

# How Do Institutional Investors Perceive Mandatory ESG Disclosure: Evidence From SEC's Mandatory Climate Change Disclosure Proposal

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*This study examines how institutional investors perceive the SEC's mandatory climate change disclosure proposal, announced on March 21, 2022. The findings show that investors of US public firms with higher institutional ownership react less negatively to the proposal despite overall negative market reactions. Additional tests show that the main results hold even if an endogeneity concern and greenhouse gas contributors' effect were tested with the cross-sectional regression models. This research sheds light on the lack of consensus on the impact of institutional investors on ESG disclosure for US public firms, providing evidence that institutional investors contribute to the long-term sustainability and value creation of portfolio firms.*

*Keywords: institutional investor, ESG, mandatory climate change disclosure, market reaction, event study*

## INTRODUCTION

On March 21, 2022, the Securities and Exchange Commission (hereafter SEC) proposed comprehensive new regulations to enhance public companies' transparency regarding climate change risks and effects. These proposed rules mandate that all publicly traded firms incorporate particular climate-related financial data into their audited financial reports. Furthermore, businesses will need to disclose information about their carbon emissions. This emission data will be subject to a verification process, which will be implemented in stages over time (Herman, Horn, Moffatt, and Wieman, 2022).

Despite the urgent social demands and popularity of environmental, social, and governance (hereafter ESG)-related research, prior literature has diverse opinions regarding ESG-related disclosure and reporting in accounting and finance. Existing research shows that the voluntary disclosure of ESG information is generally viewed as a positive signal for investors. For example, Naughton, Wang, and Yeung (2019) find that when investors place a premium value on a company's corporate social responsibility (hereafter CSR) performance, announcements of CSR initiatives result in positive abnormal stock returns. Similarly, Flammer (2015) shows that the market reacts positively when companies announce environmentally sustainable programs. Furthermore, Dimson, Karakaş, and Li (2015) find that successful investor engagements on ESG matters lead to positive abnormal stock returns. The voluntary disclosure of ESG-related information may enhance shareholder value by improving various areas of corporate operations, such as operating efficiencies, brand loyalty, and employee engagement (Fombrun and Shanley, 1990; Turban and Greening, 1997; Freeman, Harrison, and Wicks, 2007; Edmans, 2011; Eccles, Ioannou, and Serafeim, 2014; Lins, Servaes, and Tamayo, 2017; Welch and Yoon, 2020). These research shows that ESG

disclosure can positively impact diverse areas of a company's business, ultimately leading to improved market performance.

However, the relation between mandatory environmental regulations, disclosure, and corporate performance has been subject to conflicting findings. Some argue that additional disclosure requirements may have a limited impact, as certain companies may already voluntarily disclose high-quality ESG information even before such mandatory regulations are implemented. Consequently, regulations on ESG disclosure may not necessarily lead to improved stock market performance (Kim, 2024). Moreover, ESG data is often unstructured and only partially quantifiable, making consistent reporting standards challenging (Christensen, Hail, and Leuz, 2021; Leuz, Nanda, and Wysocki, 2003; Burgstahler, Hail, and Leuz, 2006). Sustainability disclosure regulations can also impose substantial amount of costs for environmental management, data collection, and exposing confidential information, potentially reducing firm value (Ioannou and Serafeim, 2017).

Given the expertise, information advantage, and better analytical capabilities, institutional investors play an important role in capital markets (Escamilla-Solano, Paule-Vianez, and Blanco-González 2022; Utama and Cready 1997). With larger company stakes, institutional investors can exercise more cost-effective oversight and wield greater voting power (Shleifer and Vishny, 1986). This positioning enables them to act as external supervisors and contribute to internal governance in their portfolio firms (Edmans and Holderness, 2017). Prior literature shows substantial evidence that ESG considerations are widely integrated into the investment strategies and decision-making processes of institutional investors (Amel-Zadeh & Serafeim, 2018; Barko, Cremers, and Renneboog, 2018; Eccles, Serafeim, and Krzus, 2011; Hanson, Lyons, Bender, Bertocci, and Lamy, 2017). One perspective suggests that institutional ownership can enhance the extent of ESG information disclosure by the firms in their portfolios (Kim, Wan, and Wang, 2019; Huang, Li, Lin, and McBrayer, 2022; Wang, Lin, Fu, and Chen, 2023). Additionally, the value investment theory proposes that institutional investors prioritize the long-term growth of the companies in their portfolios, showcasing responsible investment practices (Cheng, Chu, Deng, and Huang, 2022).

However, some research shows institutional investors may focus on potential negative consequences of ESG disclosure, deterring disclosure levels in their portfolio firms (Aluchna, Roszkowska-Menkes, Kamiński, & Bosek-Rak, 2022). Viewed as short-term profit-seekers, institutional investors may prioritize immediate profits over long-term development, potentially conflicting with ESG goals that require significant time and resources (Aluchna et al., 2022; Oikonomou, Yin, & Zhao, 2020). Aluchna et al. (2022) find a negative relation between institutional ownership and ESG disclosure, including for mutual and corporate pension funds.

Given mixed findings from prior studies, not all institutional investors pursue long-term investment strategies for ESG-related activities, as some focus on short-term profit. This is an empirical question, and the research question of this study is, "Can institutional ownership and involvement enhance the level of ESG information disclosure of portfolio firms and eventually increase these firms' value?"

To seek a possible answer to the research question, I gather a list of 4,754 US Nasdaq and NYSE firms from the FactSet database for an event study on March 21, 2022. Financial data on WRDS was obtained from Compustat – Capital IQ, and institutional ownership data was obtained from FactSet. ESG rank data was obtained from Truvalue Labs. The ESG ranks are determined based on Truvalue's Adjusted Insight Industry Percentiles, where a sample firm obtains a dummy 1 when it scores 70% or above in ESG performance ranks (i.e., Leader and Above Average). A dummy 0 for the rest of the ESG performance ranks (i.e., Average, Below Average, and Laggard). After excluding firm observations due to missing data, the final sample size was 2,758.

Turning to the empirical results from descriptive statistics in Panel A of Table 1, the market reaction to the SEC's mandatory climate disclosure proposal, measured by buy-and-hold abnormal return (hereafter *BHAR*), is negative 0.1% on average, indicating that investors of U.S. public firms reacted negatively to the proposal within a 3-day event window [-1, 1]. Institutional investors, on average, own about 72.61% of the equity of the sample firm. Other variables such as *Tobin's Q*, *ESG\_Rank*, *Firm\_Size*, *BTM*, *ROA*, *ROE*, and *Leverage* are also detailed. Notably, 47.3% of sample firms report a net loss in 2022.

Pearson pairwise correlations in Panel B of Table 1 show a negative relationship between *Institutional*, *ROA*, *ROE*, *Leverage*, *Firm\_Size*, and *BHAR*. Institutional investors view the SEC's mandatory climate disclosure proposal as a positive signal for firm value because the negative coefficient on institutional ownership variable (*Institutional*) indicates that higher institutional ownership may decrease the negative market reactions to the proposal. Moreover, coefficients on *Tobin's\_Q*, *BTM*, and *Loss* show a positive relation with *BHAR*, suggesting that higher *Tobin's\_Q* and *BTM* may alleviate the negative market reaction to the climate disclosure proposal. The positive coefficient on *Loss* suggests that firms reporting a loss in 2022 are concerned about possible costs arising from mandatory climate change disclosure mandates.

For the primary analysis, I conduct a cross-sectional regression analysis. The results show a significant negative coefficient on *Institutional*, suggesting that the negative market reaction decreases as the percentage of institutional investors increases. Additionally, a significantly positive coefficient on *Tobin's\_Q* and *BTM* indicates that firms with higher *Tobin's\_Q* and *BTM* believe mandatory climate disclosure may increase firm value and improve market performance. Overall, investors expect net benefits from the mandatory climate disclosure proposal for firms with higher institutional ownership, *Tobin's\_Q*, and *BTM*.

For additional tests, first, I employ the propensity score matching technique to address the potential endogeneity problem and find positive relations between *ROA*, *Leverage*, *Firm\_Size*, *ESG\_Rank*, and institutional ownership percentage, as well as negative relations between *Tobin's\_Q*, *BTM*, and institutional ownership percentage from the first stage of the analysis. The results from the second stage indicate that the main findings of this study stay constant with propensity score matching analysis. Second, I create a dummy variable for significant contributors to greenhouse gas (hereafter GHG) emissions and assign a value of 1 to firms with specific SIC Codes<sup>1</sup> related to GHG contributors and 0 to the rest of the sample firms. Including this dummy variable in the regression model, the results of this additional test show that the study's main result remains constant.

The contribution of the study is threefold. Firstly, it sheds light on the influential role of institutional investors in shaping ESG-related disclosure practices. The study's findings emphasize that increased involvement of institutional investors in portfolio firms can enhance firm value, even amidst overall negative market reactions to the SEC's mandatory climate change disclosure proposal. This highlights the significant influence that institutional investors wield in advocating transparency and sustainability in corporate practices, emphasizing their crucial role in fostering responsible investment and governance in ESG-related areas. Secondly, the paper addresses the lack of consensus surrounding the impact of institutional investors on ESG information disclosure and firm value. Through empirical evidence, the study offers valuable insights into the relation between institutional investors and ESG disclosure practices, bridging a gap in the literature and providing a deeper understanding of the dynamics at play. By unpacking the intricacies of institutional investor engagement and its effect on ESG-related activities, the paper enriches the comprehension of how these sophisticated investors contribute to long-term sustainability and value creation in portfolio firms. Lastly, the paper provides valuable implications for investors, corporate decision-makers, and policymakers seeking to navigate the evolving landscape of ESG compliance and its influence on financial outcomes. In addition, the findings of this study may enhance understanding of the broader implications for corporate governance, investor decision-making, and financial performance in the context of evolving sustainability mandates.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### Market Reactions to Climate Change Disclosure Proposal

On March 21, 2022, the SEC proposed new regulations requiring publicly traded US firms to include specific climate-related financial data in their reports and disclose information about their carbon emissions. The emission data will undergo a verification process implemented gradually over time (Herman et al., 2022).

Prior literature has diverse opinions regarding ESG-related disclosure and reporting. On the one hand, in the stock market, voluntary disclosure of ESG information is perceived as a positive sign. Naughton et

al. (2019) find that when investors assign a premium value to CSR performance, announcements of CSR activities result in positive abnormal returns. Similarly, Flammer (2015) shows that the market responds positively when companies announce environmentally friendly initiatives. Furthermore, Dimson et al. (2015) find that successful ESG engagements by investors lead to positive abnormal returns. Voluntary disclosure of ESG-related information may impact shareholder value by enhancing operating efficiencies, brand loyalty, and employee engagement (Fombrun and Shanley, 1990; Turban and Greening, 1997; Freeman et al., 2007; Edmans, 2011; Eccles et al., 2014; Lins et al., 2017; Welch and Yoon, 2020). Research indicates a positive relation between environmental disclosure and firm performance (Dowell, Hart, and Yeung, 2000; Saleh, Zulkifli, and Muhamad, 2011). Similarly, some studies show a positive association between environmental practices and financial results (Murray, Sinclair, Power, and Gray, 2006; San Ong, Teh, and Ang, 2014). Grewal, Riedl, and Serafeim (2019) find that firms with higher ESG disclosure confront less negative market reactions to mandatory ESG reporting in the EU.

On the other hand, research on mandatory environmental regulations, disclosure, and corporate performance has produced conflicting results. Some argue that additional disclosure requirements may have minimal impact, as certain companies voluntarily disclose high-quality ESG information before mandatory regulations. Consequently, ESG disclosure regulations may not necessarily enhance stock market performance (Kim, 2024). Unlike financial data, ESG information can be unstructured and only partially quantifiable, complicating the establishment of consistent reporting standards (Christensen et al., 2021; Leuz et al., 2003; Burgstahler et al., 2006). Krueger, Sautner, Tang, & Zhong (2021) suggest that if a company's ESG efforts primarily focus on enhancing managers' reputations, it can increase shareholders' expenses, potentially disadvantaging the company in a competitive market (Friedman, 1970; Jensen, 2002). Similarly, Ioannou and Serafeim (2017) find that sustainability disclosure regulations may compel substantial costs due to implementing environmental management systems, data collection, and exposure to confidential corporate information. These factors could potentially reduce a firm's value and competitive situation. I formulate the following hypotheses based on the above discussions.

*H1a: Investors of US public firms may react positively to the SEC's mandatory climate disclosure proposal.*

*H1b: Investors of US public firms may react negatively to the SEC's mandatory climate disclosure proposal.*

### **Relation Between Institutional Investors and Market Reactions to the Climate Change Disclosure Proposal**

From prior literature, institutional investors are considered vital participants in the capital market due to their professional knowledge, informational advantages, motivation, and ability to analyze the effects of macroeconomic policies (Escamilla-Solano et al., 2022). Similarly, Utama and Cready (1997) suggest that institutional investors possess significant capital, expertise, and information access advantages, allowing them to influence their portfolio firms. These investors typically have superior professional knowledge, stronger research capabilities, and better information analysis skills. Additionally, when institutional investors hold larger stakes in a company, their oversight becomes more cost-effective. This increased shareholding also grants them greater voting power and influence in board elections (Shleifer & Vishny, 1986). Their significant shareholding allows them to serve as external supervisors and contribute to internal governance within the companies in which they invest (Edmans and Holderness, 2017).

Focusing on the relation between institutional investors and market reactions to the climate change disclosure proposal, prior literature shows substantial evidence that ESG considerations are widely integrated into the investment strategies and decision-making processes of institutional investors (Amel-Zadeh & Serafeim, 2018; Barko et al., 2018; Eccles et al., 2011; Hanson et al., 2017). However, extant studies have yet to conclude whether institutional investors can improve the level of ESG information disclosure of portfolio firms. One point of view is that institutional investors' shareholding can enhance the level of ESG information disclosure of portfolio firms. (Kim et al., 2019; Huang et al., 2022; Wang et al., 2023). While various institutional investors are involved in ESG investment, their motivations differ. Velte (2003) argues that institutional investors are heterogeneous, indicating that differences in categories of

investors will likely influence their holdings. Institutional investors have stronger incentives and capabilities to engage with and shape the decisions of portfolio firms. Moreover, their potential to withdraw investments can impact how these companies invest and report their ESG information (Bolton and Kacperczyk, 2021).

Regarding their influence on portfolio firms, institutional investors typically adopt one of two perspectives: they either focus on long-term value creation or take a more short-term, speculative approach (Chen, Dong, and Lin, 2020). The value investment theory suggests that institutional investors focus on the long-term development of portfolio firms, demonstrating responsible investment behavior (Cheng et al., 2022). They aim to bring companies sustainable financial and non-financial value by adhering to value investment principles and pursuing their interests (Aguado-Correa, Vega-Jiménez, López-Jiménez, Padilla-Garrido, and Rabadán-Martín, 2023). High-quality ESG disclosure can attract various resources to the company, ultimately increasing its value (Rabaya and Saleh, 2022) and improving institutional investors' investment returns. Consequently, institutional investors are motivated to actively improve the level of ESG information disclosure by companies (Shao and Sun, 2021). Institutional ownership can also serve as a deterrent, preventing major shareholders from concealing negative ESG information for personal gain, thereby improving overall governance and disclosure quality (Huang et al., 2022). Furthermore, institutional investors enhance transparency by employing professional analysis teams to uncover and disseminate company information through investor networks (Guo, Islam, Jain, and van Staden, 2022). This process increases transparency and elevates ESG disclosure standards (Christensen, Serafeim, and Sikochi, 2022). Institutional investors are critical in promoting and improving ESG information disclosure among their portfolio firms through these mechanisms. Their involvement improves the quality of ESG reporting and contributes to stronger corporate governance and better transparency in the capital markets.

However, there are differing viewpoints on the impact of institutional investors on ESG information disclosure. Some research suggests that institutional investors may pay more attention to the potential negative consequences of ESG information disclosure, thereby hindering the level of disclosure by portfolio firms (Aluchna et al., 2022). In this viewpoint, institutional investors are often viewed as short-term, profit-seeking individuals who may prioritize their interests over the long-term development of portfolio firms. Their involvement in the management decisions of portfolio firms could potentially hinder long-term development in favor of short-term gains (Aluchna et al., 2022), as pursuing ESG goals often requires significant time, resources, and investment, which may not align with the short-term profit-seeking nature of institutional investors (Oikonomou et al., 2020). This misalignment could hinder sustainable enterprise development and violate the core principles of ESG. Aluchna et al. (2022) find a negative association between the level of ownership by institutional investors and the social component of ESG disclosure, and additional analysis indicates a negative relation between ownership by mutual and corporate pension funds and social disclosure. In addition, there are some international studies from Jordan (Abu Qa'dan and Suwaidan, 2019), Spain (García-Meca and Pucheta-Martínez, 2018), and Egypt (El-Bassiouny and El-Bassiouny, 2019) have identified a negative association between these two factors. Based on the above literature review, I propose the following hypotheses.

***H2a:** Higher institutional ownership is positively associated with investors' market reaction to the climate disclosure proposal.*

***H2b:** Higher institutional ownership is negatively associated with investors' market reaction to the climate disclosure proposal.*

## **RESEARCH METHOD**

### **Data and Sample Selection**

I obtain a list of 4,754 US Nasdaq and NYSE firms from the FactSet database to conduct an event study using a three-day [-1,1] event window for the event date of March 21, 2022. After event study analysis using Eventus from Wharton Research Data Services (hereafter WRDS), 742 firm observations were

excluded due to missing stock return data. This resulted in 4,012 firm observations. These firm observations are matched with financial, institutional investor, and ESG Rank data, yielding 2,864. Finally, 4-digit SIC codes from 6000 to 6999 firms (106 financial firms) are excluded because these firms are regulated very differently from firms of all other industries, and the final sample size was confirmed to be 2,758 firm observations.

Financial data is obtained from Compustat – Capital IQ of WRDS, and institutional ownership data is obtained from the FactSet database. I obtain ESG rank data from Truvalue Labs. The Truvalue scores are generated through the natural language processing of third-party reports on companies' ESG performance. The ESG rank measures how a company performs compared to its peers in the same industry according to SASB standards. The scale ranges from Leader to Laggard. The momentum indicator tracks the direction of the year-over-year change in the insight score. ESG ranks are determined based on Truvalue's Adjusted Insight Industry Percentiles using the following mapping: 90-100% percentile matches to Leader; 70-89% percentile matches to Above Average; 30-69% percentile matches to Average, 10-29% percentile matches to Below Average, and 0-9% percentile matches to Laggard. This study creates a dummy variable for mapping sample firms and ESG rank. A sample firm gets a dummy 1 when it scores 70% or above 70% percentile in ESG performance ranks (i.e., Leader and Above Average) and a dummy 0 when it belongs to any other ESG performance ranks (i.e., Average, below Average, and Laggard). Lastly, I obtain the percentage of institutional ownership data (*Institutional*) from the FactSet database.

## Research Design

First, I compute daily abnormal (*AR*) using the following market model equation to test the market reaction to the mandatory climate disclosure proposal (*H1*).

$$AR_{i,t} = R_{i,t} - R_{m,t} \quad (1)$$

Equation (1) uses  $R_{i,t}$  to represent the raw stock return of a US public firm  $i$  on day  $t$ ;  $R_{m,t}$  denotes the return on the market portfolio in the U.S. on day  $t$ . Using this data, the study computes buy-and-hold abnormal returns over three trading days [-1, 1] centered on the event day, which is the SEC's proposal for mandatory climate disclosure that occurred on March 21, 2022.

Second, I use the following OLS regression model for *H2*, which predicts the relation between the percentage of institutional ownership (*Institutional*), the financial characteristics of US public sample firms, ESG ranks, and market reactions to the mandatory climate disclosure proposal.

$$BHAR_{i,t} = \beta_0 + \beta_1 Institutional_{i,t} + \beta_2 Tobin's\_Q_{i,t} + \beta_3 ROA_{i,t} + \beta_4 ROE_{i,t} + \beta_5 BTM_{i,t} + \beta_6 Leverage_{i,t} + \beta_7 Firm\_Size_{i,t} + \beta_8 Loss_{i,t} + \beta_9 ESG\_Rank_{i,t} + \varepsilon_{i,t-1} \quad (2)$$

In Equation (2), *BHAR* is cumulative abnormal return based on buy-and-hold abnormal return, the dependent variable to measure market reaction to the SEC's mandatory climate disclosure proposal. The model includes the variable of interest (*Institutional*) and other control variables. *Institutional* is the percentage of institutional ownership of the sample firm. I include control variables- *Tobin's\_Q* measures market performance and is calculated by the sum of current liabilities and the market value of share capital divided by total assets; *ROA* measures the firm's operational performance; *ROE* is net income over average shareholder equity to measure financial performance; *BTM* is the book value of shareholders' equity divided by the market value of equity; *Leverage* is long-term debt plus current debt over the average of total assets of the current and previous years; *Firm\_Size* is the natural logarithm of market capitalization measures firm size; *Loss* is a dummy variable, and 1 is for a firm that reports loss in 2022 and 0 otherwise; *ESG\_Rank* is a dummy variable and measures ESG related performance against peers and is based on Truvalue Adjusted Insight Industry (i.e., percentile 90-100% = *Leader*; 70-89% = *Above Average*; 30-69% = *Average*; 10-29% = *Below Average*; 0-9% = *Laggard*). It gets 1 when it scores 70% and above percentile and 0 otherwise. Appendix 1 has all variable definitions used in the equations.

Third, I employ the Logistic regression below for the additional test to conduct propensity score matching analysis to address potential endogeneity.

$$Dum\_Institutional_{i,t} = \beta_0 + \beta_1 Tobin's\_Q_{i,t} + \beta_2 ROA_{i,t} + \beta_3 ROE_{i,t} + \beta_4 BTM_{i,t} + \beta_5 Leverage_{i,t} + \beta_6 Firm\_Size_{i,t} + \beta_7 Loss_{i,t} + \beta_8 ESG\_Rank_{i,t} + \varepsilon_{i,t-1} \quad (3)$$

Equation (3) is used to conduct the first stage estimation. *Dum\_Institutional* is a dummy variable, equal to 1 when a sample firm has 50th percentile or higher institutional ownership and 0 otherwise. The control variables are the same as in Equation (2). For the first stage analysis, I perform sample matching without replacement using a 0.01 caliper distance. For the second stage analysis, I re-estimate Equation (2) with a propensity score-matched sample to examine whether the main result of this study holds with this additional test (Kim and Belina, 2023).

## RESULTS

### Descriptive Statistics and Correlation Analysis

Table 1 shows descriptive statistics and Pearson correlations for variables used in cross-sectional analysis. Focusing on Panel A of Table 1, the total sample size is 2,758 firm observations in 2022. The mean (median) of market reaction to the SEC's mandatory climate disclosure proposal by buy-and-hold abnormal return (BHAR) is -0.001 (-0.010), indicating that investors of U.S. public firms react to the disclosure proposal by negative 0.1% on average with 3-day event window [-1,1]. The mean (median) of *Institutional* is 72.61 % (83.063%), meaning about 72.61% of the equity of the sample firm is owned by institutional investors on average. The mean (median) of *Tobin's\_Q* is 1.719 (1.174). The mean (median) of *ROA* is -0.108 (0.008), and *ROE* is -0.147(0.022). The mean (median) of *BTM* is 0.682 (0.461). The mean (median) of *Leverage* is 0.726 (0.432). *Firm\_Size* indicates the natural logarithm of market capitalization, and the mean (median) is 6.786 (6.872). About 47.3% of sample firms report a net loss in 2022. *ESG\_Rank* measures US sample firms' ESG performance for 2022 and is a dummy variable with a mean (median) of 0.182 (0.000), indicating about 18.2% of sample firms fall under leader and above average ranks categories. I winsorize all continuous variables at the 1st and 99th percentiles. I use the robust standard error to control for the possibility that the error terms do not have constant variance (i.e., heteroscedasticity) for all regression analyses in this study.

In Panel B of Table 1, Pearson pairwise correlations show a negative relationship between *Institutional*, *ROA*, *ROE*, *Leverage*, *Firm\_Size*, and *BHAR*. Institutional investors view the SEC's mandatory climate disclosure proposal as a potential enhancer of firm value because the negative coefficient on institutional ownership variable (*Institutional*) indicates that higher institutional ownership decreases the negative market reactions to the proposal. Furthermore, *Tobin's\_Q*, *BTM*, and *Loss* positively correlate with *BHAR*, suggesting that higher *Tobin's\_Q* and *BTM* may alleviate the negative market reaction to the climate disclosure proposal. The positive coefficient on *Loss* indicates that firms reporting a loss in 2022 are concerned about potential costs arising from mandatory climate change requirements.

**TABLE 1**  
**PANEL A. DESCRIPTIVE STATISTICS**

	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>25%</b>	<b>Median</b>	<b>75%</b>
<i>BHAR</i>	2,758	-0.001	0.055	-0.031	-0.010	0.020
<i>Institutional</i>	2,758	72.610	31.336	53.093	83.063	96.200
<i>Tobin's Q</i>	2,758	1.719	1.638	0.737	1.174	2.022
<i>ROA</i>	2,758	-0.108	0.312	-0.221	0.008	0.072
<i>ROE</i>	2,758	-0.147	0.941	-0.368	0.022	0.178
<i>BTM</i>	2,758	0.682	0.830	0.221	0.461	0.858
<i>Leverage</i>	2,758	0.726	2.697	0.072	0.432	1.081
<i>Firm_Size</i>	2,758	6.786	2.399	5.139	6.872	8.408
<i>Loss</i>	2,758	0.473	0.499	0.000	0.000	1.000
<i>ESG_Rank</i>	2,758	0.182	0.386	0.000	0.000	0.000

**PANEL B. PEARSON CORRELATIONS**

	1	2	3	4	5	6	7	8	9	10
1 <i>BHAR</i>										
2 <i>Institutional</i>	-0.2480*									
3 <i>Tobin's Q</i>	0.0598*	0.0976*								
4 <i>ROA</i>	-0.1839*	0.4465*	-0.0306							
5 <i>ROE</i>	-0.0946*	0.2587*	-0.0432*	0.5582*						
6 <i>BTM</i>	0.0965*	-0.3031*	-0.4334*	-0.0624*	-0.0436*					
7 <i>Leverage</i>	-0.0646*	0.0987*	-0.0268	0.0752*	-0.0641*	0.0061				
8 <i>Firm_Size</i>	-0.1636*	0.6227*	0.2925*	0.5562*	0.3042*	-0.4338*	0.0944*			
9 <i>Loss</i>	0.1807*	-0.3332*	-0.0216	-0.6721*	-0.4006*	0.1478*	-0.0719*	-0.5114*		
10 <i>ESG_Rank</i>	-0.0169	0.0456*	0.0159	0.017	0.0205	-0.0215	0.0044	-0.0164	-0.0273	



This table presents the Pearson pairwise correlations between the dependent variable, the buy-and-hold abnormal return (*BHAR*), and independent and control variables. \* denotes significant at p-value < 0.05.

### Cross-Sectional Regression Analysis

This section documents the result of the primary analysis. Table 2 shows the results of the cross-sectional regression analysis based on Equation (2). I find a significant negative coefficient on *Institutional* (coefficient = -.0003, t-stat. = -6.19). The negative coefficient on *Institutional* indicates that the negative market reaction decreases as the percentage of institutional ownership increases. In other words, the market reaction becomes less negative as the institutional ownership increases. It represents that institutional investors may believe mandatory ESG-related disclosure benefits the firm's value. Economically, a one-standard-deviation increase in *Institutional* is related to a decrease in the negative market reaction of .001% ( $-.0003 \times .3134$ ). I find a significantly positive coefficient on *Tobin's Q* (coefficient = .0028, t-stat. = 3.41), indicating that investors believe that a higher *Tobin's Q* may alleviate negative market reactions to the mandatory climate disclosure and consequently improve market performance. Economically, a one-standard-deviation increase in *Tobin's Q* is associated with an increased market reaction of 0.46% ( $.0028 \times 1.638$ ). The coefficient on *BTM* is a positive 0.0058, indicating investors expect net benefits from the mandatory climate disclosure proposal for firms with higher *BTM*. In addition, I measure the Variance Inflation Factor (hereafter VIF) to detect the multicollinearity of the variables used in the regression model and find a mean VIF of 1.69, indicating the variables are moderately correlated. I winsorize all continuous variables at the 1st and 99th percentiles. I use the robust standard error to control for the possibility that the error terms do not have constant variance (i.e., heteroscedasticity) for all regression analyses in this study.

**TABLE 2**  
**THE RELATION BETWEEN INSTITUTIONAL OWNERSHIP AND MARKET REACTIONS TO THE CLIMATE CHANGE DISCLOSURE PROPOSAL**

<b>Dep. Var.: <i>BHAR</i></b>		
<b><u>Ind. Var.</u></b>	<b><u>Coefficient</u></b>	<b><u>T-stat.</u></b>
<i>Institutional</i>	-0.0003***	(-6.19)
<i>Tobin's Q</i>	0.0028***	(3.41)
<i>ROA</i>	-0.0120	(-1.47)
<i>ROE</i>	0.0002	(0.10)
<i>BTM</i>	0.0058**	(2.57)
<i>Leverage</i>	-0.0005	(-1.42)
<i>Firm Size</i>	0.0006	(0.77)
<i>Loss</i>	0.0050	(1.54)
<i>ESG Rank</i>	-0.0014	(-0.52)
<i>Cons</i>	0.0074	(1.10)
Obs.	2,758	
Ind. F.E.	Yes	
Robust S.E.	Yes	
R-squared	0.2165	

This table presents results from Equation (2). *BHAR* is a dependent variable and measures cumulative abnormal returns with buy-and-hold abnormal returns during the three-day window around the SEC's

mandatory climate disclosure proposal. *Institutional* measures the percentage of institutional ownership. *Tobin's Q* measures market performance. *ROA* measures a firm's operational performance, and *ROE* measures financial performance. *BTM* is the book value of shareholders' equity divided by the market value of equity. *Leverage* is long-term debt plus current debt over the average total assets of the current and previous years. *Firm\_Size* is the natural logarithm of market capitalization measures firm size. *Loss* is a dummy variable for a firm that reports loss. *ESG\_Rank* measures performance against peers and is based on Truvalue Adjusted Insight Industry Percentiles using the following mapping: 90-100% percentile = *Leader*; 70-89% percentile = *Above Average*; 30-69% percentile = *Average*; 10-29% percentile = *Below Average*; 0-9% percentile = *Laggard* indicating higher percentile as better ESG performance. \*, \*\*, \*\*\* indicate significance at 0.10, 0.05, and 0.01 levels. The model is estimated using OLS regression with industry fixed effect. I winsorize all continuous variables at the 1<sup>st</sup> and 99<sup>th</sup> percentiles. Standard errors are robust to heteroscedasticity. Appendix 1 indicates variable definitions. A sample firm obtains dummy 1 when it has 70% or above 70% percentile in ESG performance ranks (i.e., *Leader* and *Above Average*). A sample firm obtains dummy 0 when it belongs to the rest of the ESG performance ranks (i.e., *Average*, *below Average*, and *Laggard*).

### Additional Tests

#### *Propensity Score Matching for Controlling Potential Endogeneity*

Firms may not randomly choose the level of the percentage of institutional ownership, which can cause bias in non-randomized and observational research. I use the propensity score matching technique to address potential endogeneity and document the results of a two-stage estimation in Table 3. The first and second columns in Table 3 show the result of the first-stage estimation using the Logistic regression. I find a positive relation between *ROA*, *Leverage*, *Firm\_Size*, *ESG\_Rank*, and *Dum\_Institutional* and a negative relation between *Tobin's Q*, *BTM*, and *Dum\_Institutional*. The results in the third and fourth columns of Table 3 indicate the second-stage estimation. I find a negative (positive) relation between *Institutional* (*Tobin's Q*) and *BHAR*, meaning that the main results of this study hold with this propensity score matching analysis.

**TABLE 3**  
**PROPENSITY SCORE MATCHING ANALYSIS**

Ind. Var.	First Stage (Dep. Var. <i>Dum_Institutional</i> )		Second Stage (Dep. Var. <i>BHAR</i> )	
	Coefficient	Z-stat.	Coefficient	T-stat.
<i>Institutional</i>			-0.0002***	-3.0100
<i>Tobin's_Q</i>	-0.0916***	-3.0000	0.0019*	1.8400
<i>ROA</i>	1.1247***	4.2000	-0.0195	-1.4700
<i>ROE</i>	0.0646	1.0800	-0.0011	-0.5400
<i>BTM</i>	-0.3561***	-4.6300	-0.0019	-0.6300
<i>Leverage</i>	0.0529***	3.2200	-0.0005	-1.1100
<i>Firm_Size</i>	0.3543***	12.9200	0.0014	1.6200
<i>Loss</i>	0.1309	1.0700	0.0054	1.1700
<i>ESG_Rank</i>	0.4513***	4.0400	-0.0021	-0.5600
<i>Cons</i>	-2.1082***	-9.0900	-0.0021	-0.2200
Obs.	2,758		1,398	
Ind. F.E.	No		Yes	
Robust S.E.	No		Yes	
Pseudo R-squared	0.1765			
R-squared			0.2566	

This table presents an additional test with propensity score matching analysis. Equation (3) is used to estimate the first stage estimation using the Logistic regression model. For the dependent variable of the first stage, *Dum\_Institutional* is used. It is a dummy variable, equal to 1 when a sample firm has 50th percentile or higher institutional investor ownership and 0 otherwise. Continuing the first stage analysis, I perform sample matching without replacement using a 0.01 caliper distance. For the second stage analysis, I re-estimate Equation (2) with a propensity score-matched sample to examine whether the main result of this study holds with this additional test (Kim and Belina, 2023). *BHAR* is the dependent variable for the second analysis stage. It measures cumulative abnormal returns with buy-and-hold abnormal returns during the three-day window around the SEC's mandatory climate disclosure proposal. *Institutional* measures the percentage of institutional ownership. *Tobin's Q* measures market performance. *ROA* measures a firm's operational performance, and *ROE* measures financial performance. *BTM* is the book value of shareholders' equity divided by the market value of equity. *Leverage* is long-term debt plus current debt over the average total assets of the current and previous years. *Firm\_Size* is the natural logarithm of market capitalization measures firm size. *Loss* is a dummy variable for a firm that reports loss. *Institutional* means the percentage of institutional ownership. *ESG\_Rank* measures performance against peers and is based on Truvalue Adjusted Insight Industry Percentiles using the following mapping: 90-100% percentile = *Leader*; 70-89% percentile = *Above Average*; 30-69% percentile = *Average*; 10-29% percentile = *Below Average*; 0-9% percentile = *Laggard* indicating higher percentile as better ESG performance. A sample firm obtains dummy 1 when it has 70% or above 70% percentile in ESG performance ranks (i.e., *Leader* and *Above Average*). A sample firm obtains dummy 0 when it belongs to the rest of the ESG performance ranks (i.e., *Average*, *Below Average*, and *Laggard*). \*, \*\*, \*\*\* indicate significance at 0.10, 0.05, and 0.01 levels. I winsorize all continuous variables at the 1<sup>st</sup> and 99<sup>th</sup> percentiles. For the second stage, industry-fixed effects are used, and standard errors are robust to heteroscedasticity. Appendix 1 indicates variable definitions.

#### *Contributors to Greenhouse Gas*

In this additional test section, I test if significant contributors to greenhouse gas (hereafter GHG) mainly lead to the result of the study; I create a dummy variable for these contributors to GHG emissions and assign 1 for these firms based on their 4-digit SIC codes - 1011 (Iron Ores), 1221 (Bituminous Coal and Lignite Surface Mining), 1311 (Crude Petroleum and Natural Gas), 2011 (Meat Packing Plants), 2026 (Fluid Milk), 2221 (Broadwoven Fabric Mills, Manmade Fiber and Silk), 2611 (Pulp Mills), 2621 (Paper Mills), 2819 (Industrial Inorganic Pigments, NEC), 2821 (Plastics Materials, Synthetic Resins, and Elastomers), 2911 (Petroleum Refining), 3241 (Hydraulic Cement), 3312 (Steel Works, Blast Furnaces, and Rolling Mills), 3334 (Primary Production of Aluminum), 4911 (Electric Services). I assign 0 for the rest of the sample firms. Table 4 shows the result of the regression model, including this dummy variable, and the main result of the study remains constant.

**TABLE 4**  
**CONTROLLING GHG CONTRIBUTORS IN THE MULTIVARIATE REGRESSION ANALYSIS**

<u>Ind. Var.</u>	<u>Coefficient</u>	<u>T-stat.</u>
<i>Institutional</i>	-0.0004***	-7.5800
<i>Tobin's_Q</i>	0.0035***	4.7800
<i>ROA</i>	-0.0094	-1.2900
<i>ROE</i>	0.0010	0.6600
<i>BTM</i>	0.0054**	2.4400
<i>Leverage</i>	-0.0007**	-1.9600

<b>Dep. Var. BHAR</b>		
<b>Ind. Var.</b>	<b>Coefficient</b>	<b>T-stat.</b>
<i>Firm_Size</i>	0.0010	1.6500
<i>Loss</i>	0.0105***	3.5300
<i>ESG_Rank</i>	-0.0004	-0.1500
<i>GHG_Contributor</i>	0.0051	1.1000
<i>Cons</i>	0.0038	0.6000
Obs.	2,758	
Ind. F.E.	No	
Robust S.E.	Yes	
R-squared	0.0857	

This table presents an additional test with the greenhouse gas contributor dummy (*GHG\_Contributor*) based on Equation (2). *BHAR* is a dependent variable and measures cumulative abnormal returns with buy-and-hold abnormal returns during the three-day window around the SEC's mandatory climate disclosure proposal. *Institutional* measures the percentage of institutional ownership. *Tobin's Q* measures market performance. *ROA* measures a firm's operational performance, and *ROE* measures financial performance. *BTM* is the book value of shareholders' equity divided by the market value of equity. *Leverage* is long-term debt plus current debt over the average total assets of the current and previous years. *Firm\_Size* is the natural logarithm of market capitalization measures firm size. *Loss* is a dummy variable for a firm that reports loss. *Institutional* means the percentage of institutional ownership. *ESG\_Rank* measures performance against peers and is based on Truvalue Adjusted Insight Industry Percentiles using the following mapping: 90-100% percentile = *Leader*; 70-89% percentile = *Above Average*; 30-69% percentile = *Average*; 10-29% percentile = *Below Average*; 0-9% percentile = *Laggard* indicating higher percentile as better ESG performance. A sample firm obtains dummy 1 when it has 70% or above 70% percentile in ESG performance ranks (i.e., *Leader* and *Above Average*). A sample firm obtains dummy 0 when it belongs to the rest of the ESG performance ranks (i.e., *Average*, *below Average*, and *Laggard*). \*, \*\*, \*\*\* indicate significance at 0.10, 0.05, and 0.01 levels. I winsorize all continuous variables at the 1<sup>st</sup> and 99<sup>th</sup> percentiles. Standard errors are robust to heteroscedasticity. Appendix 1 indicates variable definitions.

## CONCLUSION

The study results show the significant influence of institutional ownership on market dynamics in response to ESG disclosures. The negative coefficient on institutional ownership (*Institutional*) suggests that the negative market reaction decreases if institutional ownership increases. It indicates that institutional investors may believe mandatory ESG-related disclosure benefits the firm's value. For two additional tests, first, I use propensity score matching analysis to address potential endogeneity. Second, I create a dummy variable for significant contributors to greenhouse gas emissions to examine whether these firms mainly lead the results of the study. The study's main result still holds with additional tests. Moreover, the study's findings provide valuable implications for investors, corporate managers, and regulators seeking to navigate the evolving landscape of ESG compliance and its influence on financial outcomes. Lastly, the findings may enhance understanding of the broader implications for corporate governance, investor decision-making, and financial performance in the context of evolving sustainability mandates.

## ENDNOTE

1. I create a dummy variable for these contributors to GHG emissions and assign “1” for these firms based on their 4-digit SIC codes - 1011 (Iron Ores), 1221 (Bituminous Coal and Lignite Surface Mining), 1311 (Crude Petroleum and Natural Gas), 2011 (Meat Packing Plants), 2026 (Fluid Milk), 2221 (Broadwoven Fabric Mills, Manmade Fiber and Silk), 2611 (Pulp Mills), 2621 (Paper Mills), 2819 (Industrial Inorganic Pigments, NEC), 2821 (Plastics Materials, Synthetic Resins, and Elastomers), 2911 (Petroleum Refining), 3241 (Hydraulic Cement), 3312 (Steel Works, Blast Furnaces, and Rolling Mills), 3334 (Primary Production of Aluminum), 4911 (Electric Services). I assign “0” for the rest of the sample firms.

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## APPENDIX: VARIABLE DEFINITIONS

- **BHAR** = cumulative abnormal return with buy-and-hold abnormal return during the three-day window around the date of SEC's ESG mandate reporting proposal (March 21, 2022).
- **Institutional** = the proportion of the firm's equity owned by institutional investors. Data is collected from the Holder Type Analysis of FactSet database.
- **Tobin's Q** = measures market performance and is calculated by the sum of current liabilities and the market value of share capital divided by total assets.
- **ROA** = measure of a firm's operational performance.
- **ROE** = measure of a firm's financial performance.
- **BTM** = the book value of shareholders' equity divided by the market value of equity.
- **Leverage** = long-term debt plus current debt over the average total assets of the current and previous years.
- **Firm\_Size** = the natural logarithm of market capitalization measures firm size.
- **Loss** = a dummy variable; 1 indicates a firm reporting a loss in 2022, and 0 otherwise.
- **ESG\_Rank** = ESG Ranks measure performance against peers and are based on Truvalue Adjusted Insight Industry Percentiles using the following mapping: 90-100% = *Leader*; 70-89% = *Above Average*; 30-69% = *Average*; 10-29% = *Below Average*; 0-9% = *Laggard* indicating higher percentile as higher ESG performance. A sample firm obtains dummy 1 when it has 70% or above 70% percentile in ESG performance ranks (i.e., *Leader* and *Above Average*). A sample firm obtains dummy 0 when it belongs to the rest of the ESG performance ranks (i.e., *Average*, *below Average*, and *Laggard*).