (Haveman et al., 2001; Shen & Cho, 2005), perhaps improving their responsible business practices. While in the other, frequent CEO changes can harm financial performance because of organizational instability (Kim et al., 2019). Contrary, infrequent CEO turnovers can benefit financial performance by providing stability and continuity (Kim et al., 2019; Schepker et al., 2017). However, infrequent CEO turnovers could harm financial firm performance through organizational inertia (Gilbert, 2005).

Prior research by Bernard et al. (2016) questions whether a change in leadership is enough to impact a firm's sustainable performance. They do so by investigating the effects of CEO turnover causes on the organization's sustainable performance, including whether the new CEO is promoted internally or externally and whether the CEO exit was forced or voluntary. In order to extend the research field of CEO turnovers and sustainable performance, this research primarily draws on the findings of Bernard et al. (2016) to explore and map the progression of the relationship between CEO tenure and sustainable performance.

Besides that, this research could provide valuable insights into the relationship between CEO changes and sustainable performance for S&P 500 firms, specifically testing the contradicting findings from prior research regarding the impact of CEO turnovers on financial performance, with respect to sustainable performance. Moreover, this study is the first to examine the potentially nonlinear relationship between CEO tenure and sustainable performance. The central question for this research is '*how do CEO turnovers affect a firm's sustainable performance?*'. Thereby, the goal of this research is to map how CEO turnovers, CEO tenure, and sustainable performance are related to each other, including a set of control variables. Additionally, this research aims to provide practical implications to enhance sustainable performance for stakeholders who are interested in promoting sustainable and responsible business practices. To map the described relationship, a panel data analysis has been conducted for the period spanning from 2002 to 2021, including 516 companies that have been listed in the S&P 500 at least once within the selected timespan.

The next section, chapter 2, includes a theoretical framework that provides an overview of relevant theories and perspectives regarding CEO turnovers and the variables discussed in this research. Following that, the methodology section thoroughly describes the applied method, considered sample, and used data sources. The research continues with the results, followed by the conclusions, and discussion. The last sections of this thesis comprise an appendix and a reference list.

CHAPTER 2 - THEORETICAL FRAMEWORK

FROM FINANCIAL PERFORMANCE TO SUSTAINABLE PERFORMANCE

The correlation between financial performance and environmental standards has garnered growing interest in the past decades. Prior studies have reported that higher environmental standards are associated with higher market valuations (Dowell et al., 2000). A suggested interpretation of this effect follows from stakeholder theory (Freeman, 1984), which states that by aligning the interests of stakeholders, investments in sustainable organizing generate possibilities to increase financial performance in the future (Jones, 1995; Salama, 2005; Bissoondoyal-Bheenick et al., 2023). In other words, long-term success of an organization depends on maintaining positive relationships with stakeholders, balancing economic, social, and environmental concerns (Salama, 2005). Balancing these concerns, thereby striving for long-term success, is described under the collective noun "sustainable performance". Sustainable performance can be measured through various indicators, such as social impact, environmental footprint, or Corporate Social Responsibility (CSR) scores. However, this study considers economic, social, and governmental (ESG) scores to measure sustainable performance because of the increasing interest and attention on ESG performance (Sautner, Z., 2021; Kramer & Pfitzer, 2022). The increase in the attention for ESG performance is caused by shifts in organizational demands. First of all, there is growing recognition that businesses have a broader responsibility beyond financial performance and should be accountable for their environmental impacts (Kramer & Pfitzer, 2022). Second, investors are increasingly considering ESG factors as a part of investment decisions. Hereby, ESG performance can be an indicator for long term value creation (PwC, 2022). Moreover, several countries have initiated mandatory ESG disclosure regulations, as transparent ESG disclosure allows organizations to meet evolving stakeholder expectations and regulatory requirements (Sautner, Z., 2021; Bissoondoyal-Bheenick et al., 2023).

Where financial performance is measured in monetary value, sustainable performance could be described as "social accountancy". A CSR assessment refers to a company's evaluation of how well they have integrated corporate social responsibility in their business. With CSR, companies strive to build strong commitment to responsible organizing *within* the organization. A low CSR rating encourages firms to acknowledge and address problems related to their social and environmental performance (Scalet & Kelly, 2010). Scalet and Kelly (2010) suggest that both high and low CSR-scoring companies tend to focus on publicly discussing

their “positive” CSR activities. Reasoning for this could be that an increase in a firms’ CSR score reduces systematic risk, positively improves firm value, and increases stock attractiveness (Benlemlih et al., 2018). Given that organizations are free to communicate what they want, and how they want, could create a grey zone that may lead to doubts regarding their transparency and credibility (Lyon & Montgomery, 2013; Seele & Gatti, 2017). Situations in which sustainable performance claims are not followed or supported by existing corporate activities are also known as not “walking the talk” or *greenwashing* (Walker & Wan, 2011).

This is where the main difference between CSR and ESG scores arises. As stated, CSR scores are based on a company’s voluntary actions. This refers to actions that companies take beyond their legal responsibilities in order to improve their social and environmental impact, communicated by themselves (Refinitiv, 2022). In other words, the CSR score reflects the culture of the business, communicated by the business, and a high CSR score can be beneficial for organizations in several ways described above. The ESG score provides a quantitative and transparent measure of sustainable performance (Refinitiv, 2022). Similar to the CSR score, a high ESG score is beneficial for firms since it leads to lower risk and attracts financial resources at a substantially lower cost (Oikonomou et al., 2016). However, besides values from *within* the organization (such as the CSR score), the ESG score is also based on a broader range of variables, including objectively measurable values from *outside* the organization, such as emissions or workforce diversity (Refinitiv, 2022).

The ESG score is computed based on an environmental, social, and governance pillar, each consisting of three or more categories (see Appendix 2). Factors included in the ESG score are the companies’ CSR score, as well as their e.g., their carbon footprint, labor practices, supply chain management, executive compensation, and risk management practices. Therefore, the relation between the two concepts can be seen as follows: organizational commitment to environmental and social values (CSR) might help drive high ESG ratings. Therefore, CSR and ESG are two related, but distinct, concepts. Prior research classifies both ratings as complementary and states that CSR aims to make business responsible, while ESG aims to make it measurable (Kazmierczak, 2022).

Important to note is that increasing ESG performance does not solely come from understanding the ESG metrics and ESG reporting strategies (greenwashing), but successful implementation and evaluation play a large role in enhancing ESG performance (PwC, 2022; Kramer, & Pfitzer, 2022). Greater ESG performance could in turn foster long term value creation for organizations and might therefore be an aspiration for organizations (PwC, 2022;

Sautner, Z., 2021). However, successfully dealing with shifts in organizational demands and exploring new market opportunities while simultaneously exploiting current market trends can be challenging (O'Reilly & Tushman, 2008). A challenge that can emerge in a changing environment is organizational *inertia*, caused by resource and routine rigidity (Gilbert, 2005), which negatively affect business model innovations (Moradi et al., 2021). To overcome inertia, business leaders need to be capable of developing a vision and strategy to adequately respond to environmental changes (O'Reilly & Tushman, 2008; Gilbert, 2005). One way to decrease resource rigidity, thereby potentially enhancing sustainable performance, is by appointing the right change agent (e.g., the CEO) who has the skill and power to stimulate, facilitate and coordinate the change efforts (Lunenburg, 2010).

CEO Turnovers and Sustainable Performance

Despite the limited exploration of the link between CEO turnovers and sustainable performance, the relationship between CEO turnovers and financial firm performance received a substantial body of studies which have examined this effect. This existing body of studies serves as a foundational reference point for the present research.

Several prior studies show that CEO turnovers and organizational financial performance are positively related, since the new CEO can learn from prior organizational mistakes and thus adjust the organization's strategic goals (Haveman et al., 2001; Shen & Cho, 2005). Contrarily, CEO turnovers can decrease financial performance due to organizational instability and vice versa (Kim et al., 2019; Schepker et al., 2017). However, not changing the CEO, implying long-term CEO leadership, can cause organizational inertia, prohibiting firms to deal with emerging environmental needs (Gilbert, 2005).

To set a basis for this research, the first hypothesis tests the general effect between CEO turnover and sustainable performance, hence validating the results of prior research by Bernard et al. (2016) for the research context regarded in this study. Bernard et al. (2016) find that the advent of a new CEO can initially decrease sustainable performance, but after five years this effect becomes significantly positive. Therefore, sustainable performance is expected to be positively related to a CEO turnover, but the effect might be delayed since a turnover might be disruptive at first (Kim et al. 2019; Bernard et al., 2016).

The preliminary hypothesis is drawn as follows:

H1: A CEO turnover positively affects an organization's sustainable performance.

CEO Tenure and Sustainable Performance

The mixed effects between CEO turnovers and financial firm performance can be attributed to the frequency in which CEOs are replaced (Kim et al., 2019). Prior research concludes that CEO turnovers, on the one hand, can increase financial performance since the new CEO can learn from prior organizational mistakes and thus adjust the organization's strategic goals (Haveman et al., 2001; Shen & Cho, 2005). While in the other, organizational instability can harm the financial performance of a firm (Kim et al., 2019). Kim et al. (2019) describe how frequent CEO turnovers can be more disruptive because the new CEO has relatively less firm-specific knowledge and experience. Frequent CEO turnovers do not grant the successor enough tenure to develop these skills. In other words, frequent turnovers result in frequent loss of human capital (Kim et al., 2019). Consequently, this can lead to long term disruptive effects of financial organizational performance.

Now this line of reasoning is be applied to CEO turnovers and sustainable performance. Bernard et al. (2016) find that a CEO turnover could initially harm sustainable performance but after five years, a CEO turnover is significantly and positively related to the organization's sustainable performance. Therefore, it is expected that a CEO turnover initially has a negative effect on sustainable performance, which after a few years shifts to a positive effect. In other words, it is expected that CEO tenure and sustainable performance are positively related to each other, leading to the following hypothesis H2a:

H2a: There is a positive relationship between CEO tenure and sustainable performance.

Conversely, a CEO who holds their position for an extended period of time could harm the sustainable performance of an organization since re-strategizing and revisioning regularly are required to meet the growing sustainable performance expectations (Nadkarni et al., 2016; O'Reilly & Tushman, 2008). In other words, extensive CEO tenure can cause organizational inertia while learning from previous mistakes and a renewed focus on the company's vision and strategy might be required (Haveman et al., 2001; Shen & Cho, 2005; O'Reilly & Tushman, 2008). Besides that, prior research by Simsek (2004) finds empirical evidence that CEO tenure and financial firm performance are non-linearly related. They describe that the nonlinearity between CEO tenure and financial firm performance is caused by the nonlinear relationship between CEO tenure and TMT risk taking propensity.

Combining these aspects from previous studies suggests that there may be a nonlinear relationship between CEO tenure and sustainable performance. So, after reaching an optimal

point, further increases in CEO tenure may lead to diminishing returns and a decline in sustainable performance. Therefore, an inverted U-shaped effect between CEO tenure and sustainable performance is expected, leading to the following hypothesis:

H2b: There is an inverted U-shaped relationship between CEO tenure and sustainable performance.

Internal versus External Promotion Policy

The departure of a CEO, whether voluntary or forced, leaves the board with the task of finding an appropriate successor. Prior research has been conducted on the characteristics of a CEO and how this affects sustainable performance. Overall, it can be concluded that CEO characteristics and sustainable performance are significantly related to each other (e.g., Shahab et al., 2019; Huang, 2012). Given that the successor's characteristics affect the firm's sustainable performance, the choice regarding the origin of the successor (internal- or external promotion) can have significant implications. To clarify, an internal turnover refers to a situation in which the successor is promoted from within the organization, whereas an external turnover implies the hiring employees from outside the organization.

Bernard et al. (2016) describe that the choice between an internal or external promotion adresses the characteristics of a principal agent problem. Where in this case, the successor is the agent and the role of the principal is fulfilled by the board of directors. On the one hand, the characteristics of internally recruited successors are expected to be better known than those of external successors. Therefore it could be argued that internal promotions are favoured compared to external promotions. However, the principal agent problem does not necessarily lead to a preference for internal promotions: if the aim of the organization is to continue with the existing strategy, an internal promotion might be preferred, whereas the aim for significant change in the strategy might result in a preference for external promotions (Lunenburg, 2010). In terms of financial performance, externally promoted CEOs are more capable of – and willing to – changing a firm with necessary restructuring to make it more efficient than internally promoted CEOs, who are encircled by internal connections (Cao and Mauer, 2010; Wang, 2016). External promotions, whether in top management teams or bottom line staff, can provide an organization with new ideas and insights. This "helicopter view" might guide organizations to effectively address the increasing demands for sustainability (Gilbert, 2005; O'Reilly & Tushman, 2008; Carney, 2019; Kramer & Pfitzer, 2022).

The relationship between internal- versus external promotion policy and sustainable performance has not been studied extensively. Nonetheless, prior research concludes that changing the CEO has a more positive effect on sustainable performance when the new CEO is promoted externally compared to an internal turnover (Bernard et al., 2016).

Summarizing, an external promotion may bring fresh perspective and new ideas to the organization (Gilbert, 2005; Wang, 2016; Bernard et al., 2016; Carney, 2019) which can lead to more changes in the sustainable performance of the company. Controversially, internal promotions may provide better understanding of the company and can therefore bring continuity (Cao and Mauer, 2010; Bernard et al., 2016; Wang, 2016). Given the lack of prior research conducted regarding the matter, it would significantly contribute to the advancement of research in this field to include internal vs external turnover policy favorance when researching the relationship between turnovers and sustainable performance. The relationship between turnover orientation and sustainable performance is contingent upon the distinction between continuity and disruptency (Carney, 2019). Both can be beneficial for sustainable performance, depending on the organizational context. In other words, there are contradicting theories regarding promotion orientation and sustainable performance. Therefore, this research empirically tests the direction of the relationship between (internal versus external) promotion orientation and sustainable performance for the selected sample in the selected timeframe. In light of this, this study examines not only CEO turnovers, but takes into account promotion orientation across the entire workforce.

Ultimately, hypothesis H3b and H3b are formulated as follows:

H3a: There is a positive relationship between internal promotion orientation and sustainable performance.

H3b: There is a positive relationship between external promotion orientation and sustainable performance.

CEO Turnover Cause

As illustrated in the introduction, there are remarkable examples of forced CEO turnovers and their effect on organizational performance. Coates and Kraakman (2010) find that various causes of CEO turnovers (forced versus voluntary) result in various peaks of financial firm performance, generally after 4-9 years. The relationship between a CEO turnover cause and the firm's respective sustainable performance has been researched and it has been found that

ironically, after five years, forced CEO turnovers seem to have a more positive effect on sustainable performance compared to voluntary turnovers, which have no additional impact on sustainable performance (Bernard et al., 2016). In their research, Bernard et al. (2016) reason that a CEO turnover can result in a decrease of financial performance resulting in extra attention to financial performance. This focus on financial performance entails an initial detriment of sustainable performance in the years following a CEO turnover. However, after 5 years, the effect of a forced CEO turnover seems to be invariably positive on a firm's sustainable performance, which could be attributed to the successor's priority to correct the failings from his predecessor (Bernard et al., 2016).

Similar to the consideration between an internal- or external successor, the distinction between a forced- and voluntary turnover can intuitively be explained by the difference in continuity. A forced exit may be more disruptive to the company's operations than a voluntary exit, and therefore entail more focus on redesigning the company's strategy. Besides that, a forced exit might be associated with a bad performing predecessor (Coates & Kraakman, 2010), e.g., posterior to a scandal, and therefore lead to revisioning and re-strategizing. As a result, it can be inferred that a forced exit implies a dismissal for performance- or behavioral issues and a voluntary exit refers to a dismissal caused by a retirement, a new opportunity, illness, or death. The difference lies in that for voluntary exits, the retired CEO has somewhat positive language about the firm's performance or what the CEO achieved and thereby, the CEO might stay on the company's board for a couple of years following their departure (Gentry et al., 2021). Previous research therefore suggests that including turnover cause in the analysis is essential to adequately map the relationship between CEO turnovers and sustainable performance (H1). Hereby, a distinction between the effects of voluntary turnovers versus involuntary turnovers can be made. It is expected that involuntary turnovers affect sustainable performance more positively than negative turnovers because involuntary turnovers indicate change requirement (Bernard et al., 2016).

Influence of Gender Diversity

As described previously, the research of Kim et al. (2019) shows more frequent CEO turnovers results in lower financial firm performance. However, they describe that more gender- and education level diversity could mitigate this effect. Adequate management of a diverse working force could benefit an organization through complementary skills- and management characteristics. These complementary skills and behaviors allow firms to cope better with

uncertainty and signals social inclusion for an organization, establishing a long-term exchange relationship (Kim et al., 2019).

In a more recent study by Orij et al. (2021) it has been stated that "CSR – combined with board gender diversity – is the new competitive environment for CEOs". They have found that gender diversity decreases the likelihood for CEO turnovers caused by underperforming financial- or sustainable performance. They attribute this effect to the collaborative working space in which men and women generate more creative ideas, draw from multiple perspectives, and devise solutions to problems. Besides that, Minniti and Naude (2010) state that female executives tend to expand business areas to prove their capabilities and Huyn et al. (2022) found that female executives, in general, are more inclined to promote sustainable performance.

Combining the mentioned findings of prior studies leads to the expectation that gender diversity in board compositions could attribute to greater sustainable performance. Thereby, board (gender) diversity has shown to enhance organizational ability to cooperate with turbulence, e.g., a CEO turnover. Considering this, board gender diversity is used as a control variable in the analysis.

Firm-specific Characteristics

To adequately examine how previously described variables affect sustainable performance, it is important to control for several firm specific characteristics that drive sustainable performance. Controlling for these variables in the analysis isolates the effect of the independent variables on sustainable performance. Previous literature suggests the following firm-specific control variables when analyzing sustainable performance: firm size, debt ratio, and financial capacity (Bernard et al., 2016; Jiraporn & Chintrakarn, 2013; Meng & Zhu, 2023; Amir, 2005).

First, it is important to incorporate *firm size* when analyzing sustainable performance. The influence of firm size on a company's sustainable performance can be supported by two arguments suggested by Bissoondoyal-Bheenick et al. (2023). Firstly, larger firms often face greater visibility, and thereby pressures, that come from high stakeholder demands due to their prominent market presence. Secondly, larger companies tent to invest more into sustainable performance activities due to economies of scale. These advantages include more access to resources, expertise, and networks. Both arguments assume that firm size is positively related to a firm's sustainable performance, reflected in higher levels of sustainable performance.

Secondly, the *debt ratio* is a considerable variable when researching the development of sustainable performance as companies with high debt ratios may prioritize debt repayment over investments in sustainable initiatives. In turn, this could result in lower levels of sustainable performance due to limited ability to allocate resources towards sustainable business practices (Amir, 2005; Bernard et al., 2016). Therefore, the firm's debt ratio is expected to be negatively correlated with their sustainable performance.

Also, a firm's *financial capacity* should be considered when researching sustainable performance. Similar to the debt ratio, firms with higher financial capacity may have more financial resources available to allocate to sustainable business practices (Amir, 2005; Bernard et al., 2016). Therefore, a firm's financial capacity is expected to be positively related with their sustainable performance.

The next section provides an overview of the considered sample, define- and operationalize the used variables, and describes the data analysis procedure.

CHAPTER 3 – METHODOLOGY

SAMPLE PRESENTATION

To examine the formulated hypotheses, a sample of 516 companies from the S&P 500 index, which have been listed in the S&P at least once between the years 2002 and 2021, was selected. The study encompassed a maximum period spanning from 2002 to 2021. Ultimately, the dataset contains 10320 observations (firm-year) and includes 887 CEO turnovers.

The S&P 500 is an index which includes 500 of the largest publicly traded companies in the U.S. Since the index incorporates companies across different sectors, it provides a representative sample of the U.S. economy. Also, because the S&P 500 is a well-established and commonly researched selection of companies, it is likely to have accessible and correct historical data available. To contain the largest sample size possible, companies that have been included in the S&P once, and then left the S&P, are included in the sample as well. Altogether this ensures a diverse representation of entities from various industries and sectors, enhancing the generalizability and statistical power of the analysis. Also, by covering a substantial time period, this study can account for external fluctuations such as policy changes, economic fluctuations and other factors that may influence sustainable performance. Furthermore, the extensive dataset and longitudinal perspective allows this study to draw more robust conclusions regarding the proposed relationships.

The data for this study has been obtained from various data sources. ESG scores, gender diversity and data regarding promotion policies has been obtained from Refinitiv Workspace (2022). Data for CEO turnover dates and cause is retrieved from Gentry et al. (2021), who publicly introduced an open-source dataset documenting the dates and reasons for CEO departure in S&P 500 firms from 2002 to 2021.

STUDY VARIABLES

In order to enhance transparency, thereby allowing further studies to validate and extend the results obtained by this study, the included variables are defined thoroughly in this section. Also, it is stated from which source the data for each variable is obtained, and how each variable is computed. Finally, this section presents an operationalization table and a table concerning descriptive statistics, which provides a clear and concise overview of the variables used in this study (Table 2, 3 & 4).

Sustainable Performance

Sustainable performance is is the dependent variable in this study, which is measured by the ESG score. In the analysis, this variable is labeled "ESG". The ESG score is a broad metric, consisting of three pillars, each consisting of three or more categories, illustrated in Appendix 1. This set of criteria is used to evaluate the sustainability and ethical impact of investments. Again, there are different methodologies for calculating the ESG score, therefore it is important to be aware of where the data is retrieved. For this research, data regarding the ESG score is retrieved from Refinitiv (2022). Refinitiv constructs the ESG scores by combining quantitative and qualitative measures, including CSR reports, annual reports, company websites, NGO websites, stock exchange filings, and news sources. Important to note is that most variables in the ESG rating are calculated based on an objective, data-driven, approach (Refinitiv, 2022).

In order to develop one overall ESG score, consisting of multiple pillars which contain multiple categories, each category is attributed a category weight based on the importance of this category in the regarding industry. Then, the weight is multiplied by the company's score in that category. Each pillar therefore consists of three or four category scores, multiplied by their category weights, resulting in the pillar scores. Then, each pillar score is multiplied by the regarding pillar weight, resulting in the ESG score which is valued between 0 and 100. A score of less than 50 is regarded as poor, while a score of more than 70 is considered excellent (Refinitiv, 2022). Further visualization of the ESG score regarding how the score is constructed can be found in Appendix 2.

CEO Turnover

To set a basis for this research, thereby testing hypothesis H1, a variable "Turnover" is created. Data regarding CEO turnover dates is retrieved from the open-sourced database by Gentry et al. (2021), this database contains specific years in which the CEO exited. Based on the database by Gentry et al. (2021), each year that a turnover occurred, this variable is assigned a value of 1, and 0 otherwise. In the analysis, this variable is moved up for t - k years, so that the effect of a turnover on sustainable performance is analyzed k years after the turnover.

CEO Tenure

The tenure of the CEO, i.e., the number of years a CEO is in his/her position, is measured by the variable "tenure". The variable is assigned a value of 0 in the years a CEO turnover took place according to the database by Gentry et al. (2021). Each year subsequent to a CEO

turnover, the tenure variable is assigned a value of $tenure_{n-1} + 1$. If another CEO turnover occurs, the count starts at zero again. Since there is no data available regarding how long the CEO was in his/her position before 2002, the tenure variable begins count from the first turnover recorded by Gentry et al. (2021).

Internal/External Promotion Policy

The variable regarding whether the organization claims to favor internal promotions compared to external promotion ("IP") is operationalized as a dummy answering the question "Does the company claim to favor internal promotions over external promotion?". The variable obtains the value 1 if the company claims to favor internal promotions and 0 otherwise. Data regarding this variable is retrieved from Refinitiv (2022).

Turnover Cause

The turnover cause is constructed by a categorical dummy variable "CatTur" which is assigned a value of 0 to indicate that there was no turnover for firm *i* at time *t,* 1 to indicate a voluntary turnover for firm *i* at time *t,* and 2 to indicate that an involuntary turnover for firm *i* at time *t.* Data for the turnover cause is retrieved from the database by Gentry et al. (2021). This dataset contains a brief description of each CEO departure for S&P 1500 firms between 2002 and 2021. Besides the description, this dataset is coded in eight different classifications regarding the turnover cause. Interpretation for each code can be found in Table 1.

Code Number	**Interpretation**
Code 1 & 2	Death or Illness
Code 3 & 4	Dismissed for Performance or Behavioral Issues
Code 5 & 6	Retired or New Opportunity
Code 7	Other Events

Table 1 – Turnover Cause coding overview

Dismissals coded as 1-4 can be described as involuntary, whereas codes 5 and 6 refer to voluntary departures according to Gentry et al. (2021). Code 5 refers to the situation in which a CEO left on his/her own terms at the end of their career, and he/she might stay on the company's board following their departure for a couple of years (Gentry et al., 2021). A CEO

might also depart to pursue new career opportunities, this is unusual but sometimes the CEO of a smaller company is hired by a larger firm (Gentry et al., 2021). This is denoted as a code 6. However, as described in the theoretical framework, the hypothesized mediating effect for turnover cause is expected to affect sustainable performance through bad performance of the previous CEO. Therefore, this research only considers codes 3 & 4 as an involuntary dismissal, and all other codes as a voluntary dismissal, the dummy variable "CatTur" takes the value 2 and 1, respectively. Parallel to the turnover variable, the variable "CatTur" is moved up for *t* - *k* years.

Board Gender Diversity

Board gender diversity is used as a control variable in the analysis. As a result, this allows this study to examine whether findings of prior research (Bernard et al., 2016; Kim et al., 2021) correspond with the findings of the current study. Data regarding the amount of gender diversity in board compositions is retrieved from Refinitiv (2022) and is measured as the percentage of female directors active on the board. This variable is labeled as "BD".

Firm Size

The variable firm size is included in the analysis as a control variable. The size of the company is measured by their total assets (TA) and data for this variable is retrieved from Refinitiv (2022). The total assets variable represents the sum of total current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets in thousands USD (Refinitiv, 2022). Important to note is that the total assets variable is highly skewed since differences in the sample companies' total assets are enormous. To address the skewness of the "TA" variable and enhance the predictive power of the model, the analysis utilizes the natural logarithm transformation. The transformed variable, referred to as "log_TA," is used in the analysis. This transformation helps to reduce the skewness of the data, making it more suitable for statistical modeling and improving the interpretability of the results.

Debt Ratio

The control variable debt ratio (DR) is measured by dividing a firm's total liabilities (TL) by their total assets (TA). Both TA and TL are measured in thousands USD resulting in debt ratios between -0.15 and 4.39 with an average of 0.63 (Table 3). A negative ratio occurs when a company has more assets than liabilities, which can occur due to various factors such as debt repayments, asset write-offs, or significant increases in asset values. An extreme value of DR>1 occurs when a company has a significant amount of debt and obligations compared to its total assets. Data regarding the firm's debt ratio is retrieved from Refinitiv (2022).

Financial Capacity

The degree of financial capacity is measured by the variable "average return on assets" (ROA). Return on assets is composed by a firm's net profit, divided by their total assets (TA). Similar to ROA, this variable is highly skewed and therefore the analysis utilizes the natural logarithm transformation. The transformed variable, referred to as "log_ROA", is used in the analysis. Return on assets is measured in USD and data regarding this variable is retrieved from Refinitiv (2022).

Summarizing, an operationalization table is presented to provide an overview of the mentioned variables (see Table 2). Also, a summarizing table regarding the number of observations, means, standard deviations, minimum values, and maximum values of all included variables is shown in Table 3. Because descriptive statistics such as mean or standard deviation may not be as informative for dummy variables, a separate descriptive statistics table is created (see Table 4), focus has been put on reporting the percentage of observations in each category.

Variable	*Type*	*Operationalization*	*Data Source*
Sustainable Performance (ESG)	Ratio	Proprietary score ranging from 0.1 to 100 based on the extent of a company's Environmental, Social and Governance (ESG) disclosure.	Refinitiv (2022)
Turnover (TURN)	Nominal	Dummy variable which is assigned a value of 1 in years in which a turnover occurred, 0 otherwise.	Open-sourced data base by Gentry et al. (2021).
CEO Tenure	Ratio	The number of years a CEO is in his/her position	Open-sourced data base by Gentry et al. (2021).
Board Gender Diversity (BD)	Ratio	Proportion of female directors out of total directors.	Refinitiv (2022)
Turnover Cause (CatTur)	Nominal	Dummy variable which classifies each turnover as either voluntary (death, illness, retired or new opportunity) or involuntary (performance or behavioral issues). The variable obtains the value 1 or 2, respectively.	Open-sourced data base by Gentry et al. (2021).
Internal/ External Promotion Policy (IP)	Nominal	Dummy variable which classifies each turnover according to whether the company claims to favor internal promotion over external promotion. The variable obtains the value 1 if internal promotion is favored, and 0 otherwise.	Refinitiv (2022)
Firm Size (SIZE)	Ratio	The size of a firm, measured by the natural logarithm of a firm's total assets. TA is measured in thousands USD.	Refinitiv (2022)
Debt Ratio (DR)	Ratio	The debt ratio, composed by dividing their total liabilities by their total assets.	Refinitiv (2022)
Financial Capacity (ROA)	Ratio	The degree of financial capacity. Measured by the natural logarithm of a firm's net profit, divided by their total assets in USD.	Refinitiv (2022)

Table 2 – Operationalization Table

Variable	*Obs.*	*Mean*	*Std. dev.*	*Min*	*Max*
ESG	8454	49.312	20.494	0.600	95.160
Tenure	6075	4.019	3.513	0	19
BD	8418	18.959	10.543	0.000	66.670
SIZE	9828	16.231	1.635	9.374	22.162
DR	9800	0.627	0.270	-0.154	4.393
ROA	8832	1.813	0.932	-4.605	4.649

Table 3 – Descriptive Statistics of Numeric Variables

Variable	*Obs.*	*%*
Turnover	10320	0 (91.41%), 1 (8.59%)
IP	8388	0 (70.39%), 1 (29.61%)
CatTur	10320	0 (91.56%), 1 (6.64%), 2 (1.80%)

Table 4 – Descriptive Statistics of Dummy Variables

Data Analysis Procedure

Before analyzing, several data checks are performed to ensure the quality and reliability of the data. First of all, the data is checked for missing values: only firms for which data was available in both the Refinitiv (2022) database and the databases by Gentry et al. (2021) have been included in the analysis. The extent of missing data has been assessed and it has been found that missing data represented only a small fraction of the observations. Therefore, no further data points (or companies) have been excluded from the analysis. By retaining all available data, the utilization of the information present is maximized, and representativeness and validity is retained. However, a firm-year specific panel data analysis can not include multiple observations per year. Therefore, after careful consideration of the data and research objectives, duplicate observations (firms with >1 CEO turnover in a single year) have been removed, reducing the dataset to a single observation per firm-year pair. The removal of duplicate observations did not cause problems regarding the validity of the analysis because the duplicates consist of identical values for each of the variables. Instead, removing duplicates ensures that each observation in the dataset is unique and independent (Grim, 2023).

It has been found that the company size variable (Total Assets) and ROA were highly skewed. Therefore, as described prior, these variables are transformed by applying a logarithmic expression to reduce skewness. Further data checks have been conducted, such as independence of data, normality, homoscedasticity, linearity, and outliers. No issues were identified, indicating reliable and suitable data for analysis. Then, the remaining dataset has been checked for adequate sample size. The minimal sample size for a panel data analysis is more than 50 observations (N>50) but preferably N>100 (Blazevic, 2022). Besides that, for each included variable there should be at least 5 observations, but preferably 15 (Blazevic, 2022). With the dataset used for conducting this research, consisting of 516 companies over 19 years with a total of 887 turnovers included, this research contains 10000+ observations and therefore it is expected to be robust, show reliable results, and possess appropriate statistical power.

A Pearson's correlation test has been conducted to assess the strength and direction of the relationship between the independent variables and the dependent variable (see Table 5). All correlations except return on assets (ROA) show significance, and most correlations display the expected sign. However, debt ratio (DR) displays an unexpected positive correlation and return on assets (log_ROA) shows an unexpected negative correlation. Furthermore, the matrix

shows that firm size (Log_TA) and board gender diversity (BD) are the most important determinants of a firm's ESG score.

	ESG	BD	log_TA	IP	DR	log_ROA	turnov~5
ESG	1.0000						
BD	0.4726*	1.0000					
	0.0000						
log_TA	0.4094*	0.2183*	1.0000				
	0.0000	0.0000					
IP	0.3397*	0.1555*	0.0774*	1.0000			
	0.0000	0.0000	0.0000				
DR	0.1287*	0.1787*	0.2736*	0.0353*	1.0000		
	0.0000	0.0000	0.0000	0.0012			
log_ROA	-0.0124	-0.0375*	-0.4180*	0.0696*	-0.2517*	1.0000	
	0.2740	0.0010	0.0000	0.0000	0.0000		
turnover5	0.0587*	0.0458*	0.0449*	0.0325*	0.0212	-0.0161	1.0000
	0.0000	0.0001	0.0001	0.0068	0.0659	0.1836	

*Table 5 – Pearson's correlation matrix (*p < 0.05)*

Because there is significant correlation between IV's, a Variance Inflation Factor (VIF) test has been conducted. The results of the VIF test show significant correlation among the IVs, particularly the "log_TA" variable, indicating the presence of multicollinearity. Therefore, the log_TA variable has been excluded from further analysis, resulting in appropriate VIF levels. Thereafter, a Hausman test has been performed to determine whether a random- or fixed effects model suits the analysis better, revealing that a fixed effects model is most appropriate for the analysis.

Since the sample contains data for 516 companies over a 19-year period, spanning from 2002 to 2021, and considering that multiple observations over time for each company need to be included, panel data analysis is most suitable for analyzing the proposed relationships. Panel data analysis allows the examination between CEO turnovers and sustainable performance within the same firm over different time periods, while simultaneously including other mentioned variables. Besides that, CEO turnovers and their impact on sustainable performance may unfold over a longer time horizon. Panel data analysis provides a longitudinal perspective, enabling the examination of long-term effects (Blazevic, 2022). The latter is crucial for researching the proposed relationships since prior research has shown that the time dimension is essential for researching the effect of a CEO turnover (Coates & Kraakman, 2010). Based on

prior research (Bernard et al., 2016; Coates and Kraakman, 2010; Kim et al., 2019), the turnover variable is delayed for *k* (1-5) years when analyzing the effect of a turnover (H1), allowing this research to capture the dynamic linkage between a CEO change and their respective sustainable performance.

The analysis is conducted using Stata, allowing this study to analyze the panel data, estimate regression models, perform diagnostic tests, include categorical dummy variables with more than two categories, and generate visualizations to gain insights in the proposed relationships. For the analysis of H1, H2a, H3a, and H3b, which test a linear effect, a fixed effects panel data regression model is most suitable, estimating the coefficients and significance of the variables of interest. The analysis of H2b is shaped differently since a panel regression lacks the ability to capture non-linear relationships. After the estimation of H2a, examining the linear relationship between CEO tenure and sustainable performance, a Utest is conducted to test for the presence of a U-shaped or inverse U-shaped relationship between the variables (StataCorp, 2021).

Lastly, given the long timespan in this research (19 years) and the development of ESG scores in the past decades (Sautner, 2021; Kramer & Pfitzer, 2022), controlling for time-specific effects by including the year as a dummy variable is deemed necessary. Additionally, it is common to control for industry-specific effects when analyzing sustainable performance (Jiraporn & Chintakarn, 2013; Bernard et al. 2016; Meng, 2023). Therefore, the dummy variable "SIC" is created using the company's SIC-codes, categorizing the firms for 8 different sectors. However, STATA omits the industry dummy in the analysis meaning that the model does not control for industry specific events. STATA omitting the industry dummy variable may be attributed to several reasons: perfect collinearity with other variables, a large number of industries compared to limited observations per category, or incomplete or unreliable data because of missing values (StataCorp, 2021). Since there are no missing values, insufficient observations per category and/or perfect collinearity with another variable seem to explain STATA omitting the dummy. In other words, there potentially are insufficient different firms included in the dataset compared to the number of industries, or not changing industries from one observation of that firm to the next, results in the industry dummy to be colinear with the collection of firms (StataCorp, 2021), fostering exclusion of the industry dummy from the analysis.

Altogether, the functional form of the model used to test hypothesis H1 is as follows:

$$ESG_{i,t} = \beta_0 + \beta_1 TURN_{i,t-k} + \beta_2 BD_{i,t} + \beta_3 DR_{i,t} + \beta_4 ROA_{i,t} + \sum_{1}^{19} YEAR + \varepsilon$$

Where $ESG_{i,t}$ is the ESG score for firm *i* at time *t*. β_0 represents the constant term of the model, it refers to the value of the ESG score when all independent variables are equal to zero (e.g., no turnover). TURN represents whether firm *i* experienced a CEO turnover at time *t-k*. BD represents the degree board gender diversity of firm *i* at time *t*. DR represents the debt ratio for firm *i* at time *t*. ROA represents the average return on assets for firm *i* at time *t*. YEAR represents a dummy variable that captures temporal effects. Lastly, ε denotes the error term that represents the unobserved factors or random variation in the relationship between the variables.

Further analysis, testing hypotheses H2 and H3, replaces the variable "TURN" with "TENURE" to examine the relationship between CEO tenure and sustainable performance. TENURE represents the number of years the CEO of firm *i* has been in his/her position at time *t*. Also, the variable IP is included in this model. IP represents a dummy variable for firm *i* who claims to favor internal promotions over external promotions at time *t*. The functional form of the model used for these analyses is as follows:

$$ESG_{i,t} = \beta_0 + \beta_1 TENURE_{i,t} + \beta_2 IP_{i,t} + \beta_3 BD_{i,t} + \beta_4 DR_{i,t} + \beta_4 ROA_{i,t} + \sum_{1}^{19} YEAR + \varepsilon$$

Research Integrity

In this study, attention was given to upholding research integrity and adhering to ethical guidelines. The ethical principles outlined by APA (Smith, 2003), provided guidance while conducting the research. Prior to data collection, it has been checked if appropriate permissions were obtained from Refinitiv (2022) and Gentry et al. (2021). The database by Gentry et al. (2021) is publicly available and the Radboud University's library team granted permission for this research to download data from Refinitiv (2022). Thereafter, rigorous data cleaning procedures were implemented to improve the quality of data. Hereby, transparency and reproducibility are prioritized by providing a detailed description of the data sources, variables, and employed methods. It is important to acknowledge that this study has certain limitations that should be considered, which are described in the discussions section. However, by upholding research integrity, this study's outcomes can be trusted and contribute to the advancement of knowledge in the field.

CHAPTER 4 – RESULTS

First of all, the preliminary relationship between CEO turnovers and sustainable performance is tested. Here, the first step is to determine the most appropriate value for *k*. Thereafter, an overview of the five models used to map the proposed relationships is provided. Finally, this section presents the results of the Utest, answering hypothesis H2b.

Table 6 displays the results of regression in panel data with fixed year effects. The analysis shows how the relationship between CEO turnovers and sustainable performance evolves for various values of *k* while controlling for time specific events. The value of *k* stands for the delay between the year a firm's CEO changed and the effect of the turnover on their respective sustainable performance. So, for $k = 1$, the model estimates the ESG score 1 year subsequent to the CEO turnover, and so on. It can be seen that a change of CEO has a significant and positive relationship with sustainable performance (at $p = 0.05$) after five years (k=5). This is in line with the findings of Bernard et al. (2016), who explain this delay by stating that new policy's require time to produce effects. The high explanatory power of this regression (44.86%) is mainly attributed to the control variable YEAR. Adding the turnover variable decreases the predictive power of this model by 14%, meaning that sustainable performance is explained more by other factors - such as time specific events - than CEO turnovers.

	k = 1	*k = 2*	*k = 3*	*k = 4*	*k = 5*
Intercept	28.73752***	31.10553***	32.4533***	37.83911***	41.09459***
TURN	-.185043	.5525214	.6289472*	.6692172*	1.505987***
Adjusted R^2	0.5454	0.5248	0.4987	0.4706	0.4486

*Table 6 – Preliminary relationship between CEO change and ESG scores. Significance levels are based on *p < 0.10, **p < 0.05, and *** p < 0.01.*

Based on Table 6, further analysis uses k=5 to test for effects between CEO turnovers and sustainable performance. Table 7 shows the five models used for testing hypotheses H1, H2a, H3a and H3b. Model 1 includes solely the control variables. Model 2 includes the control variables and the turnover variable. Model 3 categorizes the turnovers based on their cause, the reference category for these dummy's is no turnover (CatTur = 0). Model 4 displays the relationship between promotion policy orientation and sustainable performance, including control variables. Lastly, model 5 extends model 4 by adding CEO tenure.

	Expected sign	Model 1 – Control variables	Model 2 – CEO turnover & control variables	Model 3 – CEO turnover cause & promotion policy orientation & control variables	Model 4 – Promotion policy orientation & control variables	Model 5 – CEO tenure & promotion policy orientation & control variables
Intercept		22.823*** (0.000)	36.287*** (0.000)	36.270*** (0.000)	22.917*** (0.000)	27.134*** (0.000)
TURN	+		0.513 (0.182)			
Voluntary TURN	-			0.758* (0.074)		
Involuntary TURN	+			-0.140 (0.872)		
TENURE	+					0.211*** (0.000)
IP	-				5.752*** (0.000)	4.890*** (0.000)
BD	+	0.252*** (0.000)	0.270*** (0.000)	0.270*** (0.000)	0.255*** (0.000)	0.251*** (0.000)
DR	-	-2.270** (0.030)	-3.315*** (0.002)	-3.292*** (0.002)	-2.221** (0.031)	-3.944*** (0.002)
ROA	+	0.346* (0.068)	-0.068 (0.717)	-0.069 (0.714)	0.293 (0.115)	0.171 (0.429)
YEAR		Yes	Yes	Yes	Yes	Yes
Prob>F		0.000	0.000	0.000	0.000	0.000
Adj. R^2		0.5938	0.4966	0.4967	0.6098	0.5378

Table 7 – Results

*Significance levels are based on *p < 0.10, **p < 0.05 and *** p < 0.01*

The first model illustrates that all control variables show the expected sign, and they explain approximately 59% of the firms' sustainable performance. Besides that, it can be seen that all control variables except ROA are significantly related to a firms' sustainable performance at $p = 0.05$. The three asterisks for board diversity (BD) imply that there is strong evidence to support the positive relationship between board diversity and sustainable performance. Debt ratio (DR) has two asterisks, indicating that negative effect found is statistically significant at a lower level than board diversity. And lastly, return on assets (ROA) has a single asterisk, indicating that there is some evidence to support the relationship between return on assets and sustainable performance, but with less certainty compared to board diversity and debt ratio.

Model 2 includes the effect of a change of CEO on a firm's sustainable performance, and the control variables used in model 1. It can be seen that the TURN variable is not significantly related to sustainable performance and the explanatory power (R^2) of the model decreases by 9.72%. Therefore, the analysis reveals that the variable TURN does not explain the variance in ESG scores. This challenges hypothesis H1 which hypothesizes a positive relationship between CEO turnovers and sustainable performance. Instead, the insignificant relationship and decreasing explanatory power (R^2) suggest that other factors prevail over this variable. Consequently, the available evidence does not provide enough support to either accept or reject hypothesis H1.

Model 3 shows that the cause of a CEO turnover is insignificantly related to sustainable performance for both voluntary and involuntary turnovers (at $p<0.05$). The observed difference in significance between voluntary and involuntary turnovers could be attributed to the difference in observations per turnover cause, since most of the turnovers in the included sample have been voluntary (Table 4). Including the variable regarding turnover cause slightly improves the predictive power of the model by 0.01% compared to when turnovers in general are considered. Nonetheless, the R^2 still decreased by 9.71% compared to model 1. This, combined with the insignificant preliminary relationship between CEO turnovers and sustainable performance, implies that turnovers categorized by their cause do not explain the variance in ESG scores.

In model 4 it can be seen that favoring internal promotions over external promotions (IP) has a significant and positive effect on sustainable performance. The adjusted R^2 of the model is 1.60% higher compared to model 1, indicating that promotion policy orientation explains some of the variance in ESG scores. The analysis of model 3 rejects hypothesis H3b which hypothesizes a positive relationship between external promotion policy and sustainable

performance. Instead, the analysis reveals that favoring internal promotions over external promotions increases ESG scores by 5.75%. Therefore, hypothesis H3a "*There is a positive relationship between internal promotion orientation and sustainable performance*" can be accepted.

Model 5 reveals that the tenure of a CEO is positively and significantly related to sustainable performance at $p = 0.01$. Nonetheless, the explanatory power of model 5 is 7.20% lower than model 4, implying that CEO tenure introduces random variation that decreases the accuracy of the model's results. The analysis shows significant evidence of a positive relationship between CEO tenure and sustainable performance, supporting H2a. However, it is important to exercise caution in interpreting these results given the decrease in explanatory power, indicating that the model may not fully capture or explain the variation in sustainable performance. Furthermore, it can be seen that all control variables show the expected signs and all, except ROA, are significantly related to sustainable performance. Besides that, analysis captures the previously described increase in attention to sustainable performance by the dummy variable "Year" (see Appendix 3). Appendix 3 shows that from 2005-2021, the average ESG score significantly increases by almost 2% per year.

```
Specification: f(x)=x^2
Extreme point:  8.304381

Test:
     H1: Inverse U shape
 vs. H0: Monotone or U shape
```

	Lower bound	Upper bound
Interval	0	19
Slope	.6649633	-.8564387
t-value	6.301107	-3.840016
P>|t|	1.61e-10	.0000623

```
Overall test of presence of a Inverse U shape:
     t-value =      3.84
     P>|t|   =  .0000623
```

Table 8 – Results Utest

As suggested in the theoretical framework, it is worth noting that the nature of this relationship may exhibit a parabolic pattern. Therefore, the next step is to empirically test the hypothesized nonlinear relationship between CEO tenure and sustainable performance. Table 8 displays the results of the Utest. With a p-value of 0.000, which is below the specified significance level of

0.05, the null hypothesis (H0) testing a monotonic or U-shaped relationship is rejected. Therefore, H1 of the Utest is accepted, suggesting an inverted U-shaped relationship between a CEOs tenure and sustainable performance. Consequently, the suggested hypothesis H2b *"There is an inverted U-shaped relationship between CEO tenure and sustainable performance*" is accepted. Also, it can be seen that the extreme point is at 8.304, meaning that if a CEOs tenure exceeds 8 years and 4 months, an increase in the CEOs tenure has a negative effect on sustainable performance. On the contrary, if a CEOs tenure is less than 8 years and 4 months, retaining his/her position is beneficial for the firm's sustainable performance. Summarizing the results for H2a and H2b, the analysis supports the presence of a positive relationship between CEO tenure and overall sustainable performance (H2a), and also identifies a parabolic pattern where sustainable performance initially increases with CEO tenure but reaches a peak and starts to decline (H2b), therefore both hypotheses H2a and H2b are accepted.

CHAPTER 5 – CONCLUSION AND DISCUSSION

It is difficult to draw definitive conclusions regarding the strength and direction of the relationship between a change in CEO and sustainable performance. Even though the effect of a turnover seems inevitably positive after 5 years (Table 6), the explanatory power of CEO turnovers on sustainable performance is very low (Table 7, model 2). Also, our analysis shows that CEO turnovers are not significantly related with sustainable performance at $p = 0.05$, suggesting insufficient evidence to accept or reject hypothesis H1. Regardless of the fact that previous research by Bernard et al., 2016 suggests a positive relationship between a CEO turnover and sustainable performance, our research does not provide supporting evidence in this particular context. Sustainable performance seems to be affected by other factors, such as time specific events, board gender diversity, or other firm specific characteristics. Also, categorizing the CEO turnovers based on their cause (voluntary vs involuntary) did not render significance or explanatory power. This emphasizes that empirical investigation to test and validate hypotheses is important as findings can be different from expectations.

Considering the relationship between CEO tenure and sustainable performance, our findings reveal that CEO tenure has a positive and significant relationship with sustainable performance. However, as hypothesized, our analysis suggests that as CEO tenure reaches its optimal point, further increases in CEO tenure may lead to diminishing returns and a decline in sustainable performance. Potentially, the moderating variable within this relationship is in line with previous research regarding financial firm performance by Simsek (2004), which finds

that CEO tenure has a parabolic effect on financial firm performance through TMT risk taking propensity. However, our research does not specify mechanisms through which described relationships occur and leaves this aspect open for further investigation.

Additionally, our investigation provides evidence that S&P500 firms which favor internal promotions over external promotions significantly enhance their sustainable performance. As described previously, internal promotions counter the principal agent problem of asymmetric information: an internal successor has a better understanding of the company, and vice versa (Cao and Mauer, 2010; Bernard et al., 2016; Wang, 2016). Our empirical analysis therefore suggests that favoring internal promotions over external promotions can lead to higher sustainable performance outcomes, potentially caused by better understanding of the firm – and the successor. This finding contradicts the alternative perspective, which suggests that external promotion policy can benefit sustainable performance by offering new ideas, fresh perspective, and a helicopter view of the firm (Gilbert, 2005; O'Reilly & Tushman, 2008; Carney, 2019; Kramer & Pfitzer, 2022).

Combining all findings in order to answer the central question "*how do CEO turnovers affect sustainable performance*", it can be said that it is inconclusive whether a CEO turnover has a positive or negative effect on sustainable performance. However, our empirical analysis shows that CEO tenure has a positive, and inversed U shaped, effect on sustainable performance. This implies that CEO tenure initially enhances sustainable performance but after reaching an optimal CEO tenure of approximately 8 years and 4 months, further increases in a CEOs tenure result in decreasing sustainable performance outcomes. Furthermore, our investigation reveals that favoring internal promotions over external promotions increases sustainable performance by 5.75%. Nonetheless, it is important to exercise caution while interpreting these results since there may still be alternative explanations or factors that were not accounted for.

Theoretical contributions

One of the key theoretical contributions of this study is the advancement of our understanding of the relationship between CEO turnovers, CEO tenure, promotion policy, and sustainable performance. While prior research has primarily focused on the relationship between the variables and financial firm performance, our study explores the nuanced nature of these relationships regarding sustainable performance. This extends the theoretical framework by Bernard et al. (2016) and highlights the importance of considering optimal tenure length for

CEOs to maximize sustainable performance outcomes. By identifying the existence of an inverted U-shaped relationship, our research provides valuable insights and a deeper understanding of how CEO tenure influences sustainable performance. Also, this research is the first to examine how promotion orientation affects sustainable performance. Besides that, our study examines one of findings by Bernard et al. (2016), by testing the effect of a CEO turnover on sustainable performance for a different selection of firms, timeframe, and sustainable performance metric. Our findings diverge from the findings by Bernard et al. (2016), as we did not find substantial evidence to support a relationship between CEO turnovers and sustainable performance. It is important to note that these discrepancies may arise due to variations in methodology, sample characteristics, on contextual factors. Therefore, additional research is warranted to further investigate these conflicting findings.

Practical and managerial implications

Based on the findings of this study, there are several practical and managerial implications that can be drawn. To begin with, our study shows that for S&P 500 firms between 2002 and 2021, sustainable performance increases by almost 2% per year. This indicates that firms are developing their sustainable performance over the past decades. However, there are a variety of strategies to further enhance sustainable performance according to our empirical analysis:

(1) Financial performance should still be an aspiration for organizations, even while prioritizing sustainable performance. Our empirical analysis shows that a focus on healthy financial performance (e.g., low debt ratio) can result in an increase of sustainable performance. This effect is attributed to more financial freedom and therefore possibilities for allocating resources towards sustainable business practices (Amir, 2005).

(2) Board gender diversity should be an aspiration for organizations, as it is significant and positively related to sustainable performance. Board gender diversity can create a collaborative working space in which men and woman generate more creative ideas, draw from multiple perspectives, and devise solutions to problems (Orij et al., 2021).

(3) Organizations that strive for sustainable performance development should implement internal promotion policy as it seems to increase their average sustainable performance by >5%. In Table 3 it can be seen that approximately 30% of the observations include firms that enact internal promotion policy, which suggests that there is substantial potential for improvement in this domain.

(4) Our study suggests that CEO tenure positively affects sustainable performance for the first 8 years and 4 months. However, it has become clear that S&P500 firms, on average, switch CEOs approximately once every 4 years (Table 3). It is difficult to suggest a specific CEO tenure for S&P firms based on our findings since a new CEO may initially be disruptive for a firm's sustainable performance. Nonetheless, our findings suggest that the firms in our sample would enhance their sustainable performance if they would switch CEOs less frequently, granting more time for the successor to develop the capabilities necessary for enhancing sustainable performance. Additionally, it could benefit an organization to strive for a smooth transition when CEOs change to mitigate the initial negative effect of the successor while simultaneously enjoying the advantages yielded by the predecessor's organizational knowledge and experience.

Summarizing, if policy makers wish to strengthen sustainable performance, it is to their advantage to incorporate long, but not excessive, CEO tenure combined with low debt ratios, balanced board gender diversity and internal promotion policy.

LIMITATIONS

This study is subject to several limitations. First, the organizations that have been included in our sample include only large, publicly listed organizations within the S&P500. Considering that these organizations face significant societal pressure to enhance their sustainable performance, might affect the universality of our results. Besides that, the S&P500 includes solely companies listed on the stock exchanges in the United States, with their headquarters based in the United States as well. Even though firms included in the S&P 500 may have operations and presence abroad, external factors and contextual influences such as cultural, social, or economic conditions in the United States may have influenced our results. Validating the proposed relationships for other regions, or including a more diverse range of organizations, would benefit the generalizability of our results.

Second, there are many alternative constructs to measure sustainable performance while this study solely relies on ESG scores as a measure of sustainable performance. Therefore, alternative sustainability metrics could be considered to provide additional insights for sustainability in different contexts.

Besides that, this research did not control for industries. Further research could investigate the same relationships for a different, or larger, sample to capture the industry specific effects and create a more comprehensive overview of the research area.

Furthermore, it is important to elaborate on alternative methodological approaches that have been applied to measure the effects of a CEO turnover on sustainable performance. Other methodological approaches have been used to test whether the reduced R^2, when the CEO turnover variable was included in the analysis, potentially was a methodological mistake. The reduction in R^2 is possibly caused by either of the two alternatives: (I) the treatment of CEO turnovers as a binary variable (either "turnover" or "no turnover") could result in substantially low variance in the turnover variable since <10% of the total (firm-year) observations includes a turnover (Table 4). Or (II), a CEO turnover and the ESG score 5 years subsequently are too far away from each other, and too many other factors explain how the ESG score develops during this period. Alternative approaches have been used, e.g., analyzing a sub-sample which only encompasses companies that have experienced >1 (or >2) turnover(s) as well as categorizing companies based on total turnovers and thereafter investigating differences in their mean ESG score (ANCOVA). However, the effect remained insignificant, and the explanatory power of the CEO turnover variable was extremely low (decreasing R^2). Therefore, alternative approaches neither allowed our study to draw definitive conclusions regarding the strength and direction of the relationship between a CEO turnover and sustainable performance.

Recommendations for future research

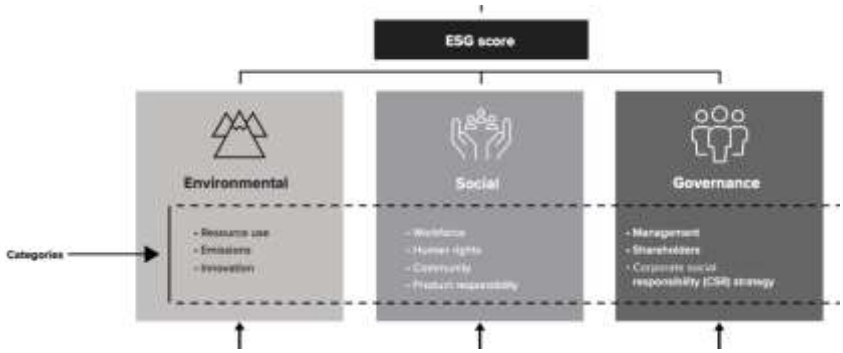
This research initiates several other novel avenues of exploration. As mentioned previously, using other metrics or different angles to measure sustainable performance could provide additional insights. E.g., the ESG score could be split into separate Economic, Social, and Governance scores to compare how each is affected by the proposed relationships.

Also, it would be beneficial for this field of research to look into the proposed relationships for small and medium enterprises (SMEs) or emerging economies. This implies validating whether the effects for our sample are reproducible for other firm sizes or regions. As described previously, our sample includes large US companies while the results might differ for SMEs or emerging economies as they often face unique challenges and resource constraints.

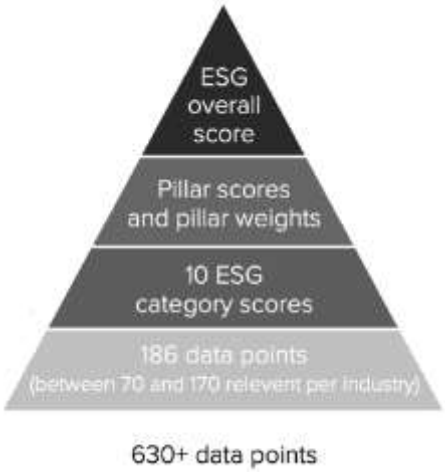
Additionally, it could extend this research area to look into the same relationships while categorizing the CEOs by several CEO characteristics. For example, CEOs can be categorized by their gender, age, or whether they are promoted internally or externally.

Lastly, it would be opportune to dive deeper into this field of research by conducting in-depth case studies to explore mechanisms through which CEO turnovers, CEO tenure, and promotion policy affect sustainable performance, offering a richer understanding of the dynamics involved.

CHAPTER 6 - APPENDIX



Appendix 1 – ESG score construct pillars and categories.



Appendix 2 – ESG score construct data.

ESG	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
tenure	.210911	.0511833	4.12	0.000	.1105678	.3112542
IP	4.890204	.3878479	12.61	0.000	4.129841	5.650568
BD	.2513582	.0217526	11.56	0.000	.208713	.2940035
DR	-3.944246	1.252561	-3.15	0.002	-6.399852	-1.488639
log_ROA	.1714118	.2169225	0.79	0.429	-.2538579	.5966816
Year						
3	-3.336017	2.549809	-1.31	0.191	-8.334838	1.662804
4	2.570932	2.30519	1.12	0.265	-1.94832	7.090184
5	5.141903	2.244362	2.29	0.022	.7419012	9.541904
6	5.940267	2.227147	2.67	0.008	1.574017	10.30652
7	11.39511	2.211235	5.15	0.000	7.060049	15.73016
8	14.50251	2.219683	6.53	0.000	10.15089	18.85413
9	16.96937	2.210564	7.68	0.000	12.63563	21.30311
10	18.83725	2.197047	8.57	0.000	14.53001	23.14449
11	19.80681	2.196114	9.02	0.000	15.5014	24.11222
12	19.70046	2.19658	8.97	0.000	15.39413	24.00678
13	19.67037	2.19359	8.97	0.000	15.36991	23.97084
14	19.76525	2.195991	9.00	0.000	15.46008	24.07042
15	22.33508	2.197163	10.17	0.000	18.02761	26.64255
16	25.09442	2.200989	11.40	0.000	20.77945	29.40939
17	26.65221	2.20254	12.10	0.000	22.3342	30.97022
18	28.09954	2.205758	12.74	0.000	23.77522	32.42386
19	29.29994	2.220369	13.20	0.000	24.94698	33.6529
20	31.07795	2.2448	13.84	0.000	26.67709	35.47881
21	33.0935	2.262298	14.63	0.000	28.65834	37.52866
_cons	27.1335	2.276537	11.92	0.000	22.67042	31.59658

Appendix 3 – Full model including Year-dummy specification.

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