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Golden Parachutes of Executives: Implication on the ESG Score of Companies

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ABSTRACT

This study aims to investigate how golden parachutes as part of an executive compensation package impact the decision-making of executives concerning ESG-related activities. Using firms in the S&P 1500 Index as a sample, we find a highly significant and positive relationship between ESG scores and golden parachutes. Further, we also notice that ESG scores and executives' age has a negative and significant relationship. However, when considering the cross effect of executives' age and golden parachutes towards ESG scores, the relationship is highly significant and positive. We also recognize that that the cross effect between long-term executive compensation and golden parachutes on ESG scores result in significant zero coefficient. These findings yield three key implications. First, golden parachutes can be an effective element to motivate executives toward making decisions that support ESG. Second, firms that look to increase the ESG score are better off having executives younger than 64 years old. Third, golden parachutes can be an effective element of motivation for executives older than 64 years old to keep down the effect of age.

Table of Contents

1. INTRODUCTION

Environmental, social, and governance (ESG) related activities by companies have grown in importance over the years. The ultimate goal of a firm has continued to evolve, forcing companies to adapt and switch their priority toward long-term value for the wider society (Zumente & Bistrova, 2021). Taking this into account, ESG is now seen as a good indicator to see what is ahead for a company, particularly in the view of investors (Limkriangkrai et al., 2017). However, it has long been a concern that company executives tend to have a conflict of interest with the stakeholders (Okafor & Ujah, 2020). From the scope of ESG, this research is written to contribute to defining the proper strategy of realizing a mutual interest of executives and stakeholders of a company, particularly with golden parachutes as one of the elements.

Over the past years, there has been a growing concern about the overall state of the world. The issues related to climate change, poverty, equality, human rights, and more have been the focus of society worldwide. This is reflected by the formation of various initiatives to tackle these issues. Amongst all, the 17 sustainable development goals (SDGs) introduced by the United Nations in 2015 are the most relevant with 193 UN member states adopting the blueprint. Furthermore, the interest in sustainable investing in the global markets is also on the rise as green exchange-traded funds (ETFs) are perceived as one of the viable financial instruments to accommodate this purpose. In fact, BlackRock, an American multinational investment management firm, managed to attain a record-breaking ETF launch during the first quarter of 2021 with its ESG fund, BlackRock U.S. Carbon Transition Readiness ETF (Marsh & Potter, 2021). Moreover, Voorhes and Humphreys (2011) in U.S. Forum for Sustainable and Responsible Investments reported that sustainable and responsible investing (SRI) already made up for 12.5% of total investments by investment managers in the U.S. with ESG factors increasingly being taken into consideration as part of the investment analysis. These kinds of phenomena that we have witnessed over the past years are good indications that the topic related to ESG and corporate social responsibility (CSR) is here to stay and will continue to grow in importance among the stakeholders of a firm.

With a firm engaging in CSR activities growingly seen as an important aspect to look at when doing a valuation analysis, some studies have been done to see if there is any relationship

between the level of a firm's involvement in ESG-related activities and the value of a firm. Past findings have found that there is a positive and significant relationship between CSR performances and a firm's valuation (Fatemi et al., 2018; Li et al., 2018; Wong et al., 2021; Yoon et al., 2018). This is particularly valid for companies that disclose information about ESG as stakeholders' trust increases when a firm decides to be transparent regarding this issue. Furthermore, it is also evident that being open about contributing to ESG is associated with a stronger firm brand image in the eye of its stakeholders (Koh et al., 2022). For these reasons, more and more companies realize that there is a huge need to achieve a satisfactory ESG score.

Furthermore, since its rapid rise in the 1980s, the golden parachutes clause has continued to be a staple part of an executive compensation package to protect the firm from hostile takeover and prompt executives toward focusing on long-term value creation which is often associated with ESG and CSR (Okafor & Ujah, 2020).

This study aims to discover how golden parachutes as part of an executive compensation package impact the decision-making of executives concerning ESG-related activities. In part, the inclusion of golden parachutes usually indicates the seriousness and commitment of a firm towards achieving long-term value for the stakeholders. This is under the assumption that being involved in ESG-related activities will drive up the value of a firm in the market. Hence, taking this into account, golden parachutes can be used as an element of motivation for executives to pick decisions that increase a firm's participation in CSR, and eventually the ESG scores.

In this study, we look at four different measures related to ESG, namely ESG score, environmental pillar score, social pillar score, and governance pillar score. We use a sample of firms in the S&P 1500 from 2007 to 2018 and have an unbalanced panel data of 9,209 observations from 1,294 companies. After conducting the analysis, we find some interesting findings on the relationships between ESG scores and our independent variables of interest.

We recognize that there is an inverse relationship between ESG scores and executives' age. This is a consistent result that we see across the four measures of ESG, although there are some minor differences in the level of magnitude. The effect seems to be highest on the social pillar score but is least on the governance pillar score. Our findings, in this case, support the idea that

firms with younger executives are more likely to score higher in terms of ESG measures. Meanwhile, when the cross effect with golden parachutes is considered, we notice evidence of a positive relationship. Moreover, the relationship with golden parachutes as a sole independent variable of interest has a direct relationship with all the ESG measures. These findings indicate that golden parachutes can be an effective element to motivate executives toward making decisions that lead the company to scoring higher ESG scores, even for older executives. About the association between ESG scores with short-term executive compensation and long-term executive compensation, we find some inconclusive results. Regarding the direct relationship with both executive compensation variables, the findings we obtain are conflicting in terms of the directions. Moreover, within the cross effect with golden parachutes, we only see significant results on the long-term executive compensation, and not on the short-term.

The next sections of this study will be broken down as follows. I will first review relevant past literature related to how firm involvement in ESG-related activities affects its value, shareholders' wealth, and other stakeholders. In this section, I discuss the golden parachutes clause in executive compensation, covering its arguments for and against it. Then, I explain the development of the hypotheses in this study. Briefly, I examine the direct relationship between short-term executive compensation, long-term executive compensation, as well as executives' age, also their cross effect with golden parachutes, and ESG scores along with its pillar scores. Consequently, I describe the sample and methodology used in testing the hypotheses in this study. Next, I present the findings of the study in the 'results' part. Finally, I provide the conclusion to this study, its limitations, and suggestions for future studies.

2. LITERATURE REVIEW

2.1. Environment, Social, Governance (ESG) and its relevancies to firms and stakeholders

In conducting business processes, there are some tendencies for firms to create impacts, on the surroundings in which it operates. These impacts affect various elements of life, such as environmental conditions and social welfare. These are the externalities that can both be beneficial and harmful to the stakeholders of the firm (Laffont, 1989). However, the externalities from business activities are not the same for all firms. While some bring a lot of negative externalities, others give off a lot of positive externalities. This results in the different levels of expectations coming from stakeholders for companies to be involved in corporate social responsibility (CSR) or ESG-related activities (Chen et al., 2018; Dawkins & Lewis, 2003; Kolk et al., 2015). CSR itself is defined by Kotler and Lee (2005) as 'a commitment to improve community well-being through discretionary business practices and contributions of corporate resources'.

Firms' involvement in improving the social welfare of a community through ESG-related activities is beneficial, not just for the society, but also for the company (Księżak, 2017). For society, these types of activities benefit the unfortunates, reduce inequality, promote people in the society to contribute to the same cause, improve standards of living, better protection of the environment, and many more (Carroll & Buchholtz, 2015). For firms, CSR strengthens the relationship with its stakeholders, builds a better image, increases willingness to purchase, and ultimately improves customer loyalty toward the brand (Du et al., 2007; Wu & Wang, 2014).

With these various gains for many parties, how do ESG and CSR activities translate into firms' performance? Past studies have not provided a very conclusive answer. While some studies indicate a positive relationship between CSR and firm performance (Bocquet et al., 2017; Ikram et al., 2019; Saeidi et al., 2015; Saha et al., 2020), some other studies present a negative correlation (Theodoulidis et al., 2017), and others find that there is no significant correlation (Amrousy et al., 2012; Kang et al., 2010). Despite these mixed findings about the importance of ESG to a company, it is undeniable that what is considered shareholder value is transforming towards long-term value as shareholders are no longer just market representatives, but rather also agents of society (Deakin, 2005). This as a result motivates companies to increase their involvement with ESG-related

activities. To do so, multiple initiatives are done, including the inclusion of a golden parachutes clause within the contracts of executives to inspire them in choosing decisions that contribute to long-term shareholder value.

2.2. Golden parachutes

The use of golden parachutes, a payment that is used to compensate executives when a company merged or got acquired as part of executive compensation packages, in firms is a controversial topic among academicians (Choi, 2004). It is increasingly becoming a debatable topic in the business world, especially with recent occurrences of executives receiving such severance payments after deciding to leave or after unexpected scandals (Fiss, 2016).

Those that are in favor of its use as part of the agreement when recruiting executives contend that golden parachutes are attractive in the view of talented executives and that they can encourage them to stay longer in the company (Maskara & Miller, 2018; Rau & Xu, 2013). Lefanowicz et al. (2000) present their finding that golden parachutes can act as a resistor for executives to discuss acquisition gains when their loss of salary exceeds the amount gained from acquisitions. Huo et al. (2021) also mentioned that golden parachutes help in managing conflicts that might occur during the process of acquisition. Furthermore, Mcmillan and Reisinger (1983), in their study about golden parachutes as protection for executives during a takeover, point out how golden parachutes motivate executives to be more objective in their decision-making, especially in the case of an acquisition.

There are some criticisms against the inclusion of golden parachutes in executives' contracts. Evans and Hefner (2009) perceive golden parachutes as a managerial excess. It becomes an even more debatable point because, with this clause, it usually comes to activation in the circumstances when a firm is massively disrupted by a merger or acquisition, at the same time, others in the company face the possibility of them being laid off. This seems like an unempathetic move for firms, especially in the eye of all the stakeholders. Furthermore, with this clause in place, executives who have served the firm for only a short period will receive a high severance, which looks like a form of unfairness to the view of the long-serving executives.

Little studies are done on the relationship between golden parachutes and ESG. Golden parachutes, as an element in the contracts of executives, is regarded as part of the governance pillar of ESG. Hence, for it to be advantageous to the wider society, its impact on stakeholders needs to be assessed thoroughly. Golden parachutes can benefit a firm's shareholders indirectly by smoothing the process of mergers and acquisitions which in the case this happens, shareholders can cash in and terminate implicit agreement with other stakeholders (Shleifer & Summers, 1988). Further, there is also an argument that because of acquisitions, which process is catalyzed by golden parachutes, employee tends to get salary cut higher than the premium they receive (Hanly, 1992). Understanding these, it is apparent that golden parachutes can bring both positives and negatives toward different stakeholders.

3. HYPOTHESIS DEVELOPMENT

When developing a corporate strategy, various measures are within the plan to ensure that, during its implementation, it truly drives the firm towards the predetermined objective. One option is for the board of directors to set up some control mechanisms as means to guide and influence the decision-making process of the executives. In this regard, control mechanisms are introduced to encourage executives to take decisions that favor long-term value creation and increment of the firm's ESG score. In this study, I argue that the golden parachutes can stand as a control mechanism as part of executives' compensation package.

Seen by many as an excessive payout to executives, multiple studies have put a focus on golden parachutes' role in executive compensation. However, as providing long-term values for all stakeholders is becoming more important, looking at golden parachutes' impact on ESG scores provides a more relevant depiction if the clause really contributes to the purpose of the company. Following that, executives' attention may then shift towards maximizing long-term value through the creation of higher ESG scores as it would maximize their wealth. Thus, under this assumption, I contend that golden parachutes can be an element of motivation for executives to support this purpose, that is via the maximization of long-term stakeholders' value.

3.1. Short-term executive compensation

The major component of short-term executive compensation consists of salary and bonus. Salary is the total amount of fixed compensation paid to the executives for their contribution to the firm. Knowing that salary is paid on a short-term basis, the focus of executives when the intention is to increase salary is not on long-term value creation for stakeholders. Hence, executives are less likely to take actions that would contribute to ESG when there is an increase in salary.

Bonuses meanwhile are incentives given to executives for being able to achieve certain predetermined objectives that have been set by the board. Typically, these are short-term goals that span one fiscal year. For that reason, like salary, a bonus usually influences executives' decisions towards opting for ones that would increase the firm's short-term value. As a result, it tends to discourage executives from supporting on ESG related activities.

When it comes to the connection between short-term executive compensation and golden parachutes, I argue that there is a negative cross effect relationship with ESG scores. The reasoning of this lies on the more transient nature of short-term executive compensation which makes it more certain in terms of value or benefits for the executives compared to golden parachutes. This is due to the value of golden parachutes that is more long-term oriented.

Putting these views into consideration, the first two hypotheses that I am going to consider in this study are the following:

H1. There is a negative relationship between short-term executive compensation and ESG scores as well as its pillar scores.

H2. The cross effect between short-term executive compensation and golden parachutes is negatively correlated with the ESG scores as well as its pillar scores.

3.2. Long-term executive compensation

In this study, long-term executive compensation is defined as stock options and other long-term incentives received by the executives. These are components of the executive compensation given to executives for achieving predetermined objectives that span more than one fiscal year. In contrast to short-term executive compensation, long-term executive compensation aligns the

executives' interests with the stakeholders' interests through the means of increasing long-term firm value where both the executives and the stakeholders benefit.

The rationale is that when long-term compensation is present, there is a motivation for executives to involve the company in ESG-related activities which would drive up the firm's long-term value in the market. As typically this type of compensation is presented in the form of stock ownership within the company, executives will experience gains when the stock value rises in the long run. For this reason, long-term executive compensation is more likely to encourage executives toward supporting ESG-related activities within the firm.

When it comes to the connection between long-term executive compensation and golden parachutes, I expect that there is a positive cross effect relationship on ESG score. This is due to both components being long-term oriented (Okafor & Ujah, 2020). Further, with the existence of golden parachutes, executives no longer need to worry about their stock ownership in the firm as there is always an assurance in the case that they are dismissed after an acquisition. Therefore, executives are more likely to invest in ESG-related activities.

Putting these views into consideration, the third and the fourth hypotheses that I am going to consider in this study are the following:

H3. There is a positive relationship between long-term executive compensation and ESG scores as well as its pillar scores.

H4. The cross effect between long-term executive compensation and golden parachutes is positively correlated with the ESG scores as well as its pillar scores.

3.3. Differences in executives' age

Further, I test if the difference in age of executives affects the impact of golden parachutes as an element of a motivator for decisions made for long-term value. The rationale is that executives of different ages are likely to have different characteristics, resulting in different behaviors and approaches when making decisions. One example is related to risk-taking behavior, whereby older executives tend to be more risk-averse compared to younger ones (Serfling, 2014). Therefore,

companies led by older executives are expected to be more conservative with their decisions and prioritize stability over long-term value. Executives nearing the retirement age are more likely to favor decisions that contribute to short-term value. Barba Navaretti et al. (2021), in a study of European manufacturing firms, find that younger CEOs tend to pursue growth, while the older ones aim for profitability more. This is reflected in the total investments in research and development where younger executives tend to invest more on this account compared to older executives (Serfling, 2014).

Taking these characteristics into consideration, I argue that young executives are going to involve more socially responsible and ESG score supporting actions within their strategy than older executives. This is because there is a higher chance that young executives would benefit more from the long-term value creation of the firm through the long-term aspect of the executive compensation package. Meanwhile, older executives might serve for only a few more years in the firm. Understanding this situation, I contend that the golden parachutes can become the mediator to this condition.

When it comes to the connection between executives' age and golden parachutes, I argue that their cross effect on ESG scores is negative. It means that the effect of the difference in age of executives is distinct from the existence or nonexistence of golden parachutes in the contracts. The rationale is that as older executives have less time left in the management team, they are more likely to support investments that add certain values and contribute to achieving their targets in the short term. Meanwhile, there is an element of uncertainty with golden parachutes as it is usually only triggered in the case of takeovers (Lefanowicz et al., 2000).

Putting these views into consideration, the fifth and the sixth hypotheses in this study are:

H5. There is a negative relationship between executives' age and ESG scores as well as its pillar scores.

H6. The cross effect between executives' age and golden parachutes is negatively correlated with the ESG scores as well as its pillar scores.

3.4. Golden parachutes

Finally, I look at the effect of golden parachutes on ESG scores. The golden parachutes is a form of a clause that benefits the executives in the long run, especially in the case that a firm gets acquired and its contracts get terminated. Taking into consideration its long-term orientation, golden parachutes is a good element for aligning the interests of both the executives and the stakeholders. Hence, I argue that the golden parachutes is positively associated with ESG scores.

Putting these views into consideration, the final hypothesis in this study is:

H7. There is a positive relationship between golden parachutes and ESG scores as well as its pillar scores.

4. DATA AND METHODOLOGY

4.1. Data sources

Testing the hypothesis that has been developed, I use firm-level data, including ESG score, executive compensation, golden parachute, as well as financial and accounting data. I obtain the data from the following databases, namely Refinitiv Eikon for ESG score, ExecuComp for the executive's compensation data, Institutional Shareholder Services for golden parachutes data, and Refinitiv Eikon for financial data. The sample I use in this study consist of US publicly traded companies that are listed in the S&P 1500 Index between the year 2007 and 2018. As I drop the missing observations from the data set and aggregate all the individual data, transforming it into a firm-level data set, I end up having an unbalanced panel data of 9,209 observations from 1,294 companies between 2007 and 2018.

4.2 Model development

Using the companies listed in the S&P 1500 Index as a sample, I test the hypotheses that have been mentioned with the following basic equation:

$$ESG\_Pillar_{it} = \beta_1 COMP_{t-1} + \beta_2 GP_{it} + \beta_3 COMP_{t-1} * GP_{it} + \beta_4 Age_{it} + \beta_5 Age_{it} * GP_{it} + \beta_6 Size_{it} + \beta_7 Leverage_{it} + \beta_8 Capex_{it} + \beta_9 Cashflow_{it} + IndustryFE + \varepsilon_{it} \quad (4.1)$$

4.2.1. Dependent variable

The dependent variable in this study is the ESG_Pillar_{it} which is replaced by the ESG score and its three pillars, namely environmental pillar score, social pillar score, and governance pillar score. I collect the data for ESG score and its pillars from the Refinitiv Eikon ESG database. Refinitiv Eikon ESG data is one of the research data gathered and standardized by a global provider of financial market data and infrastructure.

Refinitiv Eikon ESG data defines the ESG score as the overall score attained by a company as measured by the self-reported information on the environmental pillar, social pillar, and governance pillar. Each of these pillars is scored between 0% to 100% based on the ten themes that form the foundation of the three pillars. The ESG score reflects the relative ESG performance, commitment, and effectiveness of a firm.

The environmental pillar covers themes such as the use of resources, emissions, and innovation. As for the social pillar, four different themes are covered, including workforce, human rights, community, and product responsibility. The governance pillar is related to other themes, namely management, shareholders, and CSR strategy. All these themes are measured with 186 of the most relevant and most comparable metrics out of the more than 500 ESG measures that have been collected. It is important to note that the weighing of scores for environmental and social pillars that make up the final ESG score varies across different industries, while the weighing on the governance pillar is static for all industries. Taking this information into consideration, it is important to control for industry differences in this study as we only want to identify the impact of variables that vary over time and prevent systematic differences in risk and performances across industries from conflicting with the findings of the study.

As the counting of ESG scores is done for each firm, Refinitiv Eikon ESG data translates the score into letter grading. This depends on the score range that is applicable with D- being the lowest grade, while A+ being the highest. Letter grades are interpreted with two characteristics in mind, the relative ESG performance and the level of transparency in reporting. Companies with a grade of D- to D+ or a score of 0% to 25% are considered to have a poor relative ESG performance and inadequate level of transparency. C- to C+ or a score of 25% to 50% means that a company is satisfactory in terms of relative ESG performance with a moderate level of transparency. B- to B+ or a score of 50% to 75% shows that a company has a good relative ESG performance with

transparency in reporting that exceeds the average. Finally, A- to A+ or a score between 75% to 100% represents an excellent relative ESG performance with a massive level of transparency in reporting. Essentially, the letter grading for each company ease the process of interpreting companies' ESG score.

4.2.1. Independent variable

The independent variables in this study are $COMP_{t-1}$, GP_{it}, Age_{it}. The variable $COMP_{t-1}$ is defined as the compensation received by the executives during the respective year, which would be substituted with short-term compensation, comprising salary and bonus, as well as long-term compensation, comprising stock options and other long-term incentives. GP_{it} is a dummy variable that shows whether golden parachutes are included as a clause in executives' contracts (1) or not (0). Age_{it} is also a dummy variable used to indicate if an executive is below 64 years old (0) or above 64 years old (1). These variables are to be tested as to whether any association is present with the dependent variable. On a side note, I include the variable $IndustryFE$ to account for the differences in the industry of the companies making up the S&P 1500 Index.

4.2.2. Control variable

Control variables related to the companies are included in the study to account for the differences that could inflict the validity of the inferences from the independent variables of interest (Pedhazur & Schmelkin, 2013). In this study, some firm-specific variables are used as control variables, namely $Size_{it}$, $Leverage_{it}$, $Capex_{it}$, and $Cashflow_{it}$. The rationale is that the amount of executive compensation and golden parachutes in the contracts of the executives are often tied to these variables (Hill et al., 2016). Moreover, these variables often depict a company's ability to make investments in CSR activities (Badulescu et al., 2018; Udayasankar, 2008).

$Size_{it}$ indicates the size of the firms as measured by the natural logarithm of the total sales of the respective companies. $Leverage_{it}$ is represented by average the debt-to-equity (D/E) ratio of each company. $Capex_{it}$ or capital expenditure is defined as the total investments made by the company which involve monetary outflow but are not regarded as a cost. $Cashflow_{it}$ is the operating of the company after deduction on interest, taxes, and dividends, as well as the inclusion of depreciation.

4.3. Methodology

Taking into consideration the two-dimensional nature of our dataset with the presence of cross-sectional and time-series elements, I am using a panel data analysis in this study. Within the panel data analysis, I am controlling for a firm's characteristics that do not change over time, that is the industry in which the companies operate by incorporating industry categorical variables to introduce the industry fixed effects. The reason for including such control is due to the different ways companies in different industries perceive and treat ESG-related activities, both in their approaches and reporting (Sweeney & Coughlan, 2008). In estimating the relationship between the independent and the dependent variables of interest, I am using two distinct techniques of estimation, namely multiple linear regression and random effects generalized least squares (GLS) regression.

Testing for the hypotheses, I conduct regressions for each of the respective dependent variables, namely ESG score, environmental pillar score, social pillar score, and governance pillar score. Each of the dependent variables is regressed on our predictors of interest, short-term executive compensation, long-term executive compensation, executives' age, and golden parachutes.

Further, I also make use of three stages stepwise regression in doing the analysis. The rationale for including the iterative step-by-step process of adding potential predictor variables is to find the most applicable model for testing the hypotheses. In the first stage, I start by including only the linear terms in the model while excluding the golden parachutes dummy variable and the interaction terms (see equation 4.2).

$$ESG\_Pillar_{it} = \beta_1 COMP_{t-1} + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 Capex_{it} + \beta_5 Cashflow_{it} + IndustryFE + \varepsilon_{it} \quad (4.2)$$

In the second stage, I am adding the golden parachutes dummy variable to observe the explained variation within the dependent variable as a consequence of introducing a contractual clause in the executive compensation package, the golden parachutes (see equation 4.3).

$$ESG\_Pillar_{it} = \beta_1 COMP_{t-1} + \beta_2 GP_{it} + \beta_3 Size_{it} + \beta_4 Leverage_{it} + \beta_5 Capex_{it} + \beta_6 Cashflow_{it} + IndustryFE + \varepsilon_{it} \quad (4.3)$$

Finally, in the third stage of the stepwise regression, I am adding the interaction terms between both the compensation variables and the executives' age with the golden parachutes to measure the cross effects toward the explained variation within the dependent variable (see equation 4.4).

$$ESG\_Pillar_{it} = \beta_1 COMP_{t-1} + \beta_2 GP_{it} + \beta_3 COMP_{t-1} * GP_{it} + \beta_4 Size_{it} + \beta_5 Leverage_{it} + \beta_6 Capex_{it} + \beta_7 Cashflow_{it} + IndustryFE + \varepsilon_{it} \quad (4.4)$$

Also, to test for the relationship between golden parachutes and ESG scores, I first estimate the regression of ESG scores and its pillar scores on only golden parachutes with industry fixed effects (see equation 4.5), while adding the controls thereafter (see equation 4.6).

$$ESG\_Pillar_{it} = \beta_1 GP_{it} + IndustryFE + \varepsilon_{it} \quad (4.5)$$

$$ESG\_Pillar_{it} = \beta_1 GP_{it} + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 Capex_{it} + \beta_5 Cashflow_{it} + IndustryFE + \varepsilon_{it} \quad (4.6)$$

5. RESULTS

5.1. Correlation of variables

Figure 1 in the appendix presents the correlation between the variables incorporated in this study. When we look at the correlation between each of the pillar scores that make up the ESG score, we can see that there is a positive correlation between them. This correlation is particularly strong amongst environmental pillar scores and social pillar scores as the correlation exceed 0.70. Meanwhile, the correlation between these two pillars with the governance pillar score is rather moderate.

I also recognize that there is a relatively high correlation between the size of a firm – as measured with the natural logarithm of total sales – with the ESG score and pillar scores. This indicates that companies of larger size tend to score higher than smaller size companies when it

comes to ESG. It is rather an unsurprising finding as academic literatures show that bigger companies tend to invest more capital in ESG-related activities (Zbuchea & Pinzaru, 2017).

Furthermore, it is astonishing that there is a positive correlation between short-term executive compensation and ESG score along with its pillar scores, despite only a low degree of correlation. As for long-term executive compensation, there is a positive correlation with ESG score and pillar scores. Aside from these findings, there are no relevant and interesting findings about correlation to report.

5.2. Descriptive statistics

Table 1 in the appendix section provides the summary of the descriptive statistics. In the table, we find that our sample has performed rather poorly with a relatively low average ESG score of mean 43.8 and pillar scores of means 31.4, 45.5, and 52.4 for environmental, social, and governance pillars respectively. In this sample, we also find that variation within scores is quite substantial across the board with some scoring low, while others scoring extremely high scores of more than 90, demonstrating excellent relative ESG performance.

With regards to executives' compensation, both in the short-term (salary and bonus) and long-term (stock options and other long-term incentives), we find that executive compensations are at massively high values which reflects the increasing total compensation that has been reported in the past years. It exceeds 24 million dollars for short-term compensation and more than 500 million dollars for long-term compensation. However, it is important to note that there is a greater than the normal value of standard deviation, which explains the means that are far from the maximum values.

Also, within this study, 57 percent of the companies that make up the total sample incorporate the golden parachutes clause within the compensation contracts of the executives. As for the executives' age, only just about one percent of our sample are led by executives who are younger than 64 years old. A large portion is in their 50s with a mean age of 53.807. When looking at the financial and accounting measures of the sample, I also recognize that there is a relatively high variation among these samples which shows that the samples in the study come from diverse industries and are of different sizes.

5.3. Regression results

5.3.1. Short-term executive compensation and ESG scores

Table 2 and table 3 represent the findings on the relationship between short-term executive compensation and ESG scores with multiple linear regressions and panel random-effects GLS respectively.

We start by looking at the relationship between ESG score and short-term executive compensation. We regress the ESG score on short-term executive compensation with some control variables as seen in model I. We find that there is an insignificant relationship between the two variables. Next, in model II and model III, we incorporate golden parachutes and its interaction term with short-term executive compensation respectively. Here, we still find the relationship between ESG score and short-term executive compensation to be insignificant. Regarding the cross effect between short-term executive compensation and golden parachutes on ESG score, we see that there is an insignificant coefficient.

Second, we discover the association between environmental pillar score and short-term executive compensation as shown in models IV to VI. This time, we find a positive and significant relationship between environmental pillar score and short-term executive compensation at a magnitude of 0.001 at the 1% significance level. It indicates that an increase in short-term executive compensation by one thousand dollars would increase the environmental pillar score by 0.001 which goes against our hypothesis H1. After adding golden parachutes and its interaction term with short-term executive compensation, the relationship remains significant at the 1% level. However, we find this relationship is insignificant when we use panel random-effects GLS regression. When it comes to the cross effect between short-term executive compensation and golden parachutes on environmental pillar score, it appears to be insignificant.

Third, we do the same regressions on social pillar score and short-term executive compensation. Starting with just short-term executive compensation and controls on the right-hand side, we find an insignificant relationship as seen in model VII. Adding the golden parachutes and the interaction term on models VIII and IX, we see a positive and significant coefficient of 0.001 at the 10% level. This is not the case with panel random-effects GLS regression though as it is

insignificant, even after adding golden parachutes and its interaction term. Looking at the cross effect between short-term executive compensation and golden parachutes on social pillar score, we see identical results to what we investigated on ESG score and environmental pillar score where the relationship is insignificant.

Fourth, we look at how short-term executive compensation affects the governance pillar score. In all iterations of the model, we find that the coefficient is negatively significant with a magnitude of -0.001 at the 1% significance level. However, we cannot find any significance within the cross effect of short-term executive compensation and golden parachutes on governance pillar score.

Among the controls, we find significant coefficients at the 1% significance level for firm size, capital expenditure, and cash flow. The firm size variable as measured by the natural logarithm of the total sales has a positive coefficient. This is very much expected as bigger firms tend to have higher CSR budgets and have better access to reporting about ESG-related activities to the public (Baumann-Pauly et al., 2013; Zbuchea & Pinzaru, 2017). Meanwhile, we find negative relationships for both capital expenditure and cash flow.

In our study, we find that the evidence on the first two hypotheses is inconclusive. Regarding the direct relationship between short-term executive compensation and ESG score as well as its pillar scores, we recognize that the results are significant on all the pillar scores, except for the ESG score. While the coefficient is positive for the environmental pillar and social pillar score, it is negative on the governance pillar. Accounting for these outcomes, we can only reject the null hypotheses on the pillar scores and not the ESG score. Further, the only finding that supports our hypothesis is only the regressions on governance pillar score.

Concerning the cross effect of short-term executive compensation and golden parachutes on ESG score as well as its pillar scores, we find a consistent result across all the ESG measure components. We discover that the relationship is insignificant across the board with both estimation techniques. The insignificance of this relationship is likely to be caused by the different orientations between both short-term executive compensation and golden parachutes. While the earlier is a short-term element, the latter is a long-term element. Therefore, we cannot conclude

any universality of the relationships between ESG score and short-term executive compensation, along with golden parachutes.

5.3.2. Long-term executive compensation and ESG scores

To test the third and fourth hypotheses related to the relationship between ESG scores and long-term executive compensation, I present table 3 and table 4.

Beginning with the relationship between ESG score and long-term executive compensation, we see that through all the iterations we find an insignificant relationship between the two variables as shown in models I to III. As for the cross effect between long-term executive compensation and golden parachutes on ESG score, we find different results with both techniques of estimation. While with the multiple linear regression we find no evidence of a significant relationship, we find that with the panel random-effects GLS regression it is significant at the 5% significance level, although with a zero coefficient.

Second, we regress the environmental pillar score on long-term executive compensation and some controls as presented in model IV. We find a significant relationship between the two variables at the 5% significance level. It is still significant at the same level even after adding the golden parachutes to the equation. However, the significance drops to the 10% level after the interaction term between long-term executive compensation and golden parachutes is introduced to the model. We find a slightly different result with panel random-effects GLS regression, where across the three iterations, this relationship is significant only at the 10% level.

Third, we investigate the relationship between social pillar score and long-term executive compensation. We find that across all iterations of the regressions, the relationship between the two variables is insignificant. This finding is identical to what we see on the ESG score. Interestingly, the cross effect between long-term executive compensation and golden parachutes is highly significant at the 1% level in this regard.

Finally, we observe the association between governance pillar score and long-term executive compensation. Here we notice that when estimating governance pillar score only on long-term executive compensation and control variables, there is a significant relationship at the

5% significance level. It stays significant at the same level after introducing golden parachutes and its interaction term with long-term executive compensation. With the panel random-effects GLS regression, we also find significant findings across all iterations, only that it is significant to just the 10% level. The cross effect between long-term executive compensation and golden parachutes on governance pillar score, we find a negative and significant relationship of -0.001 at the 1% significance level. We also find that this is also the case with panel random-effects GLS regression, but the relationship is only at zero coefficient.

Our regression results on the relationship between ESG scores and long-term executive compensation lead us to an inconclusive finding. To start, we find that the relationships are significant on environmental pillar and governance pillar scores. Meanwhile, we discover insignificance for both ESG score and social pillar score. Taking these results into account, we can only reject the null hypothesis for environmental and governance pillars. Because of our conflicting discovery, we cannot make a definitive conclusion about this relationship.

When it comes to the cross effect of long-term executive compensation and golden parachutes on the ESG and pillar scores, using multiple linear regression, we only find a significant relationship on the social and governance pillars. Contrastingly, we see significant relationships across all when using panel random-effects GLS regression. This gives us an indication that collectively, long-term executive compensation and golden parachutes do not affect ESG scores, which does not support our hypothesis H4. All in all, these findings are inconclusive and further study is needed to make a definitive conclusion.

5.3.3. Executives' age and ESG scores

Next, we present the findings to test hypotheses H5 and H6 through table 6 and table 7.

We first observe the relationship between ESG score and executives' age. Starting with regression of ESG score on executives' age and control variables, we find a negatively significant relationship of -9.5 magnitude at the 1% significance level. As we introduce golden parachutes, its effect decreases slightly to -9.4. Further, after introducing the interaction term between executives' age and golden parachutes, we find that the coefficient has a value of -16.3 and is still significant at the 1% level. Interpreting this finding, it indicates that holding other variables constant, firms

with executives aging more than 64 years old score 16.3 less than firms with younger executives. This finding is consistent with hypothesis H5. However, we recognize that with the panel random-effects GLS regression, the relationship is only significant at the 10% level after adding the interaction term and with a much smaller magnitude of -3.9. Regarding the cross effect between executives' age and golden parachutes on ESG score, we also find a highly significant relationship, although with a positive coefficient of 13.7. This means firms that are led by older executives and are subject to golden parachutes within their executives' contracts are associated with a 13.7 higher ESG score which indicates that it goes against hypothesis H6. Meanwhile, this relationship is insignificant with panel random-effects GLS regression.

Second, we look at the relationship of environmental pillar score with executives' age. The results indicate a negatively significant relationship of -9.5 at the 1% significance level at the first iteration of the regressions. It stays significant at the 1% level with a coefficient of -15.2 after adding golden parachutes and its interaction term with executives' age into consideration. On the other hand, we find no significance in the relationship between the two variables using panel random-effects GLS regression. The cross effect between executives' age and golden parachutes also shows a positive and significant coefficient at the 1% significance level, despite a less strength of 11.4 compared to on ESG score. We also find an insignificant relationship using the panel random-effects GLS regression in this regard.

Third, the relationship between social pillar score and executives' age also presents a consistent finding with what we have seen on ESG score and environmental pillar score. The relationship is negatively significant at the 1% significance level on all iterations of the regression. This time though, the results with panel random-effects GLS regression indicate a negatively significant relationship at the 10% level on all three iterations. We also notice that there is a positive and significant association at the 1% level concerning the cross effect between executives' age and golden parachutes on social pillar score. However, we still cannot find any significance in this relationship with panel random-effects GLS regression.

Fourth, we investigate the relationship between governance pillar score and executives' age. Estimating the governance pillar score on just the executives' age with the controls this time results in a drop of significance to the 5% level compared to the 1% that we find on the ESG score

and the other two pillars. Nonetheless it still shows an inverse relationship. Further, significance is still nonexistent in this relationship when it is estimated using panel random-effects GLS regression. The cross effect of executives' age and golden parachutes on governance pillar score are positive and significant with both estimation techniques, although at two different levels. While this relationship is significant at the 1% significance level with the multiple linear regression, it is only significant up to the 10% level using the panel random-effects GLS regression.

The result of the regressions on the relationship between the ESG scores and the executives' age presents a highly negative and significant finding, in line with what we conjecture in the hypothesis. This applies across all dependent variables of interest, namely the ESG score and the three pillar scores. Therefore, we can reject the null hypothesis that there is no correlation between executives' age and ESG score along with the three pillars. This finding indicates that firms with older executives (64 years old and above) are less likely to involve in ESG-related activities that contribute to higher ESG and pillar scores. We reason that this is largely due to CSR and ESG-related activities usually translating their impact to firm value and performance only after some time. Older executives then may not get any of the benefits as they are approaching retirement. Accordingly, firms need to understand this difference and strategize with approaches that fit the age category of their executives so that it drives them to engage in more initiatives that support the ESG scores.

The evidence on the cross effect between executives' age and golden parachutes on ESG and pillar scores show that there are positive and significant relationships, which goes against our hypothesis. The results of the regression strongly suggest that we can reject the null of no effect for the ESG score and all the pillar scores. With this finding in mind, the key implication is that golden parachutes prove to be an element of incentive that firms can incorporate in executive contracts to motivate older executives toward decisions that benefit all stakeholders and drive up ESG and pillar scores.

5.3.4. Golden parachutes and ESG scores

Finally, table 8 and table 9 represent the regression results to test for the last two hypotheses in this study.

First, we estimate the relationship between ESG score and golden parachutes. Regressing the ESG score on golden parachutes and control variables, we find a positive and significant result with both estimation techniques at a 1% significant level. The only difference is only at the magnitude where with the multiple linear regression, we recognize a smaller coefficient value of 1.2 compared to 2.4 using the panel random-effects GLS regression. Interpreting this finding means that firms that incorporate golden parachutes into their executives' contracts are associated with a 1.2 higher ESG score. This supports our hypothesis H7.

Looking at the association between environmental pillar score and golden parachutes, we also find a significant relationship. It is only that this time, with the environmental pillar, we find that the relationship is only significant up to the 5% level using the multiple linear regression. Meanwhile, with the panel random-effects GLS regression, it is only significant at the 10% level. Nonetheless, both results show a positive relationship between the two variables.

As for the connection between social pillar score and golden parachutes, we find close to identical results with what we find on the ESG score. Both estimation techniques yield a positively significant coefficient at a 1% significance level. The difference in the magnitude of the coefficient is also consistent with the one on the ESG score where we notice that with multiple linear regression, it is valued at 1.6, while it is 2.6 with the panel random-effects GLS regression.

Lastly, we do the same regression once more to test the relationship between governance pillar score and golden parachutes. Again, we observe a positive and significant result in this relationship. This time it is significant only up to 5% significance level with the multiple linear regression. On the other hand, using the panel random-effects GLS regression we see that the relationship between both variables is significant at 1% level.

Overall, our findings on how ESG scores and all the pillar scores relate to golden parachutes show a consistent result across the board. We find positive and significant results in the ESG score and all the pillar scores. This is in line with hypothesis H7 that we conjecture. Further, this finding is highly expected as past literature suggests that golden parachutes is effective for aligning the interests of executives with other stakeholders (Okafor & Ujah, 2020). This result

provides companies a clear sign that including golden parachutes into the contracts of executives can be one of the ways to increase a firm's engagement in ESG-related activities.

6. CONCLUSION AND RESEARCH LIMITATIONS

In this study, I investigate the role of golden parachutes in conjunction with an executive compensation package, including short-term compensation and long-term compensation, in motivating executives of different ages toward favoring decisions that lead to higher ESG scores for firms. This research aims to provide firms with clearer evidence of how these variables in executives' contracts affect the company's ESG score. Hence, firms can in the end define the proper strategy for realizing a mutual interest between executives and the other stakeholders. The study takes the US publicly traded firms in the S&P 1500 Index as a sample. We find that a positive relationship exists between golden parachutes and ESG scores. However, the cross effect with long-term compensation indicates little to no effect on the ESG scores of firms. When considering executives' age, we notice evidence of an inverse relationship with ESG scores. Nonetheless, by introducing golden parachutes to put in a cross effect, the relationship shows positive results.

These findings result in some key implications. First, golden parachutes can be an effective element to motivate executives toward making decisions that support ESG. This clause allows a firm to align the interest of both the executives and the stakeholders. Second, firms that look to increase the ESG score are better off having executives younger than 64 years old. This is due to the larger motivation within them to support ESG-related activities as a result of the benefits that may only come after a long time into the future, which may no longer be applicable for older executives. Third, golden parachutes can be an effective element of motivation for executives older than 64 years old to keep down the effect of age.

In this study, we have come up with some interesting findings. However, there are some limitations to point out. First, as the focus of this study is to define the role of golden parachutes along with short-term and long-term executive compensation in executive contracts among the constituents of the S&P 1500 Index in the US market from 2007 to 2018, the sample size is relatively limited. This is especially after dropping missing observations which also make our panel data unbalanced.

Second, based on the result of our RESET test for the appropriate estimation form, using a polynomial or other non-linear form is more suitable for this study. Due to this, some of the effects caused by other relevant variables that are excluded from the model may be regarded to be caused by the variables in the model. Hence, including polynomial regression instead of standard regression may be more beneficial and provide a more accurate estimate for this study.

Third, there is inconsistency in the industry classification system between the one used in the study and the making of ESG Score and pillar scores by Refinitiv. In calculating the ESG score, two of the three pillars, the environmental pillar and social pillar, are weighed differently across industries. Refinitiv uses The Refinitiv Business Classification (TRBC – Industry Group) as the basis for weighing the scores. Meanwhile, in introducing the industry fixed effects, we are using the major groups of the Standard Industry Classification (SIC) codes. Although this inconsistency may not cause a substantial issue in the finding, it is important to recognize it as it can still affect the impartiality of the study.

There are some notable recommendations for future research that I acknowledge from doing this study. This study takes the US market as the context of observations. However, the study on the role of golden parachutes and executive compensation on ESG is beneficial for any part of the world, especially with the increasing awareness among society about ESG. Hence, conducting a similar study taking other markets as a context will be a recommendation. Finally, including other fixed effects separately to control for other characteristics in a firm that do not change over time like firm fixed effects will also be beneficial to get a more conclusive finding.

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APPENDIX

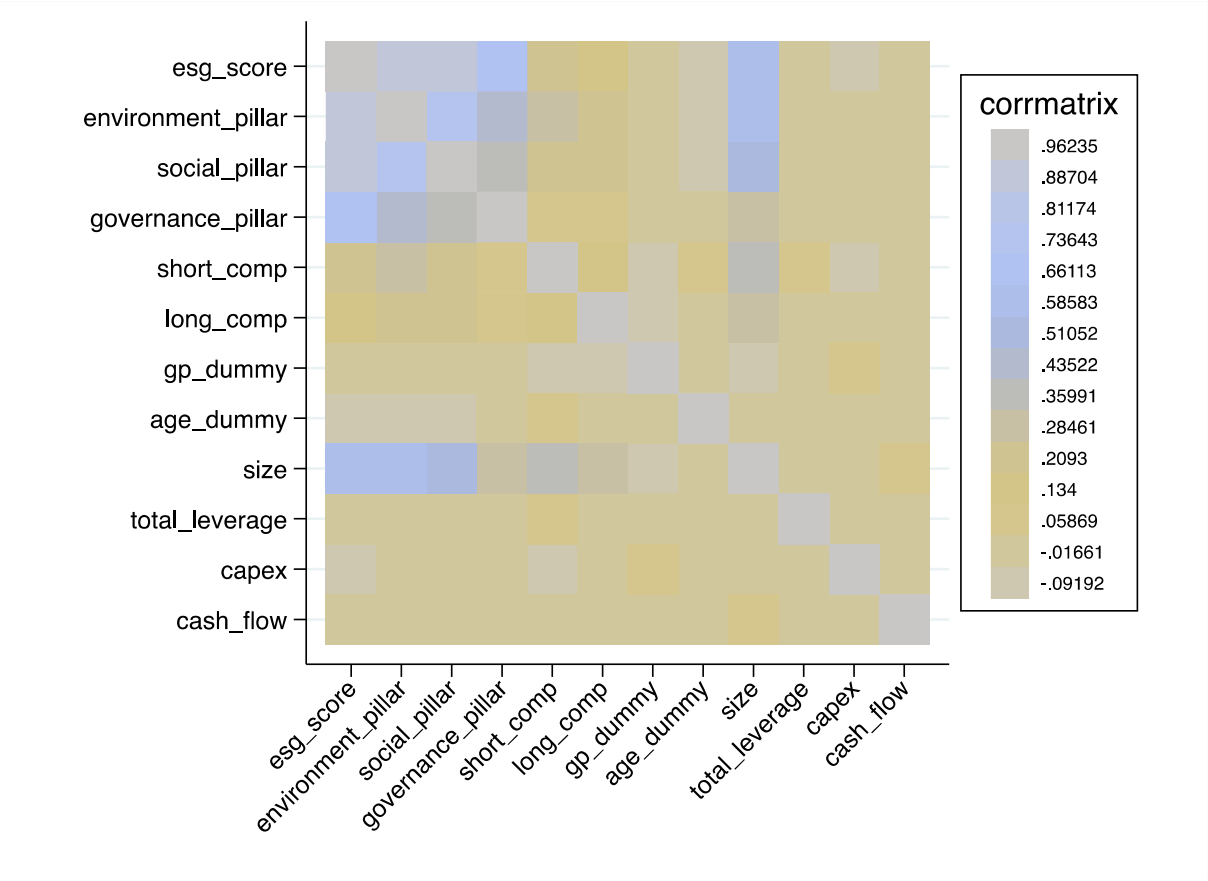

Figure 1. Correlation between variables as shown in heatmap

Table 1. *Descriptive statistics summary*

Variables	Observations	Mean	Std. Dev	Min	Max
esg_score	9,209	43.822	19.078	0.590	95.150
environment_pillar	9,209	31.380	28.231	0.000	98.550
social_pillar	9,209	45.464	20.782	0.720	97.950
governance_pillar	9,209	52.449	21.540	0.290	98.640
short_comp	9,209	733.976	665.034	0.000	24,665.470
long_comp	9,209	3,623.712	7,577.787	0.000	579,641.200
gp_dummy	9,209	0.574	0.495	0.000	1.000
age_dummy	9,209	0.011	0.106	0.000	1.000
size	9,209	15.133	1.541	4.454	20.059
total_leverage	9,209	2.767	34.378	-855.696	2,557.103
capex	9,209	4.890	7.010	0.000	266.500
cash_flow	9,209	9.659	663.214	-62,058.140	167.390

Note: esg_score is defined as the as the overall ESG performance attained by a company as measured by the self-reported information on environmental pillar, social pillar, and governance pillar. environment_pillar, social_pillar, and governance_pillar represent the weighted score for each ESG pillars, environmental, social, and governance respectively. short_comp is the current total executive compensation which includes salary and bonus. long_comp is the long-term component of the executive compensation, including stock options and other incentives. Both compensation variables are presented in thousands of dollars ($). gp_dummy is a dummy variable which indicates whether golden parachute is included as a clause in executives' contracts, one (1) if yes or zero (0) if not. age_dummy is a dummy variable that shows the executives' age, zero (0) if <64 and one (1) if ≥64. size is the log value of the total sales of a firm. total_leverage is defined as the ratio of total liabilities to total equity. capex is the total capital expenditures adjusted to total assets. cash_flow is the net cash flow of the firm.

Table 2. *Multiple linear regression results for testing hypotheses H1 and H2*

Variable	esg_score			environment_pillar			social_pillar			governance_pillar		
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
short_comp	0.000	0.000	0.000	0.001***	0.001***	0.001***	0.000	0.001*	0.001*	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
gp_dummy		1.231***	0.629		1.136**	1.346		1.605***	1.677***		1.006**	1.293*
		(0.328)	(0.580)		(0.456)	(0.852)		(0.364)	(0.630)		(0.449)	(0.758)
stcomp_gp			0.001			-0.000			-0.000			-0.000
			(0.001)			(0.001)			(0.001)			(0.001)
size	7.961***	8.004***	7.976***	12.209***	12.248***	12.258***	8.155***	8.211***	8.214***	4.582***	4.617***	4.630***
	(0.122)	(0.123)	(0.125)	(0.169)	(0.169)	(0.173)	(0.144)	(0.145)	(0.148)	(0.160)	(0.161)	(0.165)
total_leverage	-0.006	-0.005	-0.005	-0.003	-0.003	-0.003	-0.005	-0.004	-0.004	-0.007	-0.007	-0.007
	(0.005)	(0.005)	(0.005)	(0.007)	(0.007)	(0.007)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
capex	-0.165***	-0.163***	-0.163***	-0.190***	-0.188***	-0.188***	-0.114***	-0.111***	-0.111***	-0.115***	-0.114***	-0.114***
	(0.038)	(0.037)	(0.037)	(0.040)	(0.040)	(0.040)	(0.031)	(0.030)	(0.030)	(0.044)	(0.044)	(0.044)
cash_flow	-0.001***	-0.001***	-0.001***	-0.002***	-0.002***	-0.002***	-0.001***	-0.001***	-0.001***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-49.005***	-50.456***	-50.129***	-122.078***	-123.416***	-123.530***	-53.106***	-54.997***	-55.036***	10.755***	9.570**	9.414**
	(2.454)	(2.530)	(2.558)	(3.388)	(3.473)	(3.490)	(2.548)	(2.595)	(2.618)	(3.764)	(3.854)	(3.871)
Observations	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209
R-squared	0.426	0.427	0.427	0.476	0.477	0.477	0.388	0.389	0.389	0.165	0.165	0.165
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: The ***, **, and * represent p values <0.01, <0.05, and <0.1 respectively. Robust standard errors are in parentheses.

Table 3. *Panel random-effects GLS regression results for testing hypotheses H1 and H2*

Variable	esg_score			environment_pillar			social_pillar			governance_pillar		
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
short_comp	-0.000	-0.000	-0.000	0.000	0.000	0.000	0.000	0.001	0.000	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
gp_dummy		2.349***	1.812*		1.960*	0.247		2.628***	2.003*		2.455**	3.290**
		(0.759)	(1.045)		(1.087)	(1.486)		(0.884)	(1.102)		(0.958)	(1.308)
stcomp_gp			0.001			0.003			0.001			-0.001
			(0.001)			(0.002)			(0.001)			(0.001)
size	7.382***	7.445***	7.421***	10.223***	10.277***	10.199***	6.949***	7.013***	6.985***	5.072***	5.147***	5.186***
	(0.281)	(0.282)	(0.284)	(0.413)	(0.415)	(0.418)	(0.343)	(0.343)	(0.345)	(0.306)	(0.307)	(0.312)
total_leverage	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
capex	-0.165***	-0.165***	-0.165***	-0.232***	-0.232***	-0.232***	-0.102***	-0.102***	-0.102***	-0.116*	-0.116*	-0.116*
	(0.064)	(0.064)	(0.064)	(0.088)	(0.088)	(0.088)	(0.037)	(0.037)	(0.037)	(0.063)	(0.063)	(0.063)
cash_flow	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-67.340***	-69.698***	-69.249***	-124.159***	-126.150***	-124.701***	-60.161***	-62.719***	-62.198***	-22.302***	-24.907***	-25.634***
	(4.019)	(4.112)	(4.165)	(5.825)	(5.984)	(6.045)	(4.927)	(5.006)	(5.039)	(4.485)	(4.618)	(4.709)
Observations	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209

Note: The ***, **, and * represent p values <0.01, <0.05, and <0.1 respectively. Robust standard errors are in parentheses.

Table 4. *Multiple linear regression results for testing hypotheses H3 and H4*

Variable	esg_score			environment_pillar			social_pillar			governance_pillar		
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
long_comp	0.000	0.000	0.000	0.000**	0.000**	0.000*	0.000	0.000	0.000	-0.000**	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
gp_dummy		1.225***	1.375***		1.081**	1.459**		1.590***	0.561		1.028**	3.527***
		(0.328)	(0.445)		(0.455)	(0.617)		(0.363)	(0.503)		(0.447)	(0.605)
ltcomp_gp			-0.000			0.000			0.000***			-0.001***
			(0.000)			(0.000)			(0.000)			(0.000)
size	7.973***	8.021***	8.046***	12.320***	12.362***	12.424***	8.163***	8.226***	8.057***	4.604***	4.644***	5.055***
	(0.111)	(0.112)	(0.125)	(0.159)	(0.161)	(0.175)	(0.153)	(0.153)	(0.156)	(0.182)	(0.183)	(0.173)
total_leverage	-0.006	-0.005	-0.005	-0.003	-0.003	-0.003	-0.005	-0.004	-0.004	-0.008	-0.008	-0.009*
	(0.005)	(0.005)	(0.005)	(0.007)	(0.008)	(0.008)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
capex	-0.165***	-0.163***	-0.163***	-0.192***	-0.191***	-0.190***	-0.115***	-0.113***	-0.115***	-0.111**	-0.109**	-0.105**
	(0.038)	(0.037)	(0.037)	(0.040)	(0.040)	(0.040)	(0.031)	(0.030)	(0.030)	(0.044)	(0.043)	(0.043)
cash_flow	-0.001***	-0.001***	-0.001***	-0.002***	-0.002***	-0.002***	-0.001***	-0.001***	-0.001***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-49.126***	-50.630***	-50.838***	-123.169***	-124.496***	-125.024***	-53.163***	-55.115***	-53.680***	10.469***	9.208**	5.721
	(2.390)	(2.474)	(2.510)	(3.345)	(3.438)	(3.460)	(2.585)	(2.639)	(2.654)	(3.804)	(3.895)	(3.479)
Observations	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209
R-squared	0.426	0.427	0.427	0.476	0.476	0.476	0.388	0.389	0.390	0.166	0.167	0.171
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: The ***, **, and * represent p values <0.01, <0.05, and <0.1 respectively. Robust standard errors are in parentheses.

Table 5. *Panel random-effects GLS regression results for testing hypotheses H3 and H4*

Variable	esg_score			environment_pillar			social_pillar			governance_pillar		
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
long_comp	0.000	0.000	0.000	0.000*	0.000*	0.000*	0.000	0.000	0.000	-0.000*	-0.000*	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
gp_dummy		2.350***	1.627**		1.927*	0.313		2.589***	1.375		2.528***	3.783***
		(0.759)	(0.797)		(1.084)	(1.134)		(0.884)	(0.908)		(0.959)	(1.065)
ltcomp_gp			0.000**			0.001***			0.000***			-0.000***
			(0.000)			(0.000)			(0.000)			(0.000)
size	7.354***	7.419***	7.284***	10.180***	10.235***	9.930***	6.959***	7.025***	6.793***	5.006***	5.087***	5.315***
	(0.272)	(0.273)	(0.279)	(0.402)	(0.405)	(0.408)	(0.326)	(0.327)	(0.337)	(0.304)	(0.306)	(0.312)
total_leverage	-0.002	-0.002	-0.002	-0.003	-0.003	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
capex	-0.164***	-0.165***	-0.166***	-0.230***	-0.230***	-0.233***	-0.101***	-0.101***	-0.104***	-0.117*	-0.117*	-0.115*
	(0.063)	(0.063)	(0.064)	(0.087)	(0.087)	(0.087)	(0.031)	(0.037)	(0.037)	(0.063)	(0.063)	(0.063)
cash_flow	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-67.008***	-69.395***	-67.346***	-123.444***	-125.425***	-120.802***	-60.062***	-62.610***	-59.102***	-21.943***	-24.664***	-28.125***
	(3.941)	(4.043)	(4.124)	(5.731)	(5.905)	(5.933)	(4.747)	(4.827)	(4.968)	(4.487)	(4.624)	(4.729)
Observations	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209

Note: The ***, **, and * represent p values <0.01, <0.05, and <0.1 respectively. Robust standard errors are in parentheses.

Table 6. *Multiple linear regression results for testing hypotheses H5 and H6*

Variable	esg_score			environment_pillar			social_pillar			governance_pillar		
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
age_dummy	-9.460***	-9.381***	-16.296***	-9.540***	-9.471***	-15.219***	-11.920***	-11.817***	-18.434***	-5.244**	-5.174**	-12.820***
	(1.388)	(1.363)	(1.829)	(1.708)	(1.693)	(2.612)	(1.494)	(1.466)	(1.672)	(2.106)	(2.090)	(2.649)
gp_dummy		1.196***	1.035***		1.027**	0.894*		1.539***	1.385***		1.049**	0.872*
		(0.327)	(0.329)		(0.455)	(0.458)		(0.363)	(0.365)		(0.448)	(0.450)
gp_age			13.730***			11.413***			13.139***			15.181***
			(2.574)			(3.359)			(2.792)			(3.997)
size	7.945***	7.994***	7.994***	12.428***	12.471***	12.471***	8.204***	8.268***	8.268***	4.370***	4.413***	4.414***
	(0.107)	(0.108)	(0.107)	(0.147)	(0.148)	(0.148)	(0.129)	(0.130)	(0.130)	(0.149)	(0.151)	(0.150)
total_leverage	-0.006	-0.005	-0.005	-0.003	-0.003	-0.003	-0.005	-0.004	-0.004	-0.008	-0.008	-0.008
	(0.005)	(0.005)	(0.005)	(0.007)	(0.008)	(0.008)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
capex	-0.164***	-0.163***	-0.162***	-0.189***	-0.187***	-0.187***	-0.113***	-0.111***	-0.110***	-0.115***	-0.114***	-0.113***
	(0.038)	(0.037)	(0.037)	(0.040)	(0.040)	(0.039)	(0.030)	(0.030)	(0.030)	(0.044)	(0.044)	(0.044)
cash_flow	-0.001***	-0.001***	-0.001***	-0.002***	-0.002***	-0.002***	-0.001***	-0.001***	-0.001***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-48.670***	-50.164***	-50.085***	-124.166***	-125.449***	-125.383***	-53.399***	-55.321***	-55.246***	13.026***	11.715***	11.803***
	(2.367)	(2.451)	(2.444)	(3.270)	(3.360)	(3.355)	(2.444)	(2.500)	(2.497)	(3.726)	(3.825)	(3.816)
Observations	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209
R-squared	0.428	0.429	0.430	0.477	0.477	0.477	0.391	0.392	0.393	0.165	0.165	0.167
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: The ***, **, and * represent p values <0.01, <0.05, and <0.1 respectively. Robust standard errors are in parentheses.

Table 7. *Panel random-effects GLS regression results for testing hypotheses H5 and H6*

Variable	esg_score			environment_pillar			social_pillar			governance_pillar		
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
age_dummy	-1.227	-1.195	-3.905*	0.631	0.659	-1.376	-2.834*	-2.806*	-3.901*	-0.082	-0.027	-4.960
	(1.403)	(1.390)	(2.318)	(1.880)	(1.877)	(3.223)	(1.484)	(1.480)	(2.228)	(2.590)	(2.571)	(4.426)
gp_dummy		2.340***	2.268***		1.940*	1.887*		2.580***	2.550***		2.527***	2.400**
		(0.757)	(0.757)		(1.085)	(1.085)		(0.883)	(0.885)		(0.960)	(0.960)
gp_age			4.720			3.545			1.896			8.687*
			(2.890)			(4.003)			(3.022)			(5.224)
size	7.360***	7.425***	7.417***	10.271***	10.326***	10.322***	7.005***	7.071***	7.067***	4.913***	4.994***	4.986***
	(0.271)	(0.272)	(0.272)	(0.404)	(0.407)	(0.407)	(0.335)	(0.336)	(0.336)	(0.298)	(0.300)	(0.299)
total_leverage	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
capex	-0.165***	-0.165***	-0.165***	-0.232***	-0.232***	-0.232***	-0.102***	-0.103***	-0.103***	-0.115*	-0.115*	-0.115*
	(0.063)	(0.063)	(0.063)	(0.088)	(0.088)	(0.088)	(0.037)	(0.037)	(0.037)	(0.062)	(0.062)	(0.062)
cash_flow	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-67.045***	-69.430***	-69.272***	-124.628***	-126.618***	-126.525***	-60.616***	-63.161***	-63.080***	-20.772***	-23.485***	-23.294***
	(3.934)	(4.036)	(4.037)	(5.755)	(5.930)	(5.930)	(4.861)	(4.948)	(4.946)	(4.428)	(4.568)	(4.562)
Observations	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209	9,209

Note: The ***, **, and * represent p values <0.01, <0.05, and <0.1 respectively. Robust standard errors are in parentheses.

Table 8. *Multiple linear regression results for testing hypotheses H7*

Variable	esg_score	environment_pillar	social_pillar	governance_pillar
	I	II	III	IV
gp_dummy	1.225***	1.057**	1.576***	1.065**
	(0.328)	(0.455)	(0.363)	(0.448)
size	8.023***	12.501***	8.305***	4.430***
	(0.108)	(0.148)	(0.130)	(0.151)
total_leverage	-0.005	-0.003	-0.004	-0.007
	(0.005)	(0.008)	(0.004)	(0.005)
capex	-0.163***	-0.188***	-0.111***	-0.114***
	(0.037)	(0.040)	(0.030)	(0.044)
cash_flow	-0.001***	-0.002***	-0.001***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-50.654***	-125.944***	-55.939***	11.445***
	(2.454)	(3.360)	(2.504)	(3.827)
Observations	9,209	9,209	9,209	9,209
R-squared	0.427	0.476	0.389	0.165
Industry FE	YES	YES	YES	YES

Note: The ***, **, and * represent p values <0.01, <0.05, and <0.1 respectively. Robust standard errors are in parentheses.

Table 9. *Panel random-effects GLS regression results for testing hypotheses H7*

Variable	esg_score	environment_pillar	social_pillar	governance_pillar
	I	II	III	IV
gp_dummy	2.353***	1.937*	2.601***	2.528***
	(0.759)	(1.085)	(0.885)	(0.960)
size	7.439***	10.326***	7.084***	4.996***
	(0.274)	(0.408)	(0.338)	(0.300)
total_leverage	-0.002	-0.003	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.003)
capex	-0.165***	-0.232***	-0.103***	-0.115*
	(0.064)	(0.088)	(0.037)	(0.062)
cash_flow	-0.001***	-0.001***	-0.001***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-69.651***	-126.608***	-63.403***	-23.525***
	(4.060)	(5.949)	(4.975)	(4.570)
Observations	9,209	9,209	9,209	9,209

Note: The ***, **, and * represent p values <0.01, <0.05, and <0.1 respectively. Robust standard errors are in parentheses.

Table 10. *White's heteroskedasticity test*

Source	chi2	df	p
Heteroskedasticity	1688.21	540	0.0000
Skewness	216.36	69	0.0000
Kurtosis	26.46	1	0.0000
Total	1931.02	610	0.0000

chi2(540) = 1688.21
Prob > chi2 = 0.000

Note: To test for the presence of heteroskedasticity, I conduct White's heteroskedasticity test on the linear regression model. The result of the test indicates that our model contains heteroskedasticity as the *P*-value shows that the null hypothesis is rejected.

Table 11. Breusch-Pagan Lagrangian multiplier test for random effects

	Var	SD = sqrt(Var)
esg_score	363.9687	19.07796
e	81.66315	9.036767
u	117.9596	10.86092

chibar2(01) = 15086.01

Prob > chibar2 = 0.0000

Note: To test for the presence of heteroskedasticity, I conduct Breusch-Pagan LM test for random effects on the panel random-effects GLS regression. The result of the test indicates that our model contains heteroskedasticity as the *P*-values show that the null hypothesis is rejected.

Table 12. Wooldridge test for autocorrelation in panel data

H_0: no first order autocorrelation

F (1, 1235) = 1317.831

Prob > F = 0.0000

Note: To test for the presence of serial correlation or autocorrelation in our model, I use the Wooldridge test for autocorrelation in panel data. Our finding indicates that that our model contains autocorrelation as the *P*-values show that the null hypothesis is rejected.

Table 13. Ramsey RESET test

H_0: Model has no omitted variables

F (3, 9136) = 138.64

Prob > F = 0.0000

Note: To test for the appropriate form of estimation, I use the Ramsey RESET test. Our finding indicates that a polynomial or other non-linear form of estimations is more suitable for this study as the *P*-values show that the null hypothesis is rejected.