ESG CONTRACTING: GREED OR GREEN?

A GLOBAL STUDY OF OWNERSHIP INFLUENCE AND VALUE CREATION IN REGARD TO ESG CONTRACTING

ADÈLE SVEGER

REBECKA MANNERFORD

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Abstract:
This study investigates institutional and activist ownership pressure for implementing ESG contracting, and the potential value creation that follows in terms of financial and ESG performance. Using data from 11,521 publicly listed firms worldwide in the period 2007-2022, this longitudinal study employs a multivariate regression model in order to understand whether certain shareholders push for ESG contracting, and whether ESG contracting mitigates or reinforces agency costs. Our regression model shows a positive relationship between institutional owners and the implementation of ESG contracting, meanwhile a non-significant, indicatively negative relationship between activist owners and the implementation is found. Furthermore, our results show that the inclusion of ESG metrics in compensation schemes leads to better ESG and financial performance over time. This implies that implementing ESG contracting is value enhancing both for investing and non-investing stakeholders. This study fills an important research gap by examining the ownership influences on, and impact of, corporate governance connected to ESG in a global context up to date.

Keywords:
ESG contracting, Activist ownership, Institutional ownership, Corporate governance, Agency theory

Authors:
Adèle Sveger (24319)
Rebecka Mannerford (24584)

Tutor:
Diogo Mendes, Assistant Professor, Department of Finance

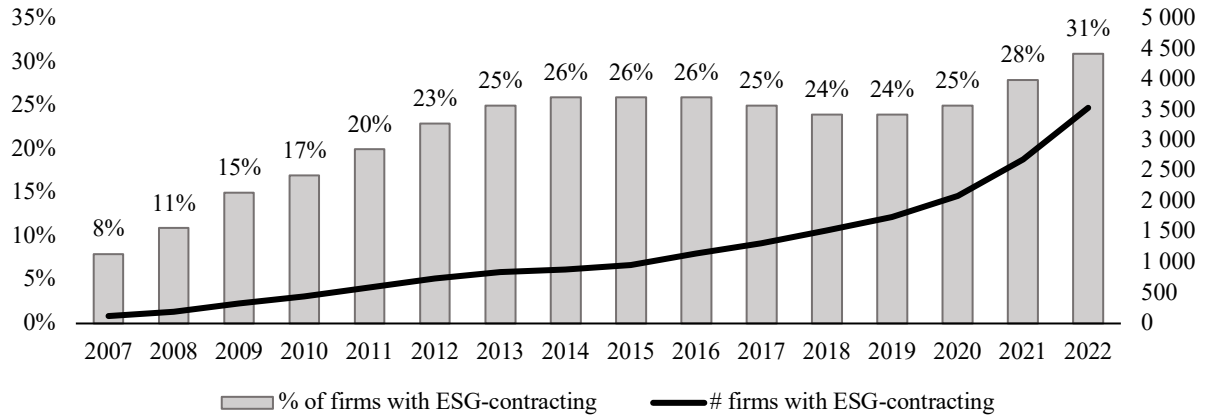
Examiner:
Anders Andersson, Associate Professor, Department of Finance

Master Thesis in Finance
Master's in Finance
Stockholm School of Economics

1. Introduction

The inclusion of environmental, social and governance (ESG[1]) criteria in executive compensation has become increasingly prevalent, as society is demanding sustainable and socially responsible practices from businesses (Castañón Moats et al., 2022). Linking ESG targets to executive compensation, hereafter referred to as "ESG contracting", encourages firms to focus on long-term objectives and sustainability, as opposed to linking compensation solely to financial performance. Figure 1 shows the global surge of firms using ESG contracting, which according to Thomson Reuter Eikon database (2023) has gone from 8% in 2007 to 31% in 2022. Moreover, a recent study shows that more than nine out of ten directors (92%) agree that it is appropriate to include some type of non-financial metrics in executive compensation contracts (PWC, 2022). This shift in approach is most likely driven by the need to align company practices with the interests of both investing and non-investing stakeholders, as well as to manage business risks and seize opportunities related to ESG.

Figure 1
Development of ESG contracting



Note: Data obtained from Thomson Reuters Eikon (2023).

Different investors vary in motivation and ability to promote corporate sustainability (McLachlan & Gardner, 2004). Two prominent investors that commonly push for change in firms are institutional and activist owners. Institutional investors tend to take a large stake in companies and commonly include pension funds, insurance companies, and investment banks. Research shows that institutional investors are displaying a growing interest in ESG and factoring in climate risk when making investment choices (Krueger et al., 2020; Barber et al., 2021; Pastor et al., 2022). Moreover, institutional owners are shown to have put a heavy focus on governance improvements in regard to ESG issues during the last decade (PWC, 2022). Some studies show that a larger share of institutional ownership impacts the inclination to implement ESG contracting (Cohen et al., 2022; Pawlizcek, 2023). Activist investors have increased in popularity and firm participation over the past decades (Hadani et al., 2011; Goranova & Ryan, 2014). The activists usually take a small stake in companies and use their position to pressure management and influence decision-making. DesJardine & Durand (2020) find that some shareholder activists negatively impact target firms' ESG activities, aiming to eliminate what they deem wasteful practices. Others find

[1] In this study, ESG and CSR are used interchangeably, in line with Cohen et al. (2022).

that certain types and tactics of activist investors promote social performance (David et al. 2007; Reid & Toffel, 2009). One common tactic used by activists to affect management is to change compensation contracts (Goldstein, 2015). Although, research is lacking regarding the influence of activist investors on the implementation of ESG contracting.

Whether ESG contracting yields financial benefits to shareholders remains unclear. Previous research has provided conflicting results on the relationship between ESG contracting and financial performance, some showing a positive impact (Abdelmotaal & Abder-Kader, 2016; Flammer et al., 2019), some a negative (Cohen et al., 2022) and others no impact (Baraibar-Diez et al., 2019; Cohen et al., 2022). The extent to which ESG contracting facilitates improved ESG performance is also ambiguous. Even though previous research tends to agree on a positive relationship between the two, ESG contracting does not necessarily translate into better ESG performance. Baraibar-Diez et al. (2019) and Pawliczek et al. (2023) indicate that companies that adopt ESG contracting exhibit improved ESG performance. On the other hand, Bebchuk & Tallarita (2022) argue that ESG contracting may not enhance stakeholder value as it may instead impose agency costs, if used as window-dressing or by managers to promote their self-interest.

The lack of consensus in the literature suggests a need for further research to determine the potential agency costs of implementing ESG contracting and to clarify its impact on financial and ESG performance. Up to date, to the extent of our knowledge, little research is conducted on how different investors impact the decision of implementing ESG contracting in publicly listed firms worldwide. Moreover, previous research on whether ESG contracting influences financial and ESG performance over time, is inconclusive. In this context, our study aims to investigate ownership pressure for implementing ESG contracting, and the potential value creation that follows.

Seeking to shed light on this complex and timely issue, our study aims to answer the following two research questions:

1) *Do certain shareholders push for ESG contracting to promote ESG and financial performance?*

2) *Is ESG contracting an effective governance tool that promotes the interests of both investing and non-investing stakeholders?*

To answer the first question, we investigate whether a larger share of institutional ownership and activist ownership respectively influences the decision to implement ESG contracting. For the second question, we investigate the impact of ESG contracting over time, up to three years after implementation, on financial and ESG performance. Financial performance is investigated in terms of the accounting-based financial measure return on assets (ROA) and the market-based financial measure Tobin's Q. The effect on ESG performance over time is measured in terms of Refinitiv ESG scores.

Our empirical study is based on data from the Thomson Reuters Eikon database and employs a multivariate regression model for a sample of 77,920 firm-year observations from 11, 521 publicly listed firms worldwide in the period 2007-2022.

In short, our results indicate that the share of institutional ownership is significantly and positively related to the implementation of ESG contracting, meanwhile a negative, yet non-significant, relation between the share of activist shareholders and the implementation of ESG contracting is found. This implies that in general, activist investors do not view ESG contracting as an effective governance tool but rather as an agency cost. Meanwhile, institutional investors tend to push for its implementation. Moreover, we find a weakly positive significant relationship between the implementation of ESG contracting and financial performance for the first year post implementation. This suggests that ESG contracting is value-enhancing for shareholders in the subsequent year. Lastly, the ESG performance variable is shown to be positively and significantly associated with the implementation of ESG contracting the third year after implementation, however not significant for the first two years. This suggests that ESG contracting leads to value creation for stakeholders over time, and that it takes some time for the impact to translate into higher ESG scores. We extend and complement existing research as over 40% of the observations in our global longitudinal study exist in the past four years, which emphasizes the continuous growth both in the reporting and adoption of ESG contracting.

The remainder of this paper is organized as follows, section two presents the existing literature in the field of corporate governance, ownership structure and ESG contracting. Section three describes our research questions and hypothesis development, section four our data collection, data cleaning process and descriptive statistics, and section five demonstrates our used methodology and its rationale. Section six shows the results of our regressions, diagnostic tests and robustness tests, and section seven depicts this study's limitations and suggestions for further research. Finally, section eight summarizes our final conclusions.

2. Literature review

2.1. The evolution of corporate governance

A continuing scholarly discussion revolves around the notion of a firm's social responsibility. One perspective, referred to as the shareholder theory, is based on Friedman's claim that a firm's social responsibility is to increase its profits and maximize returns to shareholders (Friedman, 1970). On the other side, the stakeholder theory, elaborated by Freeman, suggests that a firm's primary objective should not only serve the interests of shareholders, but also those of non-investing stakeholders, such as customers, employees, and communities (Freeman, 1984). The latter theory advocates for and emphasizes the importance of complying with matters pertaining to environmental, social, and governance (ESG) issues (Belyaeva et al., 2020).

The growing interest and demand for environmental, social, and governance (ESG) issues has resulted in a significant body of research in recent years. Kim et al. (2018) have shown that firms can enhance their reputation by engaging in strategic actions aimed at improving their ESG performance. In addition, ESG considerations can also act as a safeguard against negative corporate news (Minor & Morgan, 2011) or serve as a buffer against sanctions imposed on a firm (Hong & Liskovich, 2015). These findings suggest that there are both reputational and risk-management benefits associated with incorporating ESG considerations into a firm's strategy. Correspondingly, prior studies have revealed that some shareholders are willing to sacrifice financial gain for the benefit of ESG improvements (Kruger et al., 2020; Pastor et al., 2020; Barber et al., 2021).

To address the increased emphasis on ESG issues, corporate governance tools can be used to align the interests of shareholders and managers. Corporate governance involves a series of mechanisms that shareholders employ to safeguard themselves from potential expropriation by company insiders (La Porta et al., 1998). A predicament connected to corporate governance is that the separation of ownership and control could lead to a conflict of interest between managers and shareholders. This issue is commonly referred to as the agency problem (Jensen & Meckling, 1976). According to the agency theory, managers may act in their own interest at the expense of shareholders, leading to agency costs. Shareholders can use managerial incentives to help align conflicting interests (Jensen & Meckling, 1976). Several studies suggest that an executive compensation scheme linked to firm performance is a primary means to mitigate agency costs (Jensen & Meckling, 1976; Conyon, 2006; Murphy, 2013; Gao & Li, 2015).

For decades, academics have researched the usage of different performance criteria in executive incentive schemes (Berrone & Gomez-Mejia, 2009; Faulkender et al., 2010; van Veen-Dirks 2010). Previous research indicates that financial measures in executive compensation schemes do not reflect the potential benefits of long-term strategies such as corporate social responsibility initiatives (e.g., Klassen & McLaughlin, 1996; Edmans, 2011; Henisz et al., 2014; Flammer, 2015). Along with previous literature recognizing that non-financial measures are better predictors of financial performance in the long run (Holmstrom, 1999; Banker et al., 2000), a growing interest to incorporate non-financial measures has been observed globally in the last years (Tsang et al., 2021).

As a result of the increasing demand for corporate sustainability, firms have begun incorporating ESG targets in executive compensation contracts, i.e., ESG contracting (Russo & Harrison, 2005; Berrone & Gomez-Mejia 2009; Huang, 2021). Previous studies demonstrate the increase in ESG contracting in the United States (Flammer et al., 2019; Ikram et al., 2019). Later, Tsang et al. (2021), Cohen et al. (2022) and Pawliczek et al. (2023) find support for the increase of ESG contracting worldwide up to date. The rise in ESG contracting suggests that firms are moving away from the shareholder view and instead focusing on the stakeholder view of corporate governance.

2.2. Ownership pressure on ESG contracting

Previous research examines how executive compensation schemes are impacted by different ownership structures (Jain and Jamali, 2016). Ownership structures regard the characteristics and concentration of a firm's owners, and commonly encompass institutional, activist, block, and insider owners. The impact of ownership structures on a firm's governance mechanisms varies (Jain & Jamali, 2016; Winschel, 2022). Institutional ownership has been recognized as a key corporate governance mechanism, due to their large shareholdings worldwide (Shleifer & Vishny, 1997; García-Meca & Pucheta-Martínez, 2018; Sikavica et al., 2020).

Several studies examine institutional ownership as a determinant of ESG contracting. These studies indicate that firms with institutional presence and ownership are more inclined to implement ESG contracting, and this has been proved in the United States (Hong et al., 2016; Ikram et al., 2019), Europe (Focke, 2022) and on a global level (Cohen et al., 2022; Pawliczek et al., 2023).

Many institutional shareholders use their ownership rights to push for change in firms and thus help reduce agency costs. Activist shareholders also employ this tactic to pursue their objectives, and their involvement in firms has surged in recent years (Hadani et al., 2011; Goranova & Ryan, 2014; DesJardine & Durand, 2020). Shareholder activism can take various forms, from investor confrontations with managers expressing dissatisfaction (David, et al., 2001; David et al., 2007) to formal interventions aimed at changing corporate strategy and improving performance (Song & Szewczyk, 2003; Westphal & Bednar, 2008). Shareholder activism initially emerged from the efforts of a few changemakers within corporate circles and has since evolved into a significant social movement, reshaping the distribution of power within contemporary corporations (Davis & Thompson, 1994; Kahan & Rock, 2010).

Most of the literature on activism focuses on financial aspects, which, in line with the shareholder theory (Friedman, 1970), addresses activists' concerns about shareholder returns, executive pay, boards of directors, and shareholder rights (Brav et al., 2008; Greenwood & Schor, 2009; Ertimur, Ferri, & Stubben, 2010; Cai & Walkling, 2011). In contrast, social activism takes the perspective of the stakeholder theory (Freeman, 1984) and explores the effects activism has on broader corporate outcomes and stakeholder issues, such as the firm's environmental impact, corporate social performance, and political activity (Rehbein et al., 2004; David et al., 2007; Reid & Toffel, 2009; Lee & Lounsbury, 2011). The influence of activist ownership on ESG performance varies. Some academics find that activist investors have a positive impact on ESG performance (Neubaum & Zahra, 2006; David et al., 2007; Reid & Toffel, 2009) while others argue that they have a negative impact (DesJardine & Durand, 2020). Despite a myriad of studies connected to shareholder activism, research on the link between shareholder activism and the implementation of ESG contracting is scarce.

2.3. Linking ESG contracting to investing and non-investing stakeholders' value creation

Research is still emerging on the growing phenomenon of ESG contracting and it is still unclear whether ESG contracting is creating value in terms of ESG performance and financial performance.

Several studies examine if ESG contracting influences ESG performance. Flammer et al. (2019) and Baraibar-Diez et al. (2019) find a positive relationship between ESG contracting and ESG scores, the latter examining each pillar of the ESG score separately. Moreover, the study conducted by Pawliczek et al. (2023) indicates that companies adopting ESG contracting exhibit improved subsequent ESG performance and an increased tendency of adopting environmentally friendly policies, such as CO2 emission reduction. Cohen et al. (2022) examine the impact of ESG contracting on ESG scores from different rating agencies and find a divergence in significance and impact of the different scores. The different rating agencies have different coverage and prior literature documents a significant deviation across the ESG scores provided (Berg et al., 2019). Furthermore, some academics argue that ESG contracting could be a form of window-dressing and hence have no impact on ESG performance (Haque, 2017).

Other studies focus on the impact of ESG contracting on financial performance. Firstly, Abdelmotaal & Abdel-Kader (2016) show that sustainability incentives in executive remuneration contracts have a positive impact on shareholder return among UK firms between 2009 and 2011. Flammer et al. (2019) examine firms' financial performance by employing the measures of return on assets (ROA) and Tobin's Q and find that the implementation of ESG contracting yields a positive relationship for both. Conversely, Baraibar-Diez et al. (2019) find that ESG contracting does not have an influence on financial performance among European firms, in the period 2005 to 2015. This is supported by Cohen et al. (2022), whose global study shows that ESG contracting does not have an impact on ROA, and a negative effect on stock returns.

Bebchuk & Tallarita (2022) are major critics to ESG contracting and argue that it risks undermining both stakeholders and shareholders. Bebchuk & Tallarita (2022) argue that the equivocally defined ESG-linked contracts allow managers to raise their pay while appearing socially responsible, which ultimately reinforces the agency costs that ESG contracting is created to mitigate.

3. Research questions and hypothesis development

This study connects the concepts of agency theory, shareholder theory, and stakeholder theory, in order to understand if certain shareholders push for ESG contracting to promote stakeholder interests and mitigate agency costs. The question of whether ESG contracting promotes or suppresses the interests of investing and non-investing stakeholders in terms of financial and ESG performance, is examined.

As demonstrated in the literature review, empirical research focusing on ESG contracting has increased in recent years, and there is a surge in the global adaptation of the concept. The continuous rise in ESG contracting suggests that firms are moving away from the shareholder theory (Friedman, 1970) towards the stakeholder view of corporate governance (Freeman,1984) and calls for further research in order to better understand its drivers and implications.

There is limited research available when assessing ownership pressure to implement ESG contracting. Previous research indicates that institutional ownership affects the likelihood of implementing ESG contracting, meanwhile, research on activist ownership impact is lacking. Moreover, previous studies are ambiguous regarding the value creation towards investing and non-investing stakeholders after the implementation of ESG contracting. Considering this information, our study aims to investigate whether ESG contracting is an agency cost or not, by examining the following research questions:

3) *Do certain shareholders push for ESG contracting to promote ESG and financial performance?*

4) *Is ESG contracting an effective governance tool that promotes the interests of both investing and non-investing stakeholders?*

From the research questions, we derive four sub-hypotheses. Hypotheses 1a and 1b adhere to the first research question while hypotheses 2a and 2b adhere to the second.

Hypothesis 1a: *A higher share of institutional ownership impacts the inclination of a firm to incorporate ESG contracting.*

Hypothesis 1b: *A higher share of activist ownership impacts the inclination of a firm to incorporate ESG contracting.*

Hypothesis 2a: *The implementation of ESG contracting has a positive impact on a firm's ESG performance over time.*

Hypothesis 2b: *The implementation of ESG contracting has a positive impact on a firm's financial performance over time.*

4. Data

In this section the data collection process is explained, together with the data cleaning process, the construction of subsamples and the descriptive statistics.

4.1. Data collection process

All relevant data in this study was gathered from the databases Thomson Reuters Eikon and Capital IQ. The dataset includes publicly listed firms worldwide from January 2007 to December 2022. Firstly, data on publicly listed firms with at least one data point on ESG contracting was retrieved via the Thomson Reuters Eikon screening tool, creating the initial data sample denoted as Sample A. These data points are captured from Thomson Reuters Eikon under the binary variable labelled "Policy Executive Compensation ESG Performance" which states TRUE if a firm has ESG contracting in a certain year and FALSE if not. "Policy Executive Compensation ESG Performance" is used as a proxy for ESG contracting and is defined by the database as "having extra financial compensation to the CEO, executive board members, non-board members, and other management bodies based on their ESG performance". The additional company-related information gathered from Thomson Reuters Eikon was the country of the headquarter, GICS-sector code, ESG score, percentage of independent board members, percentage of female board members, and a dummy variable indicating if a firm has a CSR committee in place. The initial sample retrieved from Thomson Reuters Eikon (Sample A), that has data on ESG contracting includes 11,521 firms with 77,920 firm-year observations. All financial and ownership data for the 11,521 firms in Sample A was obtained from Capital IQ.

Table 1 shows that the number of observations on ESG contracting is skewed toward the later years in our data sample. This could partly be explained by the fact that Thomson Reuters Eikon's ESG coverage has increased over time (Refinitiv, 2022).

Table 1
Distribution of ESG contracting data from 2007 to 2022

Year	# of firm-year observations	% of sample	# of firms with ESG contracting = 0	# of firms with ESG contracting = 1
2007	1,609	2.06%	1,487	122
2008	1,799	2.31%	1,606	193
2009	2,214	2.84%	1,890	324
2010	2,570	3.30%	2,123	447
2011	3,018	3.87%	2,423	595
2012	3,226	4.14%	2,483	743
2013	3,340	4.29%	2,492	848
2014	3,472	4.46%	2,585	887
2015	3,744	4.80%	2,784	960
2016	4,461	5.73%	3,315	1,146
2017	5,259	6.75%	3,943	1,316
2018	6,252	8.02%	4,728	1,524
2019	7,238	9.29%	5,490	1,748
2020	8,411	10.79%	6,318	2,093
2021	9,786	12.56%	7,093	2,693
2022	11,521	14.79%	7,980	3,541

Note: Based on Sample A. Data collected from Thomson Reuters Eikon.

4.2. Data cleaning process

The number of firm-year observations that include information on ESG contracting in the collected initial dataset is not equal across all years for each and every firm. To handle this unbalanced dataset, values for all missing firm-year observations in Sample A are added to the data under two separate assumptions. First, all missing firm-year observations are assumed to be TRUE if situated between two observations that state TRUE. Second, all remaining missing firm-year observations are assumed to be FALSE. Assuming the remaining missing firm-year observations to be FALSE limits potential survivorship bias within the dataset, as firms are likely not engaging in ESG contracting during the years they do not provide information on it. Nevertheless, the limitation of potential survivorship bias is only applicable within the sample, as we do not capture firms without reported information on ESG contracting over the sample period. Moreover, all firms whose firm-year observations begins with TRUE are removed, since it is not possible to assume at what point in time the implementation of ESG contracting took place in these firms.

4.3. Construction of two sub-samples

Our study includes two subparts adhering to the two hypotheses. As such, two different samples, B and C, are created from Sample A. Sample B concerns hypotheses 1a and 1b and Sample C concerns hypotheses 2a and 2b.

4.3.1. Sample B

The ownership data on institutional and activist ownership in Sample B is collected from Capital IQ. Both institutional ownership and activist ownership are obtained as a percentage of total shares outstanding. Capital IQ has limited data on activist ownership in the sample period. Therefore, in the firm-year observations for which institutional ownership data is available but activist ownership data is not, the percentage of activist ownership is assumed to be zero. This assumption allows us to keep 13,330 firm-year observations in Sample B. Next, firm-year observations with more than 100 % on institutional ownership are removed. This flaw stems from errors in the sourcing and collection process in Capital IQ.

Another assumption is that the decision to implement ESG contracting is made the year before implementation, in line with Hong et al. (2016). All the observations after a firm have switched from TRUE to FALSE are dropped. After this step, the observations with missing data on variables, as well as countries with less than 50 firm-year observations, are dropped.

4.3.2. Sample C

Sample C adheres to hypothesis 2, and the data cleaning is identical to Sample B until observations are dropped after the implementation of ESG contracting. All observations post three years after a firm have switched from TRUE to FALSE are dropped. Following this step, the observations with missing data on variables, as well as countries with less than 50 firm-year observations, are dropped.

Table 2 provides a detailed description of the data sample construction for Sample B, used in the testing of hypothesis 1. In the end, Sample B includes 7,318 firms with 35,708 firm-year observations between 2007 and 2022.

Table 2
Construction of Sample B

	Change in firm-years obs.	**Firm-year observations**	*Change in firms*	**Number of firms**
Sample A, obtained from Thomson Reuters Eikon	-	77,920	-	11,521
Adding the missing ESG contracting data points that are assumed to be TRUE	*+3*	77,923	-	11,521
Adding the missing ESG contracting data points that are assumed to be FALSE	*+106,413*	184,336	-	11,521
Excluding firms with TRUE as the first ESG contracting observation	*-1,952*	182,384	*-122*	11,399
Excluding all observations the year after the first TRUE on ESG contracting	*-15,698*	166,686	-	11,399
Excluding missing data on the variables of interest	*-129,023*	37,663	*-3,876*	7,523
Excluding institutional ownership data above 100%	*-1,462*	36,201	*-82*	7,441
Excluding countries with less than 50 firm-year observations	*-493*	35,708	*-123*	7,318
Final data – Sample B		**35,708**		**7,318**

Table 3 provides a detailed description of the data sample construction for Sample C. In the end, Sample C includes 9,804 firms with 49,226 firm-year observations between 2007 and 2022.

Table 3
Construction of Sample C

	Change in firm-years obs.	**Firm-year observations**	*Change in firms*	**Number of firms**
Sample A, obtained from Thomson Reuters Eikon	-	77,920	-	11,521
Adding the missing ESG contracting data points that are assumed to be TRUE	*+3*	77,923	-	11,521
Adding the missing ESG contracting data points that are assumed to be FALSE	*+106,413*	184,336	-	11,521
Excluding firms with TRUE as the first ESG contracting observation	*-1,952*	182,384	-	11,399
Excluding all observations post three years after the first TRUE on ESG contracting	*-15,698*	166,686	*-122*	11,399
Excluding missing data on the variables of interest	*-116,658*	50,028	*-1,379*	10,020
Excluding countries with less than 50 firm-year observations	*802*	49,226	*-216*	9,804
Final data – Sample C		**49,226**		**9,804**

4.4. Descriptive statistics

In this section, the descriptive statistics for the variables of interest are depicted for Sample B and C. Further tables are attached in the Appendix, showing geographical and sector specific descriptive statistics. Appendix E and F show the geographical distribution of observations, indicating that firm-year observations from the United States make up the highest share of both samples. United States constitutes 28% of Sample B, while no other country's observations make up more than 10% of Sample B. Appendix C and D show that the sectors with the highest numbers of observations are "Financials" and "Industrials" for both samples, suggesting that these industries are most prone to disclose information on ESG contracting. However, the highest percentage in implementation of ESG contracting is seen in the "Energy" sector, where 49% of the reporting firms implement ESG contracting, and the "Utilities" sector with 40%. This variety in geographies and sectors could be due to certain laws, regulations, or expectations.

Table 4 depicts the descriptive statistics of the variables of interest to test for hypothesis 1a and 1b.

Table 4
Descriptive statistics for Sample B

	#Obs.	Mean	SD	P25	Median	P75	Min	Max
ESG contracting $_{(t+1)}$	35,708	0.0555	0.2289	0.0000	0.0000	0.0000	0.0000	1.0000
% Institutional own.	35,708	40.2965	27.6390	17.1000	33.3300	60.4850	2.5200	98.3200
% Activist own.	35,708	1.0405	3.0028	0.0000	0.0230	0.3795	0.0000	35.3300
ROA	35,708	0.0335	0.0562	0.0092	0.0327	0.0647	-0.1646	0.1809
Tobin's Q	35,708	1.7966	1.5781	0.8855	1.1716	2.0440	0.2584	8.6144
Firm size	35,708	8.6909	2.7359	6.6361	8.4345	10.4449	3.1002	14.5192
Leverage	35,708	0.4694	0.2299	0.2976	0.4532	0.6265	0.0763	0.9101
R&D intensity	35,708	0.0308	0.0708	0.0000	0.0000	0.0209	0.0000	0.3391
Advertising intensity	35,708	0.0046	0.0110	0.0000	0.0000	0.0010	0.0000	0.0571
% Independent BM	35,708	53.0400	25.3406	33.3300	53.8500	75.0000	0.0000	100.0000
% Female BM	35,708	13.4216	11.9880	0.0000	12.5000	22.2200	0.0000	42.8600
ESG committee	35,708	0.4210	0.4937	0.0000	0.0000	1.0000	0.0000	1.0000

Note: Based on Sample B. All the variables except ESG contracting and ESG committee are winsorized at a 5% and 95% level. Variable definitions are shown in table 7. BM is short for board members, own is short for ownership.

Table 5 shows the underlying descriptive statistics of the variables of interest for firms with and without ESG contracting. Firms with ESG contracting are shown to have a larger share of institutional and activist ownership. Moreover, firms with ESG contracting have a larger share of independent board members and female directors, and are more likely to have a ESG committee in place, in comparison to those without.

Table 5
Variable separation by ESG Contracting

	ESG contracting = 1		ESG contracting = 0	
	Mean	**SD**	**Mean**	**SD**
% Institutional ownership	45.7597	27.0686	38.2087	27.5700
% Activist ownership	1.1064	3.1338	1.0154	2.9509
ROA	0.0365	0.0539	0.0323	0.0570
Tobin's Q	1.6927	1.4625	1.8364	1.6183
Firm size	8.6173	2.7585	8.7190	2.7267
Leverage	0.4771	0.2304	0.4664	0.2296
R&D intensity	0.0283	0.0659	0.0317	0.0725
Advertising intensity	0.0048	0.0110	0.0046	0.0110
% Independent board members	57.2191	24.8118	51.4430	25.3591
% Female board members	15.2130	12.1535	12.7370	11.8531
ESG committee	0.5563	0.4968	0.3693	0.4826

Note: Based on Sample B. Divided the sample into two groups, firms with and without ESG contracting. All the variables except ESG committee are winsorized at a 5% and 95% level. Variable definitions are shown in table 7.

Table 6 depicts the descriptive statistics of the variables of interest to test for hypothesis 2a and 2b.

Table 6
Descriptive statistics for Sample C

	#Obs.	**Mean**	**SD**	**P25**	**Median**	**P75**	**Min**	**Max**
ESG score	49,226	40.8623	19.0536	25.1000	39.0100	55.8400	9.6000	77.5700
ROA	49,226	0.0357	0.0536	0.0110	0.0339	0.0652	-0.1202	0.1580
Tobin's Q	49,226	1.7936	1.5605	0.8892	1.1680	2.0304	0.3590	8.4937
ESG contracting $_{(t-3)}$	49,226	0.1118	0.3151	0.0000	0.0000	0.0000	0.0000	1.0000
ESG contracting $_{(t-2)}$	49,226	0.0672	0.2503	0.0000	0.0000	0.0000	0.0000	1.0000
ESG contracting $_{(t-1)}$	49,226	0.0308	0.1727	0.0000	0.0000	0.0000	0.0000	1.0000
Firm size	49,226	8.8648	2.6879	6.8390	8.5911	10.5874	3.9805	14.6707
Leverage	49,226	0.4541	0.2198	0.2883	0.4425	0.6046	0.0857	0.8813
R&D intensity	49,226	0.0296	0.0673	0.0000	0.0000	0.0201	0.0000	0.3328
Advertising intensity	49,226	0.0044	0.0106	0.0000	0.0000	0.0008	0.0000	0.0437
% Independent BM	49,226	56.0954	24.6685	36.3600	57.1400	78.5700	0.0000	90.9100
% Female BM	49,226	15.6823	12.7716	0.0000	14.2900	25.0000	0.0000	44.4400
ESG committee	49,226	0.4621	0.4986	0.0000	0.0000	1.0000	0.0000	1.0000
Past fin. performance	49,226	0.1352	0.2259	0.0013	0.0745	0.1906	-0.1770	0.9649
Asset growth	49,226	0.0353	0.0524	0.0100	0.0332	0.0644	-0.1370	0.1560
Debt/Equity	49,226	0.7017	0.8354	0.0732	0.4214	0.9620	0.0000	3.5821

Note: Based on Sample C. All the variables except ESG contracting and ESG committee are winsorized at a 5% and 95% level. Variable definitions are shown in table 7. BM is short for board members.

5. Methodology

In this section we outline the methodology used in our study. Firstly, we explain our variables of interest, followed by the regression model, the diagnostic tests, and the robustness tests.

5.1. Specification of variables

5.1.1. Dependent variables

To test for *hypotheses 1a and 1b,* the dependent variable is the dummy variable ESG contracting gathered from Thomson Reuters Eikon, as described in the data section. It takes the value one if the firm has ESG contracting and zero if not, following the study of Focke (2022). The variable is forwarded as we assume that the decision to implement ESG contracting is made the year prior to implementation, in accordance with Hong et al. (2016).

To test for *hypothesis 2a*, the dependent variable is a firm's ESG score, drawn from Refinitiv. The Refinitiv ESG scores evaluate a firm's ESG performance based on company reported data across 630 ESG measures, with a subset of 186 measures used for the overall assessment. These measures are categorized into 10 different groups that afterward are rolled into either the environmental, social or governance pillar, displayed in figure 2. Each pillar score is calculated as the sum of category weights, which vary by industry for environmental and social categories, while for governance weights remain constant. The ESG score is an equally weighted average of the pillar scores (Refinitiv, 2022).

Figure 2
Overview of ESG pillars

Note: The figure shows the 10 different groups of measures that Refinitiv categorizes into the three ESG pillars.

To test for *hypothesis 2a*, we use return on assets (ROA) and Tobin's Q ratio as dependent variables. Following Abdelmotaal & Abdel-Kader (2016) and Flammer et al. (2019) and Cohen et al. (2022), we choose to include one accounting-based measure (ROA) and one market-based measure (Tobin's Q) to capture a more nuanced picture of the financial performance of a firm. ROA is computed as net income scaled by total assets and reflects how effectively a company is utilizing its assets. Tobin's Q is computed by dividing the market value of total assets by the book value of total assets. The purpose of the Tobin's Q metric is to assess a firm's operating efficiency and its capacity to generate financial

returns, as well as to determine whether a firm is fairly valued (Tobin, 1969). A Tobin's Q above one indicates that the capital market perceives the firm to have superior financial performance than reflected in its accounting measures.

5.1.2. Independent variables

To test for *hypotheses 1a and 1b*, institutional and activist ownership serve as independent variables and are measured as fractions of a firm's total shares outstanding. The independent variables are defined in accordance with Capital IQ's definitions. Institutional owners are defined as traditional money managers, pension funds, family offices/trusts, banks/investment banks, insurance companies, foundations/endowments and REITs, as well as hedge funds, PE/VC firms, and sovereign wealth funds with less than 5% ownership in a firm. In line with the classification provided by Capital IQ, an entity is classified as an activist after reaching one of the following criteria: self-defined activist, involved in an activist campaign, or previous activist history, see Appendix A for full definition.

To test for *hypothesis 2a and 2b*, ESG contracting serves as the independent variable, identified above. In hypothesis 2a and 2b, the independent variable is lagged with one, two and three years to see the effects after the implementation of ESG contracting.

5.2. Control variables

For all hypotheses, different sets of control variables are used, following previous literature. For *hypotheses 1a and 1b,* the control variables used are ROA, Tobin's Q, firm size, leverage, R&D intensity, advertising intensity, percentage of independent board members, percentage of female board members and if a firm has an ESG committee in place. For *hypothesis 2a,* the control variables used are ROA, Tobin's Q, firm size, leverage, R&D intensity, advertising intensity, percentage of independent board members, percentage of female board members, if a firm has an ESG committee in place and debt to equity ratio. For *hypothesis 2b,* the control variables used are firm size, leverage, R&D intensity, advertising intensity, existence of an ESG committee, past financial performance, asset growth, and debt to equity ratio. Variable definitions are shown in table 7.

ROA and Tobin's Q: We use ROA and Tobin's Q as proxies for a firm's financial performance, in line with Harjoto & Jo (2011) and Hong et al (2016).

Firm size: Previous research includes firm size as a control variable when examining ESG contracting. Harjoto & Jo (2011) and Cohen et al. (2022) argue that firm size has an impact on ESG activities. Moreover, Cai et al. (2011) find that larger firms tend to have above-median ESG-ratings.

Leverage: In line with Harjoto & Jo (2011) and Cohen et al. (2022), leverage is included as a control variable. Previous research is ambiguous regarding the impact of leverage. While Cohen et al. (2022) argue that more levered firms are financially constrained to invest in ESG, Harjoto & Ho (2011) find that highly levered firms are more likely to engage in ESG.

R&D and advertising intensity: R&D and advertising intensity are included as control variables in line with Harjoto & Jo (2011), argue that firms with low R&D intensity and high advertising intensity respectively, are more likely to engage in ESG initiatives.

Percentage independent board members: Firms with a higher share of independent board members tend to have a higher engagement in ESG (Harjoto & Jo, 2011; Baraibar-Diez et al., 2019).

Percentage female board members: Cohen et al. (2022) include this control variable and find ESG contracting to be more common in firms with female directors on the board which aligns with the findings by (Liu, 2018; Atif et al., 2021) that show that female directors exhibit a stronger inclination to promote ESG issues.

ESG committee: ESG committee is used as a control variable as Baraibar-Diez et al. (2019) show that having a ESG committee positively correlates both with a firm's ESG score as well as their financial performance.

Past financial performance: Studies extensively show that a firm's past performance is an indicator of its future performance (Fama & French, 1996; Said et al., 2003; Banker & Mashruwala, 2007).

Asset growth: Asset growth is used as a control variable when examining financial performance in relation to ESG initiatives, in line with Alareeni & Hamdan (2020).

Debt to equity ratio: In line with previous studies (Baraibar-Diez et al., 2019; Flammer et al., 2019; Cohen et al., 2020), debt to equity is used as a control variable when examining financial and ESG performance. Baraibar-Diez et al. (2019) argue that firms with a high debt to equity ratio are less prone to engage in ESG initiatives due to financial constraints.

5.3. Overview of variables

In table 7, the variable definitions are presented.

Table 7
Variable definitions

Variable name	Definition
ESG contracting	Dummy variable that equals 1 if the firm formally ties executive compensation to ESG components and 0 otherwise
ESG score	ESG scores obtained from Refinitiv
ROA	Net income scaled by total assets
Tobin's Q	The sum of book value of debt and market value of equity scaled by the book value of total assets
% Institutional ownership	Fraction of institutional ownership of a firm's total shares outstanding
% Activist ownership	Fraction of activist ownership of a firm's total share outstanding
Firm size	Natural logarithm of total assets
Leverage	Total debt scaled by total assets. Total debt equals the sum of long-term debt and current liabilities
R&D intensity	Total R&D expenses scaled by total revenues
Advertising intensity	Total advertising expenses scaled by total revenues
% Independent board members	Percentage of independent board members in a firm's board of directors
% Female board members	Percentage of female directors in a firm's board of directors
ESG committee	Dummy variable that equals 1 if the firm has a ESG committee and 0 otherwise
Past financial performance	Return on assets in the previous year
Asset growth	Annual growth in total assets
Debt/Equity	Debt scaled by equity

5.4. Regression model

To test for *hypotheses 1a and 1b,* we employ an OLS multivariate panel regression with a set of control variables. In line with Focke (2022), our dependent variable is forwarded by one year in order to establish a plausible causal relationship. When a firm has implemented ESG contracting, all subsequent observations are dropped through a hazard model, as only first implementation of ESG contracting is of interest.

Equation (1) depicts the OLS regression model applied for *hypotheses 1a and b*. In the equation, β is the coefficient of the associated independent variables, γX is a vector of the incorporated control variables presented, and ε_i is the error term of the regression.

Equation (1)

$$ESG\ contracting_{i,t+1} = \beta_0 + \beta_1(Institutional\ ownership)_{i,t} + \beta_2(Activist\ ownership)_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t+1}$$

To test for *hypotheses 2a and 2b,* we also employ an OLS multivariate panel regression with a set of control variables following the study of Flammer et al. (2019) and Cohen et al. (2022). The independent variable is lagged one, two, and three years in order to examine the effects of ESG contracting.

Equation (2) shows the OLS regression model applied for *hypothesis 2a*. Equation (3) and (4) depict the OLS regression model applied for *hypothesis 2b.* In the equations, β is the coefficient of the associated

independent variables, γX is a vector of the incorporated control variables presented, and ε_i is the error term of the regression.

Equation (2)

$$ESG\ score_{\ i,t} = \beta_0 + \beta_1 ESG\ contracting_{i,t-3} + \beta_2 ESG\ contracting_{i,t-2} + \beta_3 ESG\ contracting_{i,t-1} + \gamma X_{i,t} + \varepsilon_{i,t}$$

Equation (3)

$$ROA_{i,t} = \beta_0 + \beta_1 ESG\ contracting_{i,t-3} + \beta_2 ESG\ contracting_{i,t-2} + \beta_3 ESG\ contracting_{i,t-1} + \gamma X_{i,t} + \varepsilon_{i,t}$$

Equation (4)

$$Tobin's\ Q_{\ i,t} = \beta_0 + \beta_1 ESG\ contracting_{i,t-3} + \beta_2 ESG\ contracting_{i,t-2} + \beta_3 ESG\ contracting_{i,t-1} + \gamma X_{i,t} + \varepsilon_{i,t}$$

5.5. Diagnostic tests

To examine the fitness of our regression models, several diagnostic tests are conducted. Firstly, the existence of potential heterogeneity due to unobserved firm-specific and time-specific characteristics could possibly affect the examined dependent variables. Previous studies on ESG contracting implement year, industry, and country fixed effects in its regression models (Cohen et al., 2022; Focke, 2022). To control whether the inclusion of these fixed effects is applicable in our regression models, we perform both a Hausman test and a joint F-test. Secondly, we test for multicollinearity among our independent and control variables by performing a VIF test. If there is multicollinearity among our variables, it is difficult to conclude a relationship between the dependent and independent variables, and this would need to be adjusted for (Curto & Pinto, 2011; Chen, 2012). Lastly, we perform Breusch-Pagan for homoscedasticity test to control for heteroscedasticity (Milles, 2014) and a Woolridge test to control for autocorrelation among error terms (Wooldridge, 2010). This is tested since a linear regression assumes homoscedasticity and no autocorrelation among the error terms (Park, 1966). If heteroscedasticity or autocorrelation exist in our regression models, robust adjusted standard errors can be used to make the results trustworthy and interpretable (Park, 1966; Bence 1995).

5.6. Robustness tests

Several robustness checks are conducted to verify our results. Firstly, we test whether our results are robust by controlling for the assumptions made in the different data samples. For Sample B, we run the regression models without the assumption that certain data points on ESG contracting and activist ownership are zero. For Sample C, we run the regression without the assumption that certain points of ESG contracting are zero. Next, we check our results by excluding all control variables, in accordance with Flammer et al. (2019). Lastly, some studies conduct a binary logistic regression model instead of an OLS regression when testing for the likelihood of a firm implementing ESG contracting (Focke, 2022; Abdelmotaal & Abdel-Kader, 2016). Hence, to control the results obtained through the OLS regression model when testing *hypotheses 1a and 1b,* we also run a binary logistic regression model.

6. Results

In the following section, the findings obtained from the regression outputs, diagnostic tests and robustness tests are depicted and discussed.

6.1. Regression output

6.1.1. Ownership impact on the implementation of ESG contracting

Table 8 depicts the results that adhere to hypotheses 1a and 1b and shows the regression outputs including different sets of fixed effects. The low R-squared indicates that factors not included in the regression model have an impact on the implementation of ESG contracting. Nevertheless, the explanatory value of the model increases slightly with the inclusion of year, industry, and country fixed effects. We see that the control variables showing board characteristics have a strong and significant positive relationship to the implementation of ESG contracting. However, the variables for firm characteristics do not exhibit any significance, as opposed to earlier studies in the field (Harjoto & Jo, 2011; Cohen et al., 2022).

The regression outputs indicate a statistically significant relationship between the share of institutional ownership and the inclination of a firm to implement ESG contracting, which confirms the findings of Cohen et al. (2022) and Focke (2022), and is in line with our outlined hypothesis. However, the positive impact is weak, as seen in the low coefficients in the regression model. The positive significant relationship indicates that in general, institutional shareholders view ESG contracting as an effective governance tool. In turn, this implies that they do not view ESG contracting as an agency cost, contradicting the view of Bebchuk et al. (2022).

On the other hand, no significant relationship between activist ownership and the proclivity to implement ESG contracting is found. However, the negative coefficient indicates that on a global level, activist shareholders do not prioritize ESG contracting when investing capital and pushing for change in organizations. This indicative interpretation is in line with the reasoning of Bebchuk et al. (2022), implying that ESG contracting is an agency cost for some shareholders.

Overall, the results imply that we can accept hypothesis 1a as there is a positive relationship between the share of institutional ownership and a firm's inclination to implement ESG contracting. Hypothesis 1b does not hold, as the relationship between activist shareholders and firms' inclination to implement ESG contracting is non-significant.

Table 8
Ownership impact on the implementation of ESG contracting

Dependent variable	**ESG contracting $_{(t+1)}$**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
% Institutional ownership	0.0001 (1.78)*	0.0002 (3.36)***	0.0003 (4.66)***	0.0004 (6.61)***	0.0005 (7.54)***
% Activist ownership	-0.0004 (-0.99)	-0.0005 (-1.25)	-0.0003 (-0.76)	-0.0004 (-0.90)	-0.0002 (-0.47)
ROA	0.0228 (0.91)	0.0345 (1.38)	0.0322 (1.30)	0.0283 (1.15)	0.0259 (1.06)
Tobin's Q	0.0014 (1.48)	0.0002 (0.19)	0.0004 (0.41)	0.0000 (0.05)	0.0002 (0.20)
Firm size	0.0003 (0.77)	-0.0001 (-0.13)	0.0000 (0.07)	-0.0002 (-0.47)	-0.0001 (-0.20)
Leverage	0.0041 (0.75)	0.0060 (1.11)	0.0053 (0.98)	0.0053 (1.00)	0.0048 (0.90)
R&D intensity	0.0235 (1.10)	0.0259 (1.21)	0.0197 (0.92)	0.0212 (1.01)	0.0163 (0.77)
Advertising intensity	-0.1341 (-1.27)	-0.0978 (-0.92)	-0.1143 (-1.09)	-0.0832 (-0.80)	-0.1003 (-0.97)
% Independent board members	0.0005 (8.32)***	0.0004 (6.85)***	0.0004 (6.37)***	0.0004 (5.33)***	0.0004 (5.44)***
% Female board members	0.0019 (15.91)***	0.0017 (14.25)***	0.0018 (15.08)***	0.0010 (8.11)***	0.0011 (8.87)***
ESG committee	0.0403 (15.84)***	0.0413 (16.31)***	0.0381 (14.92)***	0.0358 (12.97)***	0.0325 (11.74)***
Constant	-0.0231 (-4.20)***	-0.0163 (-2.93)***	-0.0189 (-3.38)***	-0.0150 (-2.26)**	-0.0191 (-2.86)***
Year fixed effects	NO	YES	YES	YES	YES
Industry fixed effects	NO	NO	YES	NO	YES
Country fixed effects	NO	NO	NO	YES	YES
Observations	35,708	35,708	35,708	35,708	35,708
R-squared	0.0243	0.0325	0.0369	0.0552	0.0592
Adjusted R-squared	0.0240	0.0318	0.0360	0.0533	0.0571

*Notes: Multivariate OLS regression model based on Sample B and equation (1). All the variables used except ESG contracting and ESG committee are winsorized at a 5 % and 95% level. In the parenthesis, the t-values are shown. Robust standard errors are clustered at a firm level. * p < 0.10, ** p < 0.05, *** p < 0.01*

6.1.2. ESG contracting's impact on ESG performance and financial performance

Table 9 depicts the results that adhere to hypotheses 2a and table 10 and 11 depict the results adhering to hypothesis 2b. The tables show the regression outputs, once again including a set of year, industry, and country fixed effects. The high R-squared of the regressions indicate that the models are well-fitted, and that the explanatory value of the models increase further with the inclusion of fixed effects.

ESG contracting's impact on ESG performance

For hypothesis 2a, table 9 shows that the control variables showing board characteristics have a strong and significant positive relationship to ESG performance over time. The variables for firm characteristics do not exhibit any significance, except for Tobin's Q which is shown to have a significantly negative relationship with ESG performance over time. This contradicts Harjoto & Jo (2011) and Hong et al. (2016) who argue that higher financial profitability positively correlates with more ESG initiatives.

The outputs of the regression indicate a significant and positive relationship between the implementation of ESG contracting and subsequent ESG performance, but only in year two and three after implementation. The magnitude of the coefficient demonstrates that the effect is stronger in the third year compared to the second year. There is no significant relationship in the first year. This suggests that it takes some time for the actions taken after the implementation of ESG contracting to translate into better ESG performance. The positive relationship found is in line with the findings of Flammer et al. (2019) and Baraibar-Diez et al. (2019) and indicates that ESG contracting is a governance tool that enhances stakeholder value creation over time. Hypothesis 2a holds.

Table 9
Impact of ESG contracting on ESG performance

Dependent variable	**ESG score**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
ESG contracting $_{(t-3)}$	4.2898 (13.01)***	4.3235 (13.11)***	4.6782 (14.30)***	4.5730 (14.95)***	4.8192 (15.84)***
ESG contracting $_{(t-2)}$	0.9486 (3.92)***	0.9391 (3.88)***	1.0418 (4.31)***	1.3449 (5.86)***	1.4264 (6.21)***
ESG contracting $_{(t-1)}$	-0.3026 (-1.26)	-0.2401 (-0.98)	-0.1828 (-0.76)	0.0985 (0.43)	0.1418 (0.63)
ROA	-4.4639 (-1.64)	-4.4174 (-1.61)	-3.8831 (-1.42)	-4.6341 (-1.83)*	-4.0199 (-1.60)
Tobin's Q	0.0378 (0.42)	0.0239 (0.26)	0.0021 0.0200	0.0671 (0.78)	0.0477 (0.56)
Firm size	-0.1726 (-2.78)***	-0.1653 (-2.62)***	-0.1764 (-2.82)***	-0.1119 (-1.95)*	-0.1230 (-2.16)**
Leverage	1.0524 (1.31)	0.9782 (1.21)	1.0428 1.3000	0.6735 (0.91)	0.7206 (0.98)
R&D intensity	-3.8224 (-1.60)	-3.4888 (-1.45)	-3.1053 (-1.30)	-2.4168 (-1.09)	-2.1161 (-0.96)
Advertising intensity	-7.8633 (-0.56)	-8.3888 (-0.59)	-6.4805 (-0.46)	-9.4255 (-0.72)	-7.6289 (-0.59)
% Independent board members	0.0496 (7.75)***	0.0481 (7.51)***	0.0468 (7.21)***	0.2253 (28.08)***	0.2214 (27.56)***
% Female board members	0.2451 (21.73)***	0.2495 (20.96)***	0.2408 (20.29)***	0.2651 (22.82)***	0.2597 (22.58)***
ESG committee	21.9732 (74.20)***	22.0597 (74.33)***	22.2244 (74.48)***	20.0463 (66.78)***	20.1932 (67.36)***
Debt/Equity	-0.0108 (-0.06)	0.0099 (0.05)	-0.0011 (-0.01)	0.0623 (0.34)	0.0421 (0.23)
Constant	24.8490 (32.74)***	24.7880 (32.07)***	24.9523 (32.34)***	15.0022 (20.01)***	15.2896 (20.42)***
Year fixed effects	NO	YES	YES	YES	YES
Industry fixed effects	NO	NO	YES	NO	YES
Country fixed effects	NO	NO	NO	YES	YES
Observations	49,226	49,226	49226	49,226	49,226
R-squared	0.4037	0.4045	0.4105	0.4765	0.4806
Adjusted R-squared	0.4036	0.4042	0.4101	0.4758	0.4798

*Note: Multivariate OLS regression model based on Sample C and equation (2). All the variables used except ESG contracting and ESG committee are winsorized at a 5 % and 95% level. In the parenthesis, the t-values are shown. Robust standard errors are clustered at a firm level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$*

ESG contracting's impact on financial performance

For hypothesis 2b, table 10 and 11 show that the control variables vary in impact and level of significance for the different dependent variables ROA and Tobin's Q. Firm size showed to be negatively correlated to Tobin's Q and had marginal effect on ROA. Leverage and D/E are negatively related to both variables. R&D intensity and advertising intensity are positively related to Tobin's Q which is expected as they reflect positive signals on firm value. Past financial performance and asset growth are positively related to both dependent variables which is expected as both measures reflect future financial performance.

The outputs of the regressions show that there indeed exists a relationship between the implementation of ESG contracting and subsequent financial performance, both in terms of ROA and Tobin's Q. However, this relationship only holds true for the first year post implementation for both variables. The relationship between ESG contracting and ROA is weak, only at a 10% significance level for all sets of fixed effects.

For Tobin's Q, the relationship is only significant in the first year, and only without fixed effects. This implies that the relationship lacks robustness, and that the positive relationship found might be driven by unobserved country, industry, or time-varying factors. Hence, we cannot conclude a relationship between ESG contracting and Tobin's Q, contrary to Flammer et al. (2019).

The impact of ESG contracting on ROA is shown to have a weakly positive effect in the first year after implementation. As such, hypothesis 2b holds, but only for ROA. This shows that in the short term, ESG contracting is value enhancing for shareholders. However, it might take time for the ESG initiatives included in the ESG contracts to translate into potential financial profits. This is not visible since we only examine the effect up to three years after implementation, partly because most firms have implemented ESG contracting in recent years.

Table 10
Impact of ESG contracting on ROA

Dependent variable	**ROA**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
ESG contracting $_{(t-3)}$	0.0004	0.0000	-0.0000	-0.0002	-0.0002
	(0.59)	(0.01)	(-0.02)	(-0.28)	(-0.34)
ESG contracting $_{(t-2)}$	-0.0006	-0.0000	-0.0000	0.0000	-0.0000
	(-0.57)	(-0.03)	(-0.04)	(0.02)	(-0.00)
ESG contracting $_{(t-1)}$	0.0014	0.0019	0.0019	0.0019	0.0019
	(1.33)	(1.82)*	(1.81)*	(1.82)*	(1.81)*
Firm size	0.0001	0.0001	0.0001	0.0001	0.0001
	(1.72)*	(1.78)*	(1.89)*	(1.86)*	(1.95)*
Leverage	-0.0097	-0.0098	-0.0098	-0.0099	-0.0099
	(-11.52)***	(-11.72)***	(-11.70)***	(-11.85)***	(-11.81)***
R&D intensity	-0.1080	-0.1060	-0.1061	-0.1061	-0.1062
	(-26.91)***	(-26.49)***	(-26.52)***	(-26.51)***	(-26.55)***
Advertising intensity	0.0170	0.0182	0.0175	0.0196	0.0189
	(1.05)	(1.13)	(1.08)	(1.23)	(1.18)
ESG committee	0.0002	-0.0001	-0.0002	-0.0001	-0.0002
	(0.77)	(-0.36)	(-0.61)	(-0.44)	(-0.59)
Past financial performance	0.7597	0.7628	0.7624	0.7617	0.7613
	(124.78)***	(125.75)***	(125.61)***	(125.11)***	(124.96)***
Asset growth	0.0167	0.0162	0.0162	0.0163	0.0163
	(16.47)***	(16.23)***	(16.24)***	(16.25)***	(16.26)***
Debt/Equity	-0.0010	-0.0008	-0.0008	-0.0008	-0.0008
	(-5.56)***	(-4.67)***	(-4.65)***	(-4.71)***	(-4.69)***
Constant	0.0137	0.0137	0.0137	0.0138	0.0138
	(17.71)***	(17.80)***	(17.78)***	(17.86)***	(17.84)***
Year fixed effects	NO	YES	YES	YES	YES
Industry fixed effects	NO	NO	YES	NO	YES
Country fixed effects	NO	NO	NO	YES	YES
Observations	49,226	49,226	49,226	49,226	49,226
R-squared	0.6538	0.6597	0.6598	0.6601	0.6602
Adjusted R-squared	0.6537	0.6595	0.6596	0.6596	0.6596

*Note: Multivariate OLS regression model based on Sample C and equation (3). All the variables used except ESG contracting and ESG committee are winsorized at a 5 % and 95% level. In the parenthesis, the t-values are shown. Robust standard errors are clustered at a firm level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$*

Table 11
Impact of ESG contracting on Tobin's Q

Dependent variable	**Tobin's Q**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
ESG contracting $_{(t-3)}$	-0.0304	-0.0092	-0.0051	-0.0100	-0.0063
	(-1.05)	(-0.32)	(-0.18)	(-0.34)	(-0.22)
ESG contracting $_{(t-2)}$	0.0047	0.0225	0.0244	0.0239	0.0256
	(0.18)	(0.90)	(0.97)	(0.95)	(1.02)
ESG contracting $_{(t-1)}$	0.0624	0.0387	0.0397	0.0380	0.0388
	(2.25)**	(1.43)	(1.46)	(1.40)	(1.43)
Firm size	-0.0652	-0.0742	-0.0740	-0.0733	-0.0731
	(-14.62)***	(-16.65)***	(-16.66)***	(-16.48)***	(-16.48)***
Leverage	-0.4035	-0.2910	-0.2897	-0.2973	-0.2963
	(-6.91)***	(-5.01)***	(-4.99)***	(-5.09)***	(-5.08)***
R&D intensity	7.8694	7.6657	7.6520	7.6387	7.6248
	(30.54)***	(29.78)***	(29.80)***	(29.64)***	(29.65)***
Advertising intensity	13.0506	13.4042	13.4801	13.2770	13.3383
	(9.13)***	(9.47)***	(9.53)***	(9.44)***	(9.49)***
ESG committee	-0.0165	0.0078	0.0073	-0.0060	-0.0070
	(-0.74)	(0.35)	(0.32)	(-0.26)	(-0.30)
Past financial performance	8.2473	8.7812	8.7763	8.7879	8.7795
	(23.92)***	(25.38)***	(25.44)***	(25.60)***	(25.65)***
Asset growth	0.9890	0.9505	0.9514	0.9486	0.9495
	(22.19)***	(21.67)***	(21.70)***	(21.70)***	(21.73)***
Debt/Equity	-0.0781	-0.1068	-0.1079	-0.1077	-0.1088
	(-6.64)***	(-8.96)***	(-9.06)***	(-9.01)***	(-9.10)***
Constant	1.9033	1.9288	1.9272	1.9321	1.9308
	(35.81)***	(36.29)***	(36.44)***	(36.12)***	(36.27)***
Year fixed effects	NO	YES	YES	YES	YES
Industry fixed effects	NO	NO	YES	NO	YES
Country fixed effects	NO	NO	NO	YES	YES
Observations	49,226	49,226	49,226	49,226	49,226
R-squared	0.2253	0.253	0.2542	0.2566	0.2576
Adjusted R-squared	0.2252	0.2527	0.2537	0.2555	0.2564

*Note: Multivariate OLS regression model based on Sample C and equation (4). All the variables used except ESG contracting and ESG committee are winsorized at a 5 % and 95% level. In the parenthesis, the t-values are shown. Robust standard errors are clustered at a firm level. * p < 0.10, ** p < 0.05, *** p < 0.01*

6.2. Diagnostic test results

In this section, the results of our diagnostic tests are presented.

6.2.1. Heterogeneity

The Hausman test examines whether a fixed or random effect panel regression model is most suitable. The null hypothesis in the Hausman test is that a random effects model should be used. Table 12 shows that the p-values are below 1% which implies that we can reject the null hypothesis, and that a fixed effect regression model should be used. This is in line with previous studies' model usage (Cohen et al., 2022; Focke, 2022).

Table 12
Hausman test

Dependent variable	Chi squared	p-value
ESG contracting $_{(t+1)}$	459.62	0.0000
ROA	10733.10	0.0000
Tobin's Q	1637.07	0.0000
ESG score	2726.28	0.0000

Note: See specification of regression models in method section.

The joint F-test examines whether we should include time-fixed effects in our regression models. With p-values less than 1%, we can reject the null hypothesis of needing no time-fixed effects and conclude that time-fixed effects should be included in our regression models, see table 13.

Table 13
Joint F-test for time-fixed effects

Dependent variable	F	p-value
ESG contracting $_{(t+1)}$	37.32	0.0000
ROA	43.87	0.0000
Tobin's Q	163.66	0.0000
ESG score	201.97	0.0000

Note: See specification of regression models in method section.

6.2.2. Multicollinearity

To test for multicollinearity among our independent and control variables, a VIF test on each regression is conducted, see table 14. A VIF factor above 10 suggests severe multicollinearity. For all our regressions, the VIF factor is below 4, indicating no multicollinearity in our data.

Table 14
VIF test

Variable	ESG contracting $_{(t+1)}$	ROA and Tobin's Q	ESG score
ESG contracting $_{(t-3)}$		2.35	2.38
ESG contracting $_{(t-2)}$		3.13	3.13
ESG contracting $_{(t-1)}$		1.79	1.79
% Institutional ownership	1.38		
% Activist ownership	1.05		
ROA	1.36		1.36
Tobin Q	1.25		1.29
Firm size	1.15	1.16	1.17
Leverage	1.12	1.49	1.50
R&D intensity	1.52	1.30	1.50
Advertising intensity	1.02	1.02	1.03
% Independent BM	1.48		1.14
% Female BM	1.12		1.14
ESG committee	1.03	1.02	1.05
Past fin. performance		1.20	
Asset growth		1.02	
Debt/Equity		1.33	1.34

Note: See specification of regression models in method section. If no VIF value is presented, the variable is not used in the regression model. BM is short for board members.

6.2.3. Heteroscedasticity

To test for heteroscedasticity in the regression models, we conduct the Breusch-Pagan test for homoscedasticity, see table 15. As the p-value below 1%, we can reject the null hypothesis which means that we have heteroscedasticity in our data. This suggests that robust standard errors need to be applied in our models.

Table 15
Breusch-Pagan test for homoskedasticity

Dependent variable	Chi squared	p-value
ESG contracting $_{(t+1)}$	6261.83	0.0000
ROA	449.54	0.0000
Tobin's Q	12277.05	0.0000
ESG score	513.02	0.0000

Note: See specification of regression models in method section.

6.2.4. Autocorrelation

To test for autocorrelation, we perform a Wooldridge test. Table 16 shows that the p-value is below 1%, which means that we have autocorrelation in our data. Having autocorrelation means that the error terms will be biased, and therefore need to be adjusted for by using robust standard errors in our regression models.

Table 16
Wooldridge test for serial correlation

Dependent variable	F	p-value
ESG contracting $_{(t+1)}$	14.941	0.0001
ROA	975.999	0.0000
Tobin's Q	1095.704	0.0000
ESG score	4493.618	0.0000

Note: See specification of regression models in method section.

6.3. Robustness test results

We perform several robustness tests to control for the robustness of our results. Appendices G-O depicts the outputs from the robustness tests.

6.3.1. Robustness tests for hypotheses 1a and 1b

To start with, we run a regression without our data assumptions (see Appendix G) which now gives us 22,350 firm-year observations. The robustness test shows that institutional ownership is no longer significant when having no fixed effects or only year fixed effects. However, the relationship is still significant when applying industry, country, and year fixed effects, hence hypothesis 1a still holds. Moreover, for activist ownership, the relationship is still negatively insignificant except for the fixed effect combination of year and country. This implies that the significant relationship in this fixed effect combination might be driven by unobserved industry-related factors that only show when adjusting for year and country fixed effects. We can still not conclude that activist owners have a significant impact on the implementation of ESG contracting.

Furthermore, we show that our results are robust without control variables (see Appendix H) and when applying a logistic binary regression model (see Appendix I). The binary regression model applied in line with previous research (Abdelmotaal & Abdel-Kader, 2016; Focke, 2022) gives us strongly significant results on institutional ownership, at a pseudo-R squared of 13.37% when including all fixed effects.

6.3.2. Robustness tests for hypothesis 2a

To control for the robustness of our results on ESG performance, we run a regression without our data assumptions (see Appendix J) and without control variables (see Appendix K). When controlling for our data assumptions, we find that the relationship between ESG contracting and ESG performance after three years still holds but not after two years. This further implies that it takes time before ESG contracting is reflected in a firm's ESG score. Moreover, the results are still robust and highly positively significant without any control variables for all three years following the implementation of ESG contracting. We can therefore still conclude that ESG contracting has an impact on ESG performance, but only after three years.

6.3.3. Robustness tests for hypothesis 2b

To control for the robustness of our results on financial performance, we also run a regression without our data assumptions and control variables. When controlling for our data assumptions, we find that the relationship between ESG contracting and financial performance on ROA after one year still holds when including certain combinations of fixed effects (see Appendix L). Moreover, the results are not robust when excluding our control variables (see Appendix M). However, the explanatory power, in terms of adjusted R-squared, of the regression model on ROA without controls is only 1.78% with all the fixed effects. This implies that our main regression model is more applicable and hence, we can still conclude that ESG contracting has an impact on ROA the following year. When controlling for the robustness of the results on Tobin's Q, the results are still insignificant, and we can still not draw any conclusion on a relationship (see Appendices N, O).

7. Limitations and further research

While the aim of this study is to provide insights on whether the share of institutional and activist investors affect the decision of implementing ESG contracting, and whether the implementation of ESG contracting relates to increased subsequent financial performance and ESG scores, our research has certain limitations that reveal opportunities for further research.

Firstly, it is important to highlight that the relationships found might not be sufficient to conclude causality in our investigated hypotheses. This is partly due to the risk of potential omitted variable bias. For example, institutional and activist investor engagement in ESG can be multifaceted, and they might push for other sustainability actions apart from ESG contracting, making it difficult to pinpoint what ultimately influences ESG performance. Moreover, improvements in ESG performance could result from an increased focus on sustainability, independent of ESG contracting. Furthermore, the divergence across ESG rating agencies' measurements and interpretations of the ESG scores, urges future research to investigate our results through the lens of different rating agencies scores.

Despite the global reach of our study, the sample could be subject to survivorship bias; if companies who do not engage in ESG contracting choose not to report information regarding ESG contracting, our sample exclude many non-implementers of ESG contracting. Additionally, some industries and regions could be overrepresented in the sample due to certain laws or expectations that are not considered in this study but could be examined in further studies.

Moreover, our study works with an unbalanced panel data set, with an increase in firm-year observations over time. Unbalanced panel data is not a problem per se if observations are missing at random (Wooldridge, 2010). However, the increase in observations could lead to potential bias in the results as better ESG performers and larger firms may have ESG contracting data available for earlier years to a greater extent.

Another limitation is that the study only investigates whether a firm uses ESG contracting or not, and not on the structure or focus of the ESG contracting. The implementation of ESG contracting may only account for a negligible proportion of the total compensation package, and thus exert inadequate incentive for managers to make significant changes in behavior, as noted by (Flammer et al., 2019). Moreover, the study does not consider specific strategies or goals of the activist and institutional investors. As highlighted in the literature review, activist investors have been observed to both promote and neglect ESG initiatives. The fact that strategies may vary within the different types of owners, can be considered in future research.

8. Conclusion

This study examines two research questions. The first one is whether certain shareholders, i.e., institutional owners and activist owners, push for ESG contracting, and the second one asks whether ESG contracting serves as an effective governance tool to promote the interests of investing and non-investing stakeholders.

The study fills an important research gap by examining the ownership influences on, and impact of, corporate governance connected to ESG in a global context, and thus provides clarity on whether ESG contracting mitigates or reinforces agency costs. Moreover, our study extends existing research and contributes to the academic literature by analyzing a more recent time period, as data on ESG contracting is continuously increasing. This is seen in our data set as most of the observations are from the past four years.

A multivariate fixed-effect regression model with a set of control variables is used to investigate the research questions. Our results allow us to accept hypotheses 1a, 2a, and 2b but reject hypothesis 1b, as the relationship was non-significant between the share of activist owners and the implementation of ESG contracting. We can hence conclude that ESG contracting is a governance mechanism widely applied by institutional investors to push for change, but we cannot conclude that activist investors push for its implementation. A potential explanation for this is that they might view it as an agency cost in which the CEOs gain financial compensation at the expense of shareholders.

The increase in ESG performance over time indicates that indeed, ESG contracting is an effective governance mechanism to enhance stakeholder value. The increase in financial performance indicates that ESG contracting does create value for shareholders, which makes ESG contracting applicable to both the stakeholder theory from Freeman (1974) and the shareholder theory from Friedman (1970). However, important to note is that activist investors do not necessarily view it as an appropriate tool to push for the change that they aim for, meanwhile, institutional investors do. Evidently, ESG contracting is viewed both as greed and green, depending on the investor type.

Investors evaluating whether to push for ESG contracting should not fear its implications on ESG performance. However, its impact on long-term financial performance is yet to be observed, as the relatively new concept has not been around for enough time to see its long-term impact. This calls for continued research in the field. If one views ESG performance to be indicative of future financial performance, ESG contracting is an efficient governance tool to create value, both in financial- and ESG performance terms.

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Appendix

A. Classification of activist investors by Capital IQ

"A few basic rules are used to define an investor as an activist in the S&P Capital IQ Ownership data set. This data is available on the S&P Capital IQ platform, the S&P Capital IQ Pro platform, and via Xpressfeed.

For example,

An entity (usually hedge fund/Private investment fund) is flagged as activist based on one of the following criteria:

1) Any entity or individual investor who describes themselves as an activist (sourced from websites, regulatory filings, news articles, etc...). This also includes other factors such as the firm's primary business activities and strategy.

2) Investors currently involved in an activism campaign against a particular company. The impact the firm is trying to make through the campaign is considered. Generally, the more serious the impact, the more chances of the investor being labeled as an activist.

3) Investors with previous activism history is another criterion taken under consideration. For example, firms associated with known activists Carl Icahn or William Ackman are flagged as activists since they are mostly tagged as corporate raiders.

Note: A firm might have waged an activist campaign and still be not flagged as an activist because it does not conform to the guidelines. For example, companies with Primary Firm Type - Bank/Investment Bank or Traditional money managers like pension funds, asset managers are never flagged as an activist even if the company has waged campaigns. Labeling an institution as an activist in the database is used to categorize only the obvious institutions as activists. This is done to differentiate them from other firms that might be involved in campaigns as one-off cases. The exception for one-off cases is if the firm has stated their corporate strategy to be activist investing."

B. Table on the development of ESG contracting by region

Year	Africa		Asia		Europe		Latin America		North America		Oceania	
	%	#	%	#	%	#	%	#	%	#	%	#
2007	0%	0	1%	3	7%	43	0%	0	11%	58	28%	18
2008	57%	4	2%	8	10%	65	10%	2	15%	88	38%	26
2009	28%	5	2%	10	16%	108	4%	2	21%	155	39%	44
2010	27%	11	2%	16	20%	145	5%	4	25%	210	40%	61
2011	28%	17	2%	22	25%	187	9%	11	31%	272	48%	86
2012	33%	36	3%	35	30%	241	11%	15	35%	315	51%	101
2013	40%	47	4%	49	32%	260	17%	24	38%	353	50%	115
2014	43%	51	4%	48	33%	274	16%	25	38%	357	50%	132
2015	43%	52	5%	57	35%	310	15%	25	35%	364	50%	152
2016	44%	55	6%	75	36%	352	14%	26	30%	467	52%	171
2017	50%	62	7%	89	38%	395	10%	27	26%	561	51%	182
2018	51%	64	7%	109	39%	468	10%	31	25%	653	53%	199
2019	57%	77	8%	141	35%	563	10%	35	25%	711	56%	221
2020	60%	82	8%	190	39%	750	11%	42	25%	790	58%	239
2021	64%	91	11%	304	43%	1051	16%	62	26%	906	64%	279
2022	56%	105	13%	553	53%	1351	18%	85	31%	1137	67%	310

Note: Based on Sample A. Table B shows the percentage and number of firms with ESG contracting from 2007 to 2022 by region. Data obtained from Thomson Reuters Eikon.

C. Distribution of observations per sector (Sample B)

Industry	# Firm-years	% Firm-years	# Firms	% Firms	# Firms ESG pay =1	% ESG pay =1
Communication Services	2,044	5.72%	392	5.36%	98	25.00%
Consumer Discretionary	4,378	12.26%	886	12.11%	227	25.62%
Consumer Staples	2,477	6.94%	467	6.38%	130	27.84%
Energy	1,320	3.70%	279	3.81%	137	49.10%
Financials	5,777	16.18%	1,038	14.18%	298	28.71%
Health Care	3,495	9.79%	958	13.09%	159	16.60%
Industrials	6,151	17.23%	1,217	16.63%	356	29.25%
Information Technology	3,395	9.51%	765	10.45%	145	18.95%
Materials	3,088	8.65%	627	8.57%	222	35.41%
Real Estate	2,427	6.80%	476	6.50%	124	26.05%
Utilities	1,156	3.24%	213	2.91%	85	39.91%
Total	**35,708**	**100%**	**7,318**	**100%**	**1,981**	

Note: Based on Sample B. Table C shows the number of observations per sector.

D. Distribution of observations per sector (Sample C)

Industry	# Firm-years	% Firm-years	# Firms	% Firms	# Firms ESG pay =1	% ESG pay =1
Communication Services	2,607	5.30%	470	4.79%	107	22.8%
Consumer Discretionary	5,963	12.11%	1,160	11.83%	254	21.9%
Consumer Staples	3,188	6.48%	620	6.32%	135	21.8%
Energy	2,123	4.31%	412	4.20%	191	46.4%
Financials	7,811	15.87%	1,405	14.33%	321	22.8%
Health Care	5,086	10.33%	1,204	12.28%	204	16.9%
Industrials	8,346	16.95%	1,661	16.94%	418	25.2%
Information Technology	4,642	9.43%	981	10.01%	182	18.6%
Materials	4,488	9.12%	955	9.74%	290	30.4%
Real Estate	3,366	6.84%	641	6.54%	145	22.6%
Utilities	1,606	3.26%	295	3.01%	117	39.7%
Total	**49,226**	**100%**	**9,804**	**100%**	**2,364**	

Note: Based on Sample C. Table D shows the number of observations per sector.

E. Distribution of observations per country (Sample B)

Country of HQ	# Firm-years	% Firm-years	# Firms	% Firms	# Firms ESG pay =1	% ESG pay =1
Argentina	168	0.47%	41	0.56%	2	4.88%
Australia	1,075	3.01%	221	3.02%	142	64.25%
Austria	139	0.39%	25	0.34%	17	68.00%
Belgium	213	0.60%	42	0.57%	27	64.29%
Bermuda	198	0.55%	35	0.48%	9	25.71%
Brazil	496	1.39%	91	1.24%	25	27.47%
Canada	1,521	4.26%	329	4.50%	132	40.12%
Chile	244	0.68%	39	0.53%	13	33.33%
China	3,270	9.16%	934	12.76%	65	6.96%
Colombia	126	0.35%	22	0.30%	2	9.09%
Denmark	223	0.62%	42	0.57%	22	52.38%
Egypt	75	0.21%	10	0.14%	0	0.00%
Finland	234	0.66%	63	0.86%	21	33.33%
France	638	1.79%	127	1.74%	84	66.14%
Germany	755	2.11%	191	2.61%	98	51.31%
Greece	181	0.51%	25	0.34%	6	24.00%
Hong Kong	1,120	3.14%	141	1.93%	7	4.96%
India	1,048	2.93%	158	2.16%	20	12.66%
Indonesia	342	0.96%	53	0.72%	9	16.98%
Ireland	252	0.71%	42	0.57%	22	52.38%
Israel	144	0.40%	32	0.44%	6	18.75%
Italy	332	0.93%	87	1.19%	46	52.87%
Japan	3,962	11.10%	429	5.86%	79	18.41%
South Korea	903	2.53%	138	1.89%	24	17.39%
Luxembourg	89	0.25%	25	0.34%	7	28.00%
Malaysia	466	1.31%	75	1.02%	20	26.67%
Mexico	338	0.95%	52	0.71%	10	19.23%
Netherlands	146	0.41%	38	0.52%	24	63.16%
New Zealand	261	0.73%	45	0.61%	18	40.00%
Norway	142	0.40%	59	0.81%	18	30.51%
Oman	51	0.14%	10	0.14%	2	20.00%
Peru	139	0.39%	28	0.38%	1	3.57%
Philippines	218	0.61%	29	0.40%	4	13.79%
Poland	239	0.67%	35	0.48%	12	34.29%
Portugal	53	0.15%	12	0.16%	8	66.67%
Qatar	129	0.36%	34	0.46%	0	0.00%
Russia	111	0.31%	15	0.20%	10	66.67%
Singapore	393	1.10%	62	0.85%	22	35.48%
South Africa	380	1.06%	69	0.94%	52	75.36%
Spain	357	1.00%	59	0.81%	41	69.49%
Sweden	713	2.00%	230	3.14%	79	34.35%
Switzerland	724	2.03%	167	2.28%	54	32.34%
Taiwan	1,266	3.55%	153	2.09%	40	26.14%
Thailand	269	0.75%	64	0.87%	15	23.44%
Turkey	287	0.80%	73	1.00%	26	35.62%
UAE	86	0.24%	22	0.30%	1	4.55%
United Kingdom	1,346	3.77%	351	4.80%	182	51.85%
USA	9,846	27.57%	2,294	31.35%	457	19.92%
Total	**35,708**	**100%**	**7,318**	**100%**	**1,981**	

Note: Based on Sample B. Table E shows the number of observations per country.

F. Distribution of observations per country (Sample C)

Country of HQ	# Firm-years	% Firm-years	# Firms	% Firms	# Firms ESG pay =1	% ESG pay =1
Argentina	235	0.48%	51	0.52%	2	3.92%
Australia	1,868	3.79%	337	3.44%	214	63.50%
Austria	211	0.43%	34	0.35%	22	64.71%
Belgium	279	0.57%	49	0.50%	19	38.78%
Bermuda	281	0.57%	43	0.44%	11	25.58%
Brazil	629	1.28%	111	1.13%	27	24.32%
Canada	2,030	4.12%	401	4.09%	160	39.90%
Chile	288	0.59%	42	0.43%	11	26.19%
China	4,281	8.70%	1,115	11.37%	43	3.86%
Colombia	144	0.29%	22	0.22%	2	9.09%
Denmark	289	0.59%	55	0.56%	26	47.27%
Egypt	97	0.20%	23	0.23%	0	0.00%
Finland	320	0.65%	70	0.71%	21	30.00%
France	947	1.92%	173	1.76%	105	60.69%
Germany	1,125	2.29%	250	2.55%	91	36.40%
Greece	218	0.44%	28	0.29%	7	25.00%
Hong Kong	1,178	2.39%	156	1.59%	7	4.49%
India	1,607	3.26%	624	6.36%	14	2.24%
Indonesia	412	0.84%	78	0.80%	9	11.54%
Ireland	332	0.67%	49	0.50%	24	48.98%
Israel	177	0.36%	35	0.36%	5	14.29%
Italy	532	1.08%	116	1.18%	49	42.24%
Japan	4,170	8.47%	450	4.59%	46	10.22%
South Korea;	1,050	2.13%	145	1.48%	24	16.55%
Luxembourg	134	0.27%	32	0.33%	9	28.13%
Malaysia	770	1.56%	303	3.09%	24	7.92%
Mexico	424	0.86%	87	0.89%	7	8.05%
Netherlands	306	0.62%	65	0.66%	44	67.69%
New Zealand	358	0.73%	54	0.55%	24	44.44%
Norway	237	0.48%	71	0.72%	17	23.94%
Oman	62	0.13%	11	0.11%	0	0.00%
Peru	184	0.37%	31	0.32%	3	9.68%
Philippines	250	0.51%	35	0.36%	3	8.57%
Poland	278	0.56%	36	0.37%	8	22.22%
Portugal	69	0.14%	13	0.13%	7	53.85%
Qatar	171	0.35%	41	0.42%	3	7.32%
Russia	152	0.31%	17	0.17%	8	47.06%
Singapore	518	1.05%	89	0.91%	34	38.20%
South Africa	676	1.37%	108	1.10%	85	78.70%
Spain	468	0.95%	70	0.71%	43	61.43%
Sweden	1,126	2.29%	299	3.05%	98	32.78%
Switzerland	963	1.96%	186	1.90%	55	29.57%
Taiwan	1,397	2.84%	160	1.63%	19	11.88%
Thailand	362	0.74%	89	0.91%	13	14.61%
Turkey	395	0.80%	94	0.96%	23	24.47%
UAE	150	0.30%	61	0.62%	1	1.64%
United Kingdom	2,202	4.47%	486	4.96%	242	49.79%
USA	14,874	30.22%	2,909	29.67%	655	22.52%
Total	**49,226**	**100%**	**9,804**	**100%**	**2,364**	

Note: Based on Sample C. Table F shows the number of observations per country.

G. Robustness test: Regression model to control for the data cleaning assumption (*Hypothesis 1a and 1b*)

Dependent variable	**ESG contracting $_{(t+1)}$**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
% Institutional ownership	0.0001	0.0001	0.0002	0.0003	0.0004
	(0.83)	(1.17)	(2.49)**	(3.86)***	(4.86)***
% Activist ownership	-0.0001	-0.0004	-0.0002	-0.0007	-0.0005
	(-0.36)	(-1.03)	(-0.49)	(-1.99)**	(-1.43)
ROA	0.0072	0.0142	0.0186	0.0207	0.0221
	(0.22)	(0.43)	(0.56)	(0.64)	(0.69)
Tobin's Q	0.0011	0.0004	0.0004	0.0004	0.0003
	(0.91)	(0.31)	(0.31)	(0.32)	(0.27)
Firm size	0.0003	0.0000	0.0002	0.0000	0.0002
	(0.44)	(0.04)	(0.35)	(0.09)	(0.39)
Leverage	0.0046	0.0064	0.0058	0.0051	0.0045
	(0.66)	(0.91)	(0.83)	(0.76)	(0.67)
R&D intensity	0.0359	0.0341	0.0304	0.0378	0.0334
	(1.30)	(1.22)	(1.09)	(1.37)	(1.21)
Advertising intensity	-0.1395	-0.1288	-0.1386	-0.1059	-0.1174
	(-1.04)	(-0.96)	(-1.03)	(-0.81)	(-0.90)
% Independent board members	0.0005	0.0004	0.0004	0.0005	0.0005
	(6.95)***	(5.35)***	(4.90)***	(4.72)***	(4.81)***
% Female board members	0.0019	0.0018	0.0019	0.0010	0.0011
	(12.25)***	(11.42)***	(11.75)***	(6.16)***	(6.49)***
ESG committee	0.0484	0.0490	0.0458	0.0394	0.0361
	(14.60)***	(14.86)***	(13.70)***	(11.15)***	(10.14)***
Constant	-0.0275	-0.0185	-0.0226	-0.0206	-0.0266
	(-3.73)***	(-2.49)**	(-3.01)***	(-2.32)**	(-2.94)***
Year fixed effects	NO	YES	YES	YES	YES
Industry fixed effects	NO	NO	YES	NO	YES
Country fixed effects	NO	NO	NO	YES	YES
Observations	22,350	22,350	22,350	22,350	22,350
R-squared	0.0258	0.0348	0.0405	0.0541	0.0594
Adjusted R-squared	0.0253	0.0337	0.0389	0.0510	0.0560

*Note: Multivariate OLS regression model based on Sample B without the assumptions on missing data (see specification in the data construction process section). The regression is based on equation (1). All the variables used except ESG contracting and ESG committee are winsorized at a 5 % and 95% level. In the parenthesis, the t-values are shown. Robust standard errors are clustered at a firm level. * p < 0.10, ** p < 0.05, *** p < 0.01*

H. Robustness test: Regression model with no control variables (*Hypothesis 1a and 1b*)

Dependent variable	**ESG contracting (t+1)**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
% Institutional ownership	0.0004	0.0005	0.0006	0.0007	0.0008
	(9.34)***	(10.37)***	(12.00)***	(11.15)***	(12.14)***
% Activist ownership	-0.0005	-0.0006	-0.0004	-0.0005	-0.0003
	(-1.52)	(-1.50)	(-0.91)	(-1.28)	(-0.75)
Constant	-0.0275	-0.0185	-0.0226	-0.0206	-0.0266
	(-3.73)***	(-2.49)**	(-3.01)***	(-2.32)**	(-2.94)***
Year fixed effects	NO	YES	YES	YES	YES
Industry fixed effects	NO	NO	YES	NO	YES
Country fixed effects	NO	NO	NO	YES	YES
Observations	35,708	35,708	35,708	35,708	35,708
R-squared	0.0024	0.0142	0.0190	0.0462	0.0507
Adjusted R-squared	0.0024	0.0138	0.0183	0.0445	0.0488

*Note: Based on Sample B. Multivariate OLS regression model without any control variables. Regression model based on equation (1). Variables are winsorized at a 5 % and 95% level. In the parenthesis, the t-values are shown. Robust standard errors are clustered at a firm level. * p < 0.10, ** p < 0.05, *** p < 0.01*

I. Robustness test: Binary logistic regression model (*Hypothesis 1a and 1b*)

	(1)		(2)		(3)		(4)		(5)	
		ME	.	ME		ME		ME		ME
% Institutional ownership	0.0016 (1.65)*	0.0001	0.0029 (2.90) ***	0.0001	0.0045 (4.41)***	0.0002	0.0079 (6.16)***	0.0003	0.0101 (7.70)***	0.0003
% Activist ownership	-0.0084 -(0.93)	-0.0004	-0.0100 (-1.08)	-0.0004	-0.0066 (-0.71)	-0.0003	-0.0089 (-0.91)	-0.0003	-0.0056 (-0.57)	-0.0002
ROA	0.4341 (0.91)	0.0190	0.7188 (1.50)	0.0295	0.7029 (1.45)	0.0279	0.6296 (1.28)	0.0213	0.6068 (1.22)	0.0198
Tobin's Q	0.0258 (1.59)	0.0011	0.0037 (0.23)	0.0002	0.0076 (0.47)	0.0003	0.0013 (0.08)	0.0000	0.0054 (0.32)	0.0002
Firm size	0.0067 (0.75)	0.0003	-0.0025 (-0.28)	-0.0001	-0.0011 (-0.12)	0.0000	-0.0054 (-0.57)	-0.0002	-0.0021 (-0.22)	-0.0001
Leverage	0.0938 (0.88)	0.0041	0.1435 (1.33)	0.0059	0.1227 (1.12)	0.0049	0.1370 (1.23)	0.0046	0.1142 (1.02)	0.0037
R&D intensity	0.4591 (1.18)	0.0201	0.4760 (1.23)	0.0195	0.3921 (1.00)	0.0156	0.4154 (1.05)	0.0140	0.3238 (0.80)	0.0105
Advertising intensity	-2.4870 (-1.15)	-0.1087	-1.8440 (-0.85)	-0.0756	-2.1531 (-0.99)	-0.0856	-1.4435 (-0.65)	-0.0488	-1.6829 (-0.76)	-0.0548
% Independent BM	0.0100 (8.28) ***	0.0004	0.0088 (7.15) ***	0.0004	0.0081 (6.54) ***	0.0003	0.0084 (5.78) ***	0.0003	0.0082 (5.52) ***	0.0003
% Female BM	0.0337 (16.62)***	0.0015	0.0304 (14.32)***	0.0012	0.0332 (15.34) ***	0.0013	0.0150 (6.59) ***	0.0005	0.0179 (7.66) ***	0.0006
ESG committee	0.7730 (16.07)***	0.0338	0.8063 (16.62)***	0.0331	0.7416 (14.90) ***	0.0295	0.7484 (14.05)***	0.0253	0.6811 (12.59) ***	0.0222
Constant	-4.5676 (-37.34) ***		-3.7201 (-14.09)***		-3.9052 (-13.80)***		-5.3656 (-7.18) ***		-5.8646 (-7.85)***	
Year FE	NO		YES		YES		YES		YES	
Industry FE	NO		NO		YES		NO		YES	
Country FE	NO		NO		NO		YES		YES	
Observations	35,708		35,708		35,708		35,504		35,504	
Pseudo R2	0.0555		0.0739		0.0837		0.1238		0.1337	

*Note: Based on sample B. Binary logistic regression model based on equation (1). Variables are winsorized at a 5 % and 95% level. For each logistic regression, we first show the coefficients and in the right column the marginal effects. In the parenthesis, the z-values are shown. FE is short for fixed effects and BM for is short for board members. Robust standard errors are clustered at a firm level. * p < 0.10, ** p < 0.05, *** p < 0.01*

J. Robustness test: Regression model to control for the data cleaning assumption (*Hypothesis 2a*)

Dependent variable	**ESG score**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
ESG contracting $_{(t-3)}$	4.7840	4.8870	5.2420	5.0050	5.2665
	(11.03)***	(11.30)***	(12.27)***	(12.59)***	(13.38)***
ESG contracting $_{(t-2)}$	-0.0434	0.0463	0.1371	0.3598	0.4540
	(-0.13)	(0.14)	(0.42)	(1.15)	(1.45)
ESG contracting $_{(t-1)}$	-0.6087	-0.3892	-0.3198	0.0715	0.1251
	(-2.07)**	(-1.32)	(-1.09)	(0.26)	(0.46)
ROA	-3.7217	-2.1701	-1.6172	-3.3834	-2.6068
	(-1.01)	(-0.58)	(-0.44)	(-0.99)	(-0.77)
Tobin's Q	0.0961	0.0430	0.0320	0.0849	0.0718
	(0.79)	(0.34)	(0.26)	(0.73)	(0.62)
Firm size	-0.1907	-0.2301	-0.2483	-0.1674	-0.1871
	(-2.28)**	(-2.68)***	(-2.91)***	(-2.16)**	(-2.43)**
Leverage	1.6928	1.9780	2.0505	1.0379	1.0863
	(1.59)	(1.83)*	(1.91)*	(1.05)	(1.10)
R&D intensity	-2.5464	-3.0988	-2.6697	-2.0027	-1.5784
	(-0.84)	(-1.02)	(-0.87)	(-0.72)	(-0.56)
Advertising intensity	-14.5070	-11.1087	-8.5201	-13.3983	-10.6066
	(-0.76)	(-0.58)	(-0.45)	(-0.76)	(-0.60)
% Independent board members	0.0439	0.0415	0.0397	0.2394	0.2359
	(4.94)***	(4.64)***	(4.42)***	(20.57)***	(20.14)***
% Female board members	0.2689	0.2521	0.2468	0.2762	0.2734
	(16.64)***	(14.65)***	(14.35)***	(16.14)***	(16.14)***
ESG committee	21.6073	21.6256	21.6984	19.6221	19.6761
	(55.20)***	(55.12)***	(54.77)***	(50.36)***	(50.20)***
Debt/Equity	0.1127	0.0428	0.0530	0.1836	0.1741
	(0.43)	(0.16)	(0.20)	(0.76)	(0.73)
Constant	27.9870	28.6604	28.8482	17.9854	18.2896
	(27.43)***	(27.37)***	(27.50)***	(17.12)***	(17.42)***
Year fixed effects	NO	YES	YES	YES	YES
Industry fixed effects	NO	NO	YES	NO	YES
Country fixed effects	NO	NO	NO	YES	YES
Observations	29,445	29,445	29,445	29,445	29,445
R-squared	0.3884	0.3931	0.3977	0.4737	0.4775
Adjusted R-squared	0.3882	0.3926	0.3970	0.4724	0.4760

*Note: Multivariate OLS regression model based on Sample C without the assumptions on missing data (see specification in the data construction process section). The regression is based on equation (2). All the variables used except ESG contracting and ESG committee are winsorized at a 5 % and 95% level. In the parenthesis, the t-values are shown. Robust standard errors are clustered at a firm level. * p < 0.10, ** p < 0.05, *** p < 0.01*

K. Robustness test: Regression model with no control variables (*Hypothesis 2a*)

Dependent variable	**ESG score**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
ESG contracting $_{(t-3)}$	10.2958	10.0827	10.2190	9.6307	9.7312
	(25.30)***	(24.97)***	(25.39)***	(25.51)***	(25.76)***
ESG contracting $_{(t-2)}$	1.3616	1.6143	1.6900	2.3787	2.4193
	(5.02)***	(6.06)***	(6.36)***	(9.27)***	(9.44)***
ESG contracting $_{(t-1)}$	-0.2819	0.3562	0.3957	0.9799	1.0145
	(-1.08)	(1.39)	(1.55)	(3.98)***	(4.14)***
Constant	39.6114	39.6159	39.5944	39.5959	39.5809
	(181.78)***	(180.15)***	(180.37)***	(192.53)***	(193.38)***
Year fixed effects	NO	YES	YES	YES	YES
Industry fixed effects	NO	NO	YES	NO	YES
Country fixed effects	NO	NO	NO	YES	YES
Observations	49,226	49,226	49,226	49,226	49,226
R-squared	0.0344	0.0391	0.0494	0.1497	0.1562
Adjusted R-squared	0.0344	0.0388	0.0489	0.1486	0.1549

*Note: Based on Sample C. Multivariate OLS regression model based on equation (2), without any control variables. Variables used are winsorized at a 5 % and 95% level. In the parenthesis, the t-values are shown. Robust standard errors are clustered at a firm level. * p < 0.10, ** p < 0.05, *** p < 0.01*

L. Robustness test: Regression model to control for the data cleaning assumption (*Hypothesis 2b for ROA*)

Dependent variable	**ROA**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
ESG contracting $_{(t-3)}$	0.0007	0.0003	0.0003	0.0002	0.0002
	(0.73)	(0.27)	(0.27)	(0.23)	(0.23)
ESG contracting $_{(t-2)}$	-0.0005	-0.0001	-0.0001	-0.0001	-0.0001
	(-0.39)	(-0.06)	(-0.08)	(-0.07)	(-0.09)
ESG contracting $_{(t-1)}$	0.0018	0.0023	0.0023	0.0024	0.0018
	(1.32)	(1.72)*	(1.73)*	(1.78)*	(1.32)
Firm size	0.0000	0.0000	0.0000	0.0000	0.0001
	(0.19)	(0.42)	(0.57)	(0.55)	(0.67)
Leverage	-0.0101	-0.0103	-0.0102	-0.0104	-0.0104
	(-8.76)***	(-9.01)***	(-8.94)***	(-9.02)***	(-8.94)***
R&D intensity	-0.1071	-0.1047	-0.1048	-0.1050	-0.1071
	(-20.75)***	(-20.39)***	(-20.40)***	(-20.43)***	(-20.75)***
Advertising intensity	0.0201	0.0184	0.0173	0.0191	0.0201
	(0.93)	(0.85)	(0.80)	(0.89)	(0.93)
ESG committee	0.0002	-0.0001	-0.0002	-0.0002	-0.0003
	(0.41)	(-0.14)	(-0.46)	(-0.58)	(-0.75)
Past financial performance	0.7455	0.7489	0.7483	0.7467	0.7461
	(88.32)***	(89.27)***	(89.08)***	(88.46)***	(88.27)***
Asset growth	0.0161	0.0155	0.0155	0.0154	0.0154
	(12.32)***	(12.03)***	(12.04)***	(12.01)***	(12.02)***
Debt/Equity	-0.0010	-0.0008	-0.0008	-0.0008	-0.0008
	(-4.01)***	(-3.25)***	(-3.25)***	(-3.42)***	(-3.41)***
Constant	0.0155	0.0153	0.0152	0.0155	0.0154
	(15.03)***	(15.02)***	(14.99)***	(15.16)***	(15.11)***
Year fixed effects	NO	YES	YES	YES	YES
Industry fixed effects	NO	NO	YES	NO	YES
Country fixed effects	NO	NO	NO	YES	YES
Observations	29,445	29,445	29,445	29,445	29,445
R-squared	0.6525	0.6581	0.6583	0.6589	0.6591
Adjusted R-squared	0.6523	0.6579	0.6579	0.6581	0.6582

*Notes: Multivariate OLS regression model based on Sample C without the assumptions on missing data (see specification in the data construction process section). The regression is based on equation (3). All the variables used except ESG contracting and ESG committee are winsorized at a 5 % and 95% level. In the parenthesis, the t-values are shown. Robust standard errors are clustered at a firm level. * p < 0.10, ** p < 0.05, *** p < 0.01*

M. Robustness test: Regression model with no control variables (*Hypothesis 2b for ROA*)

Dependent variable	**ROA**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
ESG contracting $_{(t-3)}$	0.0011	0.0006	0.0006	0.0002	0.0002
	(0.95)	(0.49)	(0.51)	(0.18)	(0.15)
ESG contracting $_{(t-2)}$	0.0005	0.0003	0.0002	0.0003	0.0003
	(0.45)	(0.25)	(0.22)	(0.30)	(0.27)
ESG contracting $_{(t-1)}$	0.0003	0.0010	0.0010	0.0010	0.0010
	(0.28)	(0.96)	(0.97)	(0.94)	(0.94)
Constant	0.0355	0.0356	0.0356	0.0356	0.0356
	(63.70)***	(64.16)***	(64.25)***	(64.40)***	(64.47)***
Year fixed effects	NO	YES	YES	YES	YES
Industry fixed effects	NO	NO	YES	NO	YES
Country fixed effects	NO	NO	NO	YES	YES
Observations	49,226	49,226	49,226	49,226	49,226
R-squared	0.0001	0.0143	0.0143	0.0155	0.0190
Adjusted R-squared	0.000	0.0140	0.0140	0.0150	0.0178

*Notes: Multivariate OLS regression model based on Sample C without any control variables and equation (3). ROA is winsorized at a 5 % and 95% level. In the parenthesis, the t-values are shown. Robust standard errors are clustered at a firm level. * p < 0.10, ** p < 0.05, *** p < 0.01*

N. Robustness test: Regression model to control for the data cleaning assumption (*Hypothesis 2b for Tobin's Q*)

Dependent variable	**Tobin's Q**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
ESG contracting $_{(t-3)}$	-0.0292	0.0096	0.0158	0.0083	0.0133
	(-0.75)	(0.25)	(0.41)	(0.21)	(0.34)
ESG contracting $_{(t-2)}$	0.0284	0.0342	0.0387	0.0421	0.0462
	(0.80)	(0.99)	(1.12)	(1.21)	(1.33)
ESG contracting $_{(t-1)}$	0.0032	-0.0140	-0.0134	-0.0167	-0.0155
	(0.10)	(-0.45)	(-0.43)	(-0.54)	(-0.50)
Firm size	-0.0662	-0.0766	-0.0762	-0.0746	-0.0742
	(-10.98)***	(-12.64)***	(-12.61)***	(-12.36)***	(-12.34)***
Leverage	-0.3938	-0.2748	-0.2726	-0.2864	-0.2859
	(-4.91)***	(-3.44)***	(-3.42)***	(-3.54)***	(-3.54)***
R&D intensity	7.2715	7.0602	7.0467	7.0139	6.9979
	(21.93)***	(21.31)***	(21.38)***	(21.14)***	(21.20)***
Advertising intensity	14.0291	14.3399	14.4102	14.1086	14.1743
	(7.22)***	(7.43)***	(7.46)***	(7.38)***	(7.42)***
ESG committee	-0.0095	0.0126	0.0096	0.0036	-0.0002
	(-0.31)	(0.42)	(0.31)	(0.11)	(-0.01)
Past financial performance	7.9681	8.4702	8.4648	8.5152	8.5039
	(16.76)***	(17.77)***	(17.84)***	(18.11)***	(18.18)***
Asset growth	0.9578	0.9229	0.9241	0.9245	0.9256
	(16.63)***	(16.27)***	(16.31)***	(16.41)***	(16.45)***
Debt/Equity	-0.0810	-0.1106	-0.1125	-0.1112	-0.1130
	(-5.16)***	(-6.96)***	(-7.06)***	(-6.97)***	(-7.06)***
Constant	1.9275	1.9620	1.9593	1.9554	1.9543
	(26.22)***	(26.65)***	(26.86)***	(26.28)***	(26.51)***
Year fixed effects	NO	YES	YES	YES	YES
Industry fixed effects	NO	NO	YES	NO	YES
Country fixed effects	NO	NO	NO	YES	YES
Observations	29,445	29,445	29,445	29,445	29,445
R-squared	0.2107	0.2379	0.2402	0.2454	0.2475
Adjusted R-squared	0.2104	0.2373	0.2393	0.2436	0.2454

*Notes: Multivariate OLS regression model based on Sample C without the assumptions on missing data (see specification in the data construction process section). The regression is based on equation (4). All the variables used except ESG contracting and ESG committee are winsorized at a 5 % and 95% level. In the parenthesis, the t-values are shown. Robust standard errors are clustered at a firm level. * p < 0.10, ** p < 0.05, *** p < 0.01*

O. Robustness test: Regression model with no control variables (*Hypothesis 2b for Tobin's Q*)

Dependent variable	**Tobin's Q**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
ESG contracting $_{(t-3)}$	-0.0298	-0.0019	-0.0021	-0.0124	-0.0148
	(-0.90)	(-0.06)	(-0.06)	(-0.38)	(-0.45)
ESG contracting $_{(t-2)}$	0.0107	0.0231	0.0235	0.0229	0.0226
	(0.42)	(0.94)	(0.96)	(0.93)	(0.92)
ESG contracting $_{(t-1)}$	0.0486	0.0268	0.0271	0.0253	0.0253
	(1.81)*	(1.02)	(1.03)	(0.96)	(0.96)
Constant	1.7947	1.7914	1.7914	1.7927	1.7929
	(108.63)***	(109.30)***	(109.84)***	(109.67)***	(110.10)***
Year fixed effects	NO	YES	YES	YES	YES
Industry fixed effects	NO	NO	YES	NO	YES
Country fixed effects	NO	NO	NO	YES	YES
Observations	49,226	49,226	49,226	49,226	49,226
R-squared	0.0000	0.0252	0.0271	0.0309	0.0328
Adjusted R-squared	0.0000	0.0249	0.0266	0.0297	0.0314

*Notes: Multivariate OLS regression model based on Sample C without any control variables and equation (4). Tobin's Q is winsorized at a 5 % and 95% level. In the parenthesis, the t-values are shown. Robust standard errors are at a firm level. * p < 0.10, ** p < 0.05, *** p < 0.01*