

# ESG Rating and Ownership Structure in U.S. Firms

Keondo Park

## ABSTRACT

Given the rising interest in the relationship between Environmental, Social and Governance rating (ESG) and its components, this paper investigates the relationship between insider/institutional ownership structure, ESG ratings and financial performance of the firm, using 398 companies in U.S. 2017 obtained from Bloomberg. This paper entails cross-sectional analysis of ESG rating and its components in 10 sectors (Communication, Consumer Discretionary, Consumer Staples, Energy, Financial, Health Care, Industrials, Materials, Technology, and Utilities) and Return on Asset as a matrix for financial performance. The results suggest that ESG rating and performance of the firm is positively and significantly associated, except environmental score. Ownership structure differently affects to ESG rating and its component by the sectors, even when controlling for the firm's size. The study contributes to research on both the impact of ESG rating and its components to the performance of the firm and the relationship between ownership structure and ESG performance.

# ESG Rating and Ownership Structure

## Introduction

### 1. About the ESG

Traditionally, investors in modern capitalist economies have based their buy or sell decisions on the financial profitability of a firm. As owners of the firm, shareholders have mandated their agents the managers, to base their decisions on shareholder wealth maximization. In certain parts of the world, the mandate for managers was stakeholder wealth maximization. However, agency conflicts have arisen under both scenarios as incentives for all stakeholder groups have never been aligned completely.

In recent decades, there has been growing awareness and investor attention to the impact a firm's existence and operations have on society – its social consequences. This gave rise to a need for the evaluation of the social responsibility of the company - the idea of Corporate Social Responsibility (CSR). Geethamani (2017)<sup>1</sup> defines CSR as “movement aimed at encouraging companies to be more aware of the impact of their business on the rest of society, including their stakeholders and the environment.” CSR is a broad concept that is associated with the sustainability of the company which includes human rights, corporate governance, environmental effects.

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<sup>1</sup> Geethamani, S “Advantages and disadvantages of corporate social responsibility.” *International Journal of Applied Research* (2017); 372-374.

The Environmental, Social and Governance (referred to as ESG hereafter) dimension of CSR performance is the focus of this paper. *Market Business News*<sup>2</sup> defines the criteria of each components specifically. Environmental criteria are about how the company acts to protect the environment, and social criteria look at the relationship between the company and the other stakeholders, including employees, suppliers, customers, and communities where the company operates. The governance part is determined by the company's leadership, executive pay, audit, internal controls, and shareholder's rights.

## 2. The Role of the Ownership

Different types of ownership may play a significant role in a firm's appetite for embracing ESG. This is because the board of directors determines most of the decisions for the company, and the board members are elected by the voters of the company, who are called shareholders. Moreover, since the shareholders are the representatives from their respective groups, they tend to encourage the activities of the company to meet their group's special interest. According to Diantimala and Amril (2018), the decision by the company could be changed to meet the dominant ownership party's interests. For example, the company dominated by the insiders shows the tendency to avoid the decision in investment in environmental practices. Short-term strategies that maximize the profit is attentional to the top managers, because they assume that the environmental protection

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<sup>2</sup> Nordqvist, Christian. "What Is ESG? Definition and Meaning." *Market Business News*, Market Business News, 20 Aug. 2018, [marketbusinessnews.com/financial-glossary/esg-definition-meaning/](https://marketbusinessnews.com/financial-glossary/esg-definition-meaning/).

practices and related activities will increase their facility cost, which decreases their compensation based on the earnings.

On the other hand, when the institutional owners take control of the firm, the decision from the company is determined by the level of pressure from the institutions. In case the institution has less interest in environmental protection, the company would not likely increase their investment in environmental protection practices. However, decisions led by institutional owners usually meet the shareholder's best interests because of their duty to keep the effective monitoring roles (Shleifer and Vishny, 1997). Considering the minority shareholders, the institutional owners also have information advantages and are able to exercise significant voting power (Schnatterly et al. 2008). In addition, institutional owners with enormous shareholdings may not sell their portion at lower prices; they can participate in the firm's strategic decisions (Oh et al. 2017).

## **Literature Review**

### **1. ESG Disclosure and the Firm Value**

Recent studies have revealed the relationship between the level of disclosure and the firm value. Since the ESG improves transparency and accountability and enhances stakeholder trust, the value of the firm increases naturally in the company which discloses ESG. In this case, enlarging the extent of CEO authority enhances the ESG disclosure effects, helping the CEO to easily commit the ESG practice (Li et al. 2018).

Also, changes in dividends payouts affect the value of the firm directly by impacting on their reputation and share prices. According to the study held in India (Seth and Mathenthiran, 2016), since ESG disclosure influences to the dividend payouts, high

level of ESG disclosure increases the value of the firm, and it could be a positive signal to the institutional investors too. Each of the components of ESG, environmental, social responsibility, and governance are related to the firm value, repetitively. Fatemi et al. (2017) found “Environmental strengths increase the firm’s valuation and that weaknesses decrease it; in both cases, disclosure wields a moderating influence” and “while weaknesses in both areas again tend to decrease valuation, neither social nor governance strengths increase.” Moreover, among the ESG components, governance dimension contributes most in increasing the firm value by becoming the “key driver affecting the Corporate Social Performance (CSP) and Corporate Financial Performance (CFP) relationship” (Paniagua et al. 2018). In addition, Voluntary environmental disclosure quality is also positively related to the firm value, influencing both of the expected future cash flows and the cost of equity (Plumlee et al. 2015).

## 2. ESG Disclosure Affecting Factors

ESG Rating is positively related to the value of the firm. Tamimi and Sebastianelli (2017) mentioned the factors that affect the ESG disclosure scores. ESG disclosure scores could be varied because of certain factors which are the industry that the company belongs in, large-market capitalizations (>\$10 billion) rather than mid-cap firms, and the governance dimension of ESG. Moreover, Garcia et al. (2017) found the tendency in Brazil, Russia, India, China, and South Africa markets (so-called BRICS, and emerging markets) that the firms listed in the sensitive industries, which are systematic social taboos, moral debates, and political pressures and those that are more likely to cause social and environmental damage such as major socio-environmental impact: energy, including oil

and gas; chemicals; paper and pulp; mining; and steel making (Lee and Faff, 2009), have better ESG performance. Reasoning that since these firms are likely to cause harm to society, they tend to protect their reputation by disclosing their ESG performance. In addition, ESG performance is under the influence of cross-listing. Bosco and Misani (2016) shed light on the cross-listing firms and ESG performance. They found that cross-listing leads to better ESG performance, but the effect is limited in environmental and social performance dimension only, excluding corporate governance dimension, because “cross-listed firms adopt ESG practices to mitigate the liability of foreignness in foreign financial markets.”

## **Hypotheses**

One of the big curiosities for the study is to reveal the factors that affect the firm’s financial performance, assuming the affecting elements as one of the references in decision-making for the investments. And the recent studies show that ESG score has a potential to increase the firm value (Fatemi, et al. 2015). When the available resource in the firm is limited, and if the firm decided to proceed the environmentally or social investments, these types of activities bring positive effect on their reputation and intensify the interaction with its stakeholders (Branco and Rodrigues, 2006). Therefore, we can anticipate that the potential to attract competing employees would be increased then, the financial performance of the firm will naturally follow the stream as the ESG rating is increased. We can investigate the relationship setting Return on Asset as criteria of the financial performance.

*Hypothesis 1:*

*Null: ESG Score and Its Components Does Not Affect ROA*

*Alt: ESG Score and Its Components Does Affect ROA*

The study starts with the idea that the performance of the corporation is attributed based on the ownership structure. The ownership structure could affect financial performance. The changes in ownership structure affect the financial performance of the firm. For example, as the number of the board members increase, ROE is likely to decrease, because a growing number of board members induce increasing ownership cost as dividend payouts (Paniagua et al. 2018). What if we were found the link between ownership structure and the ESG ratings, we can prove that the ownership structure affects the firm's financial performance, by influencing the ESG ratings. Enlargement in family ownership and closely held ownership, which are the most common ownership structures (La Porta et al., 1999), even though it is difficult to define the direction of causality, it discourages ESG investment so that it decreases the ESG scores (Rees and Rodionova, 2015).

Moreover, Corporate Social Responsibility score also influenced by the ownership structure (Crisóstomo and Freire, 2015). In case of the firm with concentrated ownership, they are likely to invest their free cash flow into CSR, because majority of the shareholder acknowledged the fact that CSR is one of the effective ways to improve image and reputation of the firm. Likewise, the firm with majority of the institutional ownership is likely to decide to increase the amount of the investment in CSR. In this case, stronger governance triggers the synergistic effects, which are the non-linear effects of the insider

and institutional ownership, by promoting CSR (Oh et al. 2017). Therefore, in this study, we are going to find the link from insider or institutional ownership to the ESG score.

*Hypothesis 2 & 3*

*Null: Inside Ownership Does Not Affect ESG Score of a Firm*

*Alt: Inside Ownership Does Affect ESG Score of a Firm*

*Null: Institutional ownership does not affect the ESG Score of a firm*

*Alt: Institutional ownership affects the ESG Score of a firm*

**Data and Methodology**

1. Data Description

This study used ESG, Environmental, Social and Governance scores and insider and ownership data with market capitalization and Return on Asset. The base sample was 2,563 companies from the U.S. across 10 sectors for one year period 2017 and subtracted to 398 excludes sample with numerical errors and mismatch to the variables. These data obtained from Bloomberg. The dependent variable are ROA, ESG, environmental, social and governance score. The variables of interest were measured as follows: the insider ownership variable was measured by the percentage of outstanding shares held by insiders. Institutional ownership variable was measured by the percentage of shares outstanding held by institutions which are mutual funds and institutional stakeholdings. Return On Asset variable is measured by net income divided by the total asset. Market capitalization variable was obtained from Compustat in WRDS and displayed in billions.

Table1  
*Descriptive Statistics*

Variables	Obs	Mean	Std. Dev.	Min	Max
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ESG Score	398	55.12748	8.041018	28.01259	72.19762
Environmental Score	398	59.95482	9.321581	41.38521	80.93318
Social Score	398	57.39416	6.883527	36.47267	75.70834
Governance Score	398	52.96767	11.388620	16.71782	73.77524
Insider Ownership	398	0.02342	0.057968	0.00020	0.54980
Institutional Ownership	398	0.81953	0.161979	0.03120	0.99630
Market Capitalization	398	45.82385	84.183770	0.00600	729.43900
ROA	398	0.07020	0.056655	-0.06300	0.23660

Table2  
*Sector Frequency Chart*

Sector	Frequency	Percent	Cumulative
Communications	20	5.03%	5.03%
Consumer Discretionary	40	10.05%	15.08%
Consumer Staples	46	11.56%	26.63%
Energy	34	8.54%	35.18%
Financials	32	8.04%	43.22%
Health care	46	11.56%	54.77%
Industrials	64	16.08%	70.85%
Materials	30	7.54%	78.39%
Technology	44	11.06%	89.45%
Utilities	42	10.55%	100.00%
total	398	100.00%	

## 2. Methodology

This study performed two types of regression analysis to reject the null hypotheses. For null hypothesis 1, we used basic linear regression, however, for hypothesis 2 & 3, cross-sectional regression analysis is performed. To see the interactive effects of insider and ownership structure, an interaction term is also included in this regression model.

$$\blacktriangleright ROA_i = \alpha_0 + \beta_1 ESG_i + \varepsilon_i$$

$$\blacktriangleright ESG_i = \alpha_0 + \beta_2 Insider_i + Log_{MarketCap} + \sum_{k=3}^{12} \beta_k (Industry * Insider) + \varepsilon_i$$

$$\blacktriangleright ESG_i = \alpha_0 + \beta_3 Intitution_i + Log_{MarketCap} + \sum_{k=3}^{12} \beta_k (Industry * Insider) + \varepsilon_i$$

Table 3

*Summary Statistics: Correlation*

	ESG	ES	SS	GS	Insider	Institution	MC	ROA
ESG	1.0000							
ES	0.4950	1.0000						
SS	0.5234	0.6211	1.0000					
GS	0.8679	0.1265	0.1864	1.0000				
Insider	-0.0965	-0.2374	-0.0571	-0.0260	1.0000			
Institution	0.0462	0.0578	0.0985	-0.0020	-0.3224	1.0000		
MC	-0.1113	0.2877	0.0499	-0.2157	-0.0552	-0.0272	1.0000	
ROA	0.1441	-0.0095	0.1114	0.1370	-0.0095	0.1191	0.0748	1.0000

*Notes: ESG score is Environmental, Social and Governance score data from Bloomberg. ES=Environmental Score, SS=Social Score, GS=Governmental Score, Insider=Insider Ownership, Institution=Institutional Ownership, MC=Market Capitalization, ROA = Return on Asset.*

### **Empirical Results and Analysis**

*Hypothesis 1:*

*Null: ESG Score and Its Components Does Not Affect ROA*

*Alt: ESG Score and Its Components Does Affect ROA*

First, to reject null hypothesis 1, we performed regression analysis using Return on Asset as dependent variable, and ESG score, Environmental Score, Social Score, and Governance Score are independent variable respectively. To test the effect of ESG score which is, it brings strong reputation to the firm and intensify the positive relationship with the stockholders (Branco and Rodrigues, 2006), we assumed that the changes in ESG and its components score would affect to ROA which represents one firm's profitability in this paper.

Table4

*Regression Result of ESG and Profitability*

	<i>Dependent variable:</i>			
	Return on Asset			
	(1)	(2)	(3)	(4)
ESG	0.001*** (0.0004)			
Environ		-0.0001 (0.0003)		
Social			0.001** (0.0004)	
Govern				0.001*** (0.0002)
Constant	0.014 (0.020)	0.074*** (0.019)	0.018 (0.024)	0.034** (0.013)
Observations	398	398	398	398
R <sup>2</sup>	0.021	0.0001	0.012	0.019
Adjusted R <sup>2</sup>	0.018	-0.002	0.010	0.016
Residual Std. Error (df = 396)	0.056	0.057	0.056	0.056
F Statistic (df = 1; 396)	8.408***	0.036	4.983**	7.576***

*Note: Dependent variable is Return on Asset, and independent variables are ESG, Environmental Score, Social Score, Governance Score. ROA represents the profitability of the firm. t-statistics in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01*

Table 4 shows the result of regression analysis with ESG over Return on Asset. As a result, we find that ESG positively significant effects on ROA in 99% of confidence level. The result can reject the null hypothesis 1. The result could be verified using accounting explanation. ROA is the profitability of the asset that is being used. The reason that we did not use the Return on Equity instead of ROA is that since ROE is influenced by financial leverage, it could be viased and it is less likely to show the pure profitability of the firm, so we preformed the research using ROA only. The result in table4 is in line with Margolis et al. (2009) and Fatemi et al. (2015), finds that the overall ESG effect to the financial

performance is positive and ESG score has a potential to increase the firm value. The result shows the ESG's reputational effect (Branco and Rodrigues, 2006), allocating the free cash flow to the ESG factors strengthens the profitability by affecting positively to the reputation of the firm, and it brings competing employees who are capable of improving the firm's operating activities to increase their revenue.

*Hypothesis 2*

*Null: Inside Ownership Does Not Affect ESG Score of a Firm*

*Alt: Inside Ownership Does Affect ESG Score of a Firm*

Second, we set the analysis to see how the insider ownership affects ESG and its components. At this regression model we applied market capitalization as control variable, transforming to logarithmic to control the percent change effect and applied interaction term to industry classification based on Communication industry. It will illustrate how the insider ownership affects to the ESG and its components varying the industry.

Table 5

*Cross-Sectional Regression Result about Insider Ownership and ESG Score*

	<i>Dependent variable:</i>							
	ESG (1)	Environ (2)	Social (3)	Govern (4)	ESG (5)	Environ (6)	Social (7)	Govern (8)
Insider	-12.988* (6.982)	-32.300*** (7.376)	-5.370 (5.958)	-7.194 (9.885)	-116.841 (127.681)	-387.064*** (134.284)	-185.293* (106.696)	5.050 (184.589)
logmarketcap	2.704 (4.878)	39.396*** (5.153)	9.498** (4.163)	-13.951** (6.906)	5.189 (5.253)	38.786*** (5.525)	3.353 (4.390)	-7.185 (7.595)
Insider:Consumer.Discretionary					119.823 (130.446)	347.774** (137.193)	183.088* (109.007)	17.104 (188.587)
Insider:Consumer.Staples					134.467 (129.729)	369.920*** (136.439)	205.060* (108.408)	28.640 (187.551)
Insider:Energy					131.943 (130.927)	368.507*** (137.699)	235.757** (109.409)	5.496 (189.282)
Insider:Financials					116.819 (127.999)	368.269*** (134.619)	188.789* (106.962)	-1.923 (185.049)

Insider:Health.Care					119.495 (129.456)	340.480** (136.152)	162.759 (108.180)	21.252 (187.156)
Insider:Industrials					17.811 (132.121)	308.055** (138.955)	101.721 (110.407)	-51.661 (191.009)
Insider:Materials					15.527 (131.443)	308.502** (138.242)	143.087 (109.841)	-128.236 (190.029)
Insider:Technology					115.631 (129.062)	380.867*** (135.738)	180.992* (107.851)	-10.739 (186.586)
Insider:Utilities					-57.103 (631.853)	-207.607 (664.533)	-64.621 (528.007)	185.045 (913.475)
Constant	53.449*** (3.620)	31.822*** (3.824)	50.555*** (3.090)	63.366*** (5.125)	47.098*** (4.886)	31.306*** (5.138)	54.353*** (4.083)	51.905*** (7.063)
Observations	398	398	398	398	398	398	398	398
R <sup>2</sup>	0.010	0.178	0.016	0.011	0.164	0.312	0.203	0.129
Adjusted R <sup>2</sup>	0.005	0.174	0.011	0.006	0.119	0.275	0.161	0.082
Residual Std. Error	8.021 (df = 395)	8.473 (df = 395)	6.845 (df = 395)	11.355 (df = 395)	7.546 (df = 377)	7.936 (df = 377)	6.306 (df = 377)	10.909 (df = 377)
F Statistic	2.013 (df = 2; 395)	42.761*** (df = 2; 395)	3.258** (df = 2; 395)	2.176 (df = 2; 395)	3.689*** (df = 20; 377)	8.534*** (df = 20; 377)	4.803*** (df = 20; 377)	2.782*** (df = 20; 377)

*Note: This table presents the result of cross-sectional regression analysis between Insider Ownership and ESG and its components using the data from Bloomberg during 2017, where the dependent variables are ESG Rating, Environmental Score, Social Score, and Governance Score. Interaction term is applied in this regression. Whole table is provided in appendix A. \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$*

Table 5 shows the result of the regression analysis between insider ownership and the ESG and its components. The result can reject the null hypothesis 2. Insider ownership affects the ESG score significantly negatively at confidence level of 90%. When the insider ownership changed by 1% it decreases ESG score by 0.129 point. However, there was an interesting finding about insider ownership and Environmental Score relationship. The result shows the negatively significant relationship, showing that 1% increasing in insider ownership would bring 0.323 point decreasing in Environmental Score at 99% of confidential level. We find negative relationship between insider ownership and ESG and its components. The finding of negative relationship between insider ownership and

Environmental Score is in line with Diantimala and Amril (2018). Using interaction term, we find the differences in changing the percent of insider ownership in industries. In ESG, Environmental and Social Score, most of the industries show positive relationship to the insider ownership based on communication industry. However, we find that Utility industry only shows adverse relationship to ESG, Environmental and Social Score. We also find that relationship between insider ownership and ESG and its components could be changed by firm size. We noticed that as the size of the firm is growing, even though it does not have statistical significance in ESG Score alone, but it positively related to Environmental and Social Score at 99% and 90% of confidential level, and negatively related to Governance Score at 90% level. Even Environmental Score is increased by 0.393 point per percent changes in market capitalization. The result is in line with Suttipun and Stanton (2012); Lu and Abeysekara (2014); the bigger companies have more incentives to disclosure more environmental information.

*Hypothesis 3*

*Null: Institutional ownership does not affect the ESG Score of a firm*

*Alt: Institutional ownership affects the ESG Score of a firm*

Last, we set the analysis to see how the institutional ownership affects ESG and its components. At this regression model we set the market capitalization as control variable, transforming to logarithmic to control the percent change effect and applied interaction term to industry classification based on Communication industry. It will illustrate how the institutional ownership affects the ESG and its components varying the industry.

*Cross-Sectional Regression Result about Institutional Ownership and ESG Score*

	<i>Dependent variable:</i>							
	ESG (1)	Environ (2)	Social (3)	Govern (4)	ESG (5)	Environ (6)	Social (7)	Govern (8)
Institution	2.222 (2.496)	2.447 (2.688)	3.986* (2.115)	0.145 (3.524)	-9.952* (5.794)	-13.313** (6.191)	-13.641*** (4.839)	-9.927 (8.362)
logmarketcap	3.469 (4.872)	41.549*** (5.247)	9.568** (4.130)	-13.439* (6.879)	11.529** (5.460)	44.431*** (5.834)	8.584* (4.560)	-1.947 (7.880)
Institution:Consumer.Discretionary					30.357*** (11.129)	9.276 (11.890)	26.043*** (9.294)	34.378** (16.060)
Institution:Consumer.Staples					3.257 (11.908)	8.793 (12.722)	21.139** (9.945)	19.542 (17.184)
Institution:Energy					7.014 (9.145)	10.618 (9.770)	8.436 (7.638)	2.770 (13.197)
Institution:Financials					7.992 (7.471)	14.178* (7.982)	12.408** (6.239)	8.061 (10.781)
Institution:Health.Care					19.731 (15.813)	-2.555 (16.894)	13.127 (13.206)	22.823 (22.819)
Institution:Industrials					29.141** (12.924)	23.909* (13.809)	21.450** (10.794)	26.623 (18.651)
Institution:Materials					13.453 (10.447)	21.614* (11.162)	16.368* (8.725)	10.378 (15.076)
Institution:Technology					12.663 (12.457)	12.769 (13.309)	24.282** (10.403)	11.330 (17.976)
Institution:Utilities					33.574** (13.092)	40.515*** (13.987)	32.769*** (10.934)	28.127 (18.893)
Constant	50.763*** (4.063)	27.482*** (4.376)	47.112*** (3.444)	62.704*** (5.737)	47.995*** (6.146)	32.787*** (6.566)	58.187*** (5.133)	54.758*** (8.869)
Observations	398	398	398	398	398	398	398	398
R <sup>2</sup>	0.003	0.140	0.023	0.010	0.157	0.284	0.197	0.124
Adjusted R <sup>2</sup>	-0.002	0.136	0.018	0.005	0.112	0.246	0.155	0.078
Residual Std. Error	8.048 (df = 395)	8.667 (df = 395)	6.821 (df = 395)	11.363 (df = 395)	7.578 (df = 377)	8.097 (df = 377)	6.329 (df = 377)	10.936 (df = 377)
F Statistic	0.677 (df = 2; 395)	32.117*** (df = 2; 395)	4.647** (df = 2; 395)	1.909 (df = 2; 395)	3.499*** (df = 20; 377)	7.461*** (df = 20; 377)	4.630*** (df = 20; 377)	2.676*** (df = 20; 377)

*Note: This table presents the result of cross-sectional regression analysis between Institutional Ownership and ESG and its components using the data from Bloomberg during 2017, where the dependent variables are ESG Rating, Environmental Score, Social Score, and Governance Score. Interaction term is applied in this regression. Whole table is provided in appendix B. \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$*

Table 6 shows the result of the regression analysis between institutional ownership and the ESG and its components. The result can not reject the null hypothesis 3. The institutional ownership shows positive relationship to Social Score only at confidence level of 90%. When the institutional ownership changed by 1% it increases ESG score by 0.022 point. However, there was an interesting finding about institutional ownership and ESG and its components. Unlike to the insider ownership effect, we find that the institutional ownership positively related to the ESG and its components.

The finding of negative relationship between insider ownership and Environmental Score is in line with Diantimala and Amril (2018). Using interaction term, we find the differences in changing the percent of insider ownership in industries. In ESG, Environmental and Social Score, most of the industries show positive relationship to the insider ownership based on communication industry. However, we find that Utility industry only shows adverse relationship to ESG, Environmental and Social Score. This result is in line with the Chang and Le (2015) as a fact that institutional ownership positively related to environmental disclosure in polluting industries, however, in this paper the result shows that the institutional ownership positively related to not only the polluting industries but also other industries except Healthcare industry. In most of the industries, the institutional ownership brings positive effect to ESG and its components. We also find that relationship between institutional ownership and ESG and its components could be changed by firm size. We noticed that as the size of the firm is growing, even though it does not have statistical significance in ESG Score alone, but it increases the ESG, Environmental and Social Score. Even Environmental Score is increased by 0.416 point per percent changes in market capitalization. The result from table 6 also supports the study



from Suttipun and Stanton (2012); Lu and Abeysekara (2014); the bigger companies have more incentives to disclose more environmental information. Additionally, the result that the institutional ownership does not show the significance toward ESG score could be explained by the study held by Kim et al. (2018) that if the institutional ownership was not active for a long period of the time, even though it takes significant portion of the ownership, it would not show any significant effect to ESG Score.

## **Conclusion**

In addition to testing for a link between ownership structure and ESG score, this paper relies on previously unexplained data on ESG score and its components and tests of their direct link to ownership structure and indirect link to the profitability of the firm. Using a sample of 398 firms in the U.S. in 2017, we contributed to research that focuses on the profitability of the firm. First, we introduce the relationship between ESG rating and its components to the firm's profitability, using Return on Asset as matrix of profitability, and shows ESG, Social and Governance Score exert a significant positive effect on the profitability of the firm. Then, we performed a cross-sectional analysis with interaction term to see how the insider and institutional ownership structure affect the firm's ESG score. Using market capitalization as a control variable and using interaction term to industry classification, we find that insider ownership significantly negative relation to ESG and Environmental Score, it could be explained by the situation that as the managers take more ownership, they tend to exert their influence on the firm's decision by denying the ESG investment to maximize their short-term profit. Since the firm avoid to invest in environmental practices that increases cost of their plant as a depreciation cost, the

decreasing in Environmental Score is observed by increasing the insider ownership. And unlike to the other industries, Utility industry only shows adverse relation to ESG, Environmental and Social score based on Communication sector by changes in insider ownership. The institutional ownership significantly affects the Social scores only; however, it was not seen statistically significant, but the institutional ownership positively related to ESG and its components all. Both of the insider and institutional ownership shows the size effect which is that as the size of the firm is growing they tend to disclose more in environmental score.

The user could use this study to confirm the basic interrelation between ownership structure and profitability of the firm. The ownership structure influences the firm's profitability by affecting the decisions in board members, and the following decision inevitably leads ESG performance to the direction in which the types of ownership pursues. As the growing portion of the insider ownership weakens the ESG and its components Scores and the institutional ownership strengthens those scores. Based on our findings, we offer the debatable argument that the firm needs to consider finding a way to get invest from institutions. Because growing portion of the institutions and the institution participates as an active the manager as well, it would strengthen the ESG and its components, then as we mentioned in the paper, Strong ESG Score strengthens the firm's profitability which brings positive effect of the firm's valuation. However, the study is performed by limited time period data and only includes U.S firm data, there still remain possibilities for the following researcher to make up extend time period and enlarge the sample country about this topic.

## Appendix A

## Cross-Sectional Regression Result about Insider Ownership and ESG Score

	<i>Dependent variable:</i>							
	ESG (1)	Environ (2)	Social (3)	Govern (4)	ESG (5)	Environ (6)	Social (7)	Govern (8)
Insider	-12.988* (6.982)	-32.300*** (7.376)	-5.370 (5.958)	-7.194 (9.885)	-116.841 (127.681)	-387.064*** (134.284)	-185.293* (106.696)	5.050 (184.589)
logmarketcap	2.704 (4.878)	39.396*** (5.153)	9.498** (4.163)	-13.951** (6.906)	5.189 (5.253)	38.786*** (5.525)	3.353 (4.390)	-7.185 (7.595)
Consumer.Discretionary					3.384 (2.559)	-0.620 (2.691)	0.418 (2.139)	5.831 (3.700)
Consumer.Staples					3.418 (2.401)	-1.735 (2.525)	0.739 (2.007)	4.355 (3.471)
Energy					7.452*** (2.519)	0.308 (2.649)	-2.935 (2.105)	13.598*** (3.642)
Financials					-1.231 (2.669)	-4.983* (2.807)	-5.198** (2.231)	1.606 (3.859)
Health.Care					1.575 (2.403)	-0.394 (2.527)	1.465 (2.008)	2.080 (3.473)
Industrials					8.126*** (2.383)	4.701* (2.506)	3.953** (1.991)	9.028*** (3.445)
Materials					10.137*** (2.710)	6.500** (2.850)	3.071 (2.264)	12.556*** (3.917)
Technology					4.558* (2.410)	4.416* (2.535)	5.265*** (2.014)	4.304 (3.484)
Utilities					6.154** (2.993)	2.710 (3.148)	-1.148 (2.501)	8.400* (4.327)
Insider:Consumer.Discretionary					119.823 (130.446)	347.774** (137.193)	183.088* (109.007)	17.104 (188.587)
Insider:Consumer.Staples					134.467	369.920***	205.060*	28.640

					(129.729)	(136.439)	(108.408)	(187.551)
Insider:Energy					131.943	368.507***	235.757**	5.496
					(130.927)	(137.699)	(109.409)	(189.282)
Insider:Financials					116.819	368.269***	188.789*	-1.923
					(127.999)	(134.619)	(106.962)	(185.049)
Insider:Health.Care					119.495	340.480**	162.759	21.252
					(129.456)	(136.152)	(108.180)	(187.156)
Insider:Industrials					17.811	308.055**	101.721	-51.661
					(132.121)	(138.955)	(110.407)	(191.009)
Insider:Materials					15.527	308.502**	143.087	-128.236
					(131.443)	(138.242)	(109.841)	(190.029)
Insider:Technology					115.631	380.867***	180.992*	-10.739
					(129.062)	(135.738)	(107.851)	(186.586)
Insider:Utilities					-57.103	-207.607	-64.621	185.045
					(631.853)	(664.533)	(528.007)	(913.475)
Constant	53.449***	31.822***	50.555***	63.366***	47.098***	31.306***	54.353***	51.905***
	(3.620)	(3.824)	(3.090)	(5.125)	(4.886)	(5.138)	(4.083)	(7.063)
Observations	398	398	398	398	398	398	398	398
R <sup>2</sup>	0.010	0.178	0.016	0.011	0.164	0.312	0.203	0.129
Adjusted R <sup>2</sup>	0.005	0.174	0.011	0.006	0.119	0.275	0.161	0.082
Residual Std. Error	8.021	8.473	6.845	11.355	7.546	7.936	6.306	10.909
	(df = 395)	(df = 395)	(df = 395)	(df = 395)	(df = 377)	(df = 377)	(df = 377)	(df = 377)
F Statistic	2.013	42.761***	3.258**	2.176	3.689***	8.534***	4.803***	2.782***
	(df = 2; 395)	(df = 2; 395)	(df = 2; 395)	(df = 2; 395)	(df = 20; 377)	(df = 20; 377)	(df = 20; 377)	(df = 20; 377)

*Note: This table presents the result of cross-sectional regression analysis between Insider Ownership and ESG and its components using the data from Bloomberg during 2017, where the dependent variables are ESG Rating, Environmental Score, Social Score, and Governance Score. Interaction term is applied in this regression. t-statistics are parenthesis. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01*

## Appendix B

## Cross-Sectional Regression Result about Institutional Ownership and ESG Score

	<i>Dependent variable:</i>							
	ESG (1)	Environ (2)	Social (3)	Govern (4)	ESG (5)	Environ (6)	Social (7)	Govern (8)
Institution	2.222 (2.496)	2.447 (2.688)	3.986* (2.115)	0.145 (3.524)	-9.952* (5.794)	-13.313** (6.191)	-13.641*** (4.839)	-9.927 (8.362)
logmarketcap	3.469 (4.872)	41.549*** (5.247)	9.568** (4.130)	-13.439* (6.879)	11.529** (5.460)	44.431*** (5.834)	8.584* (4.560)	-1.947 (7.880)
Consumer.Discretionary					-19.090** (9.181)	-3.969 (9.809)	-17.645** (7.668)	-20.622 (13.250)
Consumer.Staples					3.653 (9.785)	-4.057 (10.454)	-12.889 (8.172)	-9.784 (14.120)
Energy					4.173 (6.818)	-3.847 (7.284)	-6.062 (5.694)	12.055 (9.839)
Financials					-4.968 (5.908)	-12.194* (6.312)	-11.410** (4.934)	-3.197 (8.526)
Health.Care					-12.782 (13.758)	6.667 (14.699)	-6.494 (11.490)	-15.561 (19.855)
Industrials					-15.354 (10.901)	-11.146 (11.647)	-11.610 (9.104)	-12.687 (15.731)
Materials					-0.432 (8.514)	-7.547 (9.096)	-7.578 (7.110)	2.723 (12.286)
Technology					-3.577 (10.442)	-1.127 (11.157)	-11.808 (8.721)	-3.946 (15.069)
Utilities					-19.400* (10.825)	-27.120** (11.566)	-25.327*** (9.041)	-12.778 (15.622)
Institution:Consumer.Discretionary					30.357*** (11.129)	9.276 (11.890)	26.043*** (9.294)	34.378** (16.060)

Institution:Consumer.Staples					3.257 (11.908)	8.793 (12.722)	21.139** (9.945)	19.542 (17.184)
Institution:Energy					7.014 (9.145)	10.618 (9.770)	8.436 (7.638)	2.770 (13.197)
Institution:Financials					7.992 (7.471)	14.178* (7.982)	12.408** (6.239)	8.061 (10.781)
Institution:Health.Care					19.731 (15.813)	-2.555 (16.894)	13.127 (13.206)	22.823 (22.819)
Institution:Industrials					29.141** (12.924)	23.909* (13.809)	21.450** (10.794)	26.623 (18.651)
Institution:Materials					13.453 (10.447)	21.614* (11.162)	16.368* (8.725)	10.378 (15.076)
Institution:Technology					12.663 (12.457)	12.769 (13.309)	24.282** (10.403)	11.330 (17.976)
Institution:Utilities					33.574** (13.092)	40.515*** (13.987)	32.769*** (10.934)	28.127 (18.893)
Constant	50.763*** (4.063)	27.482*** (4.376)	47.112*** (3.444)	62.704*** (5.737)	47.995*** (6.146)	32.787*** (6.566)	58.187*** (5.133)	54.758*** (8.869)
Observations	398	398	398	398	398	398	398	398
R <sup>2</sup>	0.003	0.140	0.023	0.010	0.157	0.284	0.197	0.124
Adjusted R <sup>2</sup>	-0.002	0.136	0.018	0.005	0.112	0.246	0.155	0.078
Residual Std. Error	8.048 (df = 395)	8.667 (df = 395)	6.821 (df = 395)	11.363 (df = 395)	7.578 (df = 377)	8.097 (df = 377)	6.329 (df = 377)	10.936 (df = 377)
F Statistic	0.677 (df = 2; 395)	32.117*** (df = 2; 395)	4.647** (df = 2; 395)	1.909 (df = 2; 395)	3.499*** (df = 20; 377)	7.461*** (df = 20; 377)	4.630*** (df = 20; 377)	2.676*** (df = 20; 377)

*Note: This table presents the result of cross-sectional regression analysis between Institutional Ownership and ESG and its components using the data from Bloomberg during 2017, where the dependent variables are ESG Rating, Environmental Score, Social Score, and Governance Score. Interaction term is applied in this regression. t-statistics are parenthesis. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01*

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