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## The Impact of CSR/ESG on the Cost of Capital: A Case Study of US Companies

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### **Abstract:**

**Purpose:** The paper identifies the direction and strength of the relationship between individual ESG elements (and ESG as a whole) and the weighted average cost of capital, the cost of equity, and debt. The research was based on US market company data from the Thomson Reuters Eikon database. Some modifications have been applied to the survey methodology compared to that previously used in the literature, making it possible to present comprehensive and more congruent results. Identifying the direction and strength of the relationship between individual elements of ESG and ESG as a whole and the cost of capital (weighted average, equity, and debt).

**Design/Methodology/Approach:** This paper incorporates an analytical approach based on the results of the original research.

**Findings:** ESG and its components affect the cost of capital (weighted average, equity, and debt)

**Practical Implication:** Disclosure of CSR/ESG practices can improve a company's financial position because it implies the ability to raise capital with lower cost, which, in turn, induces a better financial result. Knowledge of the existence of such exist is essential when most companies have to look for further savings (cost reduction) due to pandemic impediments.

**Originality/Value:** The originality and value of an article are manifested on three levels: 1. There is a paucity of comprehensive empirical research in the literature on the subject; 2. To date, there has been no simultaneous, large sample study of the impact of ESG and its elements on the weighted average cost of capital and on the costs of raising equity and debt separately; 3. To date, there have been no studies on the relationship between the variables mentioned in 2, including a time lag, and here it is assumed that the impact of ESG and its elements on the cost of capital, due to the nature of reporting, may become apparent at the earliest in the next fiscal year.

**Keywords:** CSR, ESG, cost of equity, cost of debt.

**JEL classification:** C80, G30, L20.

**Paper Type:** Research paper.

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## 1. Introduction

Disclosure of information about the soundness of enterprises has become increasingly crucial to global decision-makers, if only because of existing and growing links in the global economy through international trade and investment. However, it can be observed that financial disclosure alone can no longer meet all the company's information needs. As a result, disclosing non-financial information about company activities, using mainly environmental, social, and sustainability reports, is becoming increasingly important (Raimo *et al.*, 2021).

Also, the problems faced by traders in the wake of the prevailing COVID-19 pandemic are causing growing uncertainty and a lack of investor confidence, which can be countered by increasing the quantity, transparency, and quality of disclosures. Disclosures that contribute to this are critical factors that increase stakeholder and shareholder confidence (Ellili, 2020).

Since the Global Reporting Initiative (GRI) publication in 2001, this type of disclosure of Corporate Social Responsibility (CSR) is becoming increasingly popular among listed companies. Managers responsible for reporting (including financial reporting) are becoming increasingly aware of the benefits they can gain by doing so. Growing awareness of the need to address social and environmental issues has led to such activities being increasingly treated as an investment in a core competency or asset rather than a constraint or solely a cost source. Companies that take into account the CSR above in their activity also identified in the literature with ESG (Gillan *et al.*, 2021) (Environmental, Social and Governance), and at the same time inform their environment about it may expect certain benefits. These include (Bassen *et al.*, 2011; Burke and Logsdon, 1996; Jędrzejka, 2013; Knox and Maklan, 2004), improving the corporate image and bolstering confidence in the company, investment attractiveness, enjoying more excellent employee acquisition opportunities, better employee loyalty, and job satisfaction, more innovation – taking environmental and social aspects into account motivates to create new products and streamline processes, lower costs can result from reduced resource consumption; more effective risk management.

Significant for the authors of this article is the aforementioned 'investment attractiveness,' which should translate into an increase in their confidence and sense of security, which may, in turn, translate into a potential reduction in the cost of capital, among other things. Therefore, the consideration of CSR/ESG issues by the company should be permanently connected with informing their environment about the actions taken and results. Increasing transparency by providing additional information, often optional, can result in a higher position in investor rankings. This is mainly due to higher confidence in the company and reduced uncertainty among its stakeholders (Brown, 2003; Jędrzejka, 2013).

The purpose of the paper is to comprehensively diagnose the existence of links between both ESG score and individual ESG elements and costs of equity, debt, and

their weighted average. The research was carried out on a large sample of diverse companies. The literature of the subject lacks such comprehensive studies based on a large sample.

## **2. Literature Review**

As Rahman and Alsayegh (2021) point out, no generally accepted theory explains corporate voluntary disclosure practices, but it can be argued that the legitimacy theory is currently dominant in the ESG literature. It is used to explain or predict particular sustainability reporting practices by managers (Dyduch and Krasodomska, 2017; Gray *et al.*, 1995; Hooghiemstra, 2000; Rahman and Alsayegh, 2021). Suchman (1995: 574) stated that *legitimacy theory* could be defined as a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions. This means that the organization should continually demonstrate that its actions are transparent and that the public perceives it as operating within accepted norms and boundaries. Legitimacy theory posits that an organization would voluntarily report its actions, such as disclosing certain ESG information, if management believed the organization's societies desired those actions. Researchers who use the legitimacy framework suggest that ESG disclosure responds to public pressure (Ellili, 2020; Hahn and Kühnen, 2013; Rahman and Alsayegh, 2021).

Studies have been conducted to verify whether the discussed benefits of socially responsible action and risk management in ESG areas occur for several years. Operational, financial, and stock market performances are analyzed. However, the results of the study are not conclusive, some confirm the existence of the expected relationships, but many prevent from concluding a positive impact of the mentioned activity (Jędrzejka, 2013; Margolis *et al.*, 2012).

One aspect of ESG research, or non-financial reporting more generally, is its impact on a company's cost of capital and debt. As Botosan (2006) noticed, most empirical studies have focused on the relationship between non-financial information and the cost of capital (Dhaliwal *et al.*, 2014; El Ghouli *et al.*, 2011; Sharfman and Fernando, 2008; Suto and Takehara, 2017), but it must be said that there is still a paucity of research into this subject (Ellili, 2020). For example, Dhaliwal *et al.* (2014) and El Ghouli *et al.* (2011) confirmed that there is a negative relationship between disclosure of non-financial information (related to corporate social responsibility and environmental issues, among others) and cost of capital for US companies. On the other hand, Richardson and Welker (2001) observed a positive relationship between the disclosure of one of the pillars of CSR (social information) and the cost of equity in a sample of Canadian companies.

There are several strands of research on the link between disclosure and the cost of debt, the first of which focuses on voluntary disclosure. In their study on a sample of companies from 34 countries, Francis, Khurana, and Pereira (2005) concluded that

broad disclosure policies lead to lowering the cost of debt. Talbi and Omri (2014) studied companies of the Tunis Stock Exchange and found a negative relationship between the frequency of voluntary disclosures and the cost of debt. Regarding financial disclosure, Amrah and Hashim (2020) and Bonsal and Miller (2017), in their researches, concluded that there is a negative relationship between the quality of financial disclosure and the cost of debt.

Regarding sustainability and corporate social responsibility (CSR) reporting, Xu *et al.* (2019) conducted a study on selected Chinese companies and proved a positive relationship between CSR disclosure and the cost of debt. Fonseka *et al.* (2019) studied a sample of Chinese companies, proving a negative relationship between environmental information and the cost of debt. Additionally, Eliwa *et al.* (2019) examined a sample of companies operating in 15 European countries, concluding that the impact of ESG disclosures has a negative relationship with the cost of debt. Also, Bhuiyan and Nguyen (2019) studied a sample of Australian listed companies and found a negative impact of ESG disclosures on the cost of debt (Raimo *et al.*, 2021). The literature review shows that previous studies analyzed the impact of additional disclosures on the cost of debt. However, little attention was paid to ESG information. To sum up the literature review, it should be stressed that the results of previous studies (both on the impact of CSR/ESG on the cost of equity and debt) do not lead to apparent conclusions in this regard. However, one must admit that the vast majority of studies concluded that the use and reporting of CSR practices translate into lowering the cost of capital.

However, it should be reiterated that one does not encounter comprehensive studies that simultaneously and based on the same sample lead to conclusions about the relationship of CSR/ESG with the cost of equity and debt and the weighted average of both. Moreover, in most cases, studies consider the impact on these costs of only selected aspects of the ESG elements or only ESG as a whole. Thus, for example, only the impact of a carbon footprint on the cost of debt was studied. The authors of this article have not encountered a study where not only the impact of the entire ESG (ESG score) but also the impact of its components – environmental, social, and governance on the cost of capital – was examined, and here again in parallel by equity, debt and the weighted average of both.

In addition, what should be noted when studying the results of research published in the cited scientific articles, many of them were based on tiny samples, often only a few dozen of enterprises, in addition usually from a homogeneous industry. The authors decided to fill this gap with our research because of these issues, problems, and information gaps.

### **3. Research Methodology**

This research uses the Thomson Reuters Eikon database of the many databases available that collect information on company management of ESG factors. It is a

valuable tool used by researchers and practitioners to analyze the non-financial information of companies. This database was created in 2010 as a result of investor interest in sustainability and social responsibility issues. As of 15 February 2021, the database contained information on 6,393 US companies. The calculation of the index value is based on three factors: environmental (E), social (S), and corporate governance (G). In turn, each area is divided into subcategories: E - 3 (resource consumption, emissions, innovation), S - 4 (employees, human rights, community, product responsibility), G - 3 (governance, shareholders, CSR strategy). The ESG index is calculated using the following formula (1) (Sikacz and Wołczek, 2018).

$$\text{indicator for ESG score} = \frac{a + \frac{b}{z}}{c} \quad (1)$$

where:

$a$  – number of companies with worse results than the one being assessed;  $b$  – number of companies with the same results as the one being assessed;  $c$  – number of all companies with results.

The final ESG score is a 12-point scale<sup>4</sup>: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D; it is more spread scale than, e.g., in the MSCI ESG database, on the other hand, a more spread scale can be found in ASSET4 database. The detailed study included all those companies for which complete data were obtained in terms of the examined variables without division by industry:  $x_1$  – Weighted Average Cost of Capital, (%) in the last 10 FY;  $x_2$  – ESG Score In the last 10 FY;  $x_3$  – Social Pillar Score in the last 10 FY;  $x_4$  – Governance Pillar Score in the last 10 FY;  $x_5$  – Environmental Pillar Score in the last 10 FY;  $x_6$  – WACC Cost of Equity, (%) in the last 10 FY;  $x_7$  – WACC Cost of Debt, (%) in the last 10 FY.

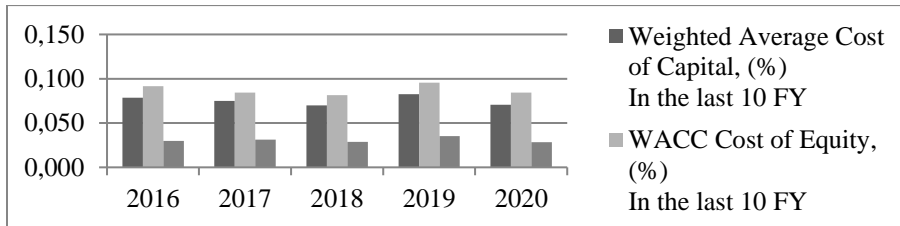
The analysis covers the period from 2016 to 2020. In the reviewed period, both ESG Score and its components – Social Pillar Score, Governance Pillar Score, Environment Pillar Score – show an upward trend. The most significant changes can be observed for the Environment Pillar Score variable, where the average level almost doubled between 2016 and 2020, from 24.68 in 2016 to 47.28 in 2020. This variable also had the highest volatility, particularly in 2016, when the coefficient of variation was 112%. For other variables, the value of the coefficient of variation at an average level of 42% suggests that there was moderate variation. Increasing average scoring values of both ESG and its components over time indicate increasing awareness of the implementation of environmental strategy and policy, environmental management, discharge of environmental responsibility, and care.

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<sup>4</sup> The ranges of results depending on the symbol are as follows: D-:  $0.0 \leq \text{score} \leq 0.0833$ ; D:  $0.0833 < \text{score} \leq 0.1666$ ; D+:  $0.1666 < \text{score} \leq 0.2500$ ; C-:  $0.2500 < \text{score} \leq 0.3333$ ; C:  $0.3333 < \text{score} \leq 0.4166$ ; C+:  $0.4166 < \text{score} \leq 0.5000$ ; B-:  $0.5000 < \text{score} \leq 0.5833$ ; B:  $0.5833 < \text{score} \leq 0.6666$ ; B+:  $0.6666 < \text{score} \leq 0.7500$ ; A-:  $0.7500 < \text{score} \leq 0.8333$ ; A:  $0.8333 < \text{score} \leq 0.9166$ ; A+:  $0.9166 < \text{score} \leq 1$ .

The weighted average cost of capital (WACC) and its components – the cost of equity and debt show a downward trend in the first three years, and the highest values of the indices were in 2019 (Fig. 1). The direction of change is the same for all variables

**Figure 1.** The average levels of WACC, WACC Cost of Equity, WACC Cost of Debt between 2016 and 2020



*Source:* An original compilation based on Eikon Thomson Reuters.

The study used the methods of descriptive statistics for presenting the structure of the studied companies and correlation and regression analysis, which were employed to achieve the objective mentioned in the introduction of this paper, and concerning the existence of a relationship between the information contained in ESG reports and the weighted average cost of capital and separately the cost of equity and debt. The correlation and regression tests between the variables were applied in a given year and with a time lag, as it was assumed that there were relationships between the variables from different periods of the study. The analysis was done in terms of ESG as a whole and concerning each of its components. All hypotheses for testing the significance of the correlation coefficients and the parameters of the regression function were verified at the 5% significance level.

#### 4. Results and Discussion

The determination of Pearson's linear correlation coefficients allowed us to verify the hypotheses regarding the existence of a relationship between Weighted Average Cost of Capital, WACC Cost of Equity, WACC Cost of Debt and ESG Score, Social Pillar Score, Governance Pillar Score, Environment Pillar Score (Table 1). Correlation coefficients were determined between variables year to year (which is a novel approach in this type of research) with a time lag. At the 5% significance level, there was a statistically significant correlation between the Weighted Average Cost of Capital, WACC Cost of Equity, and ESG and its components. However, these are negative correlations, concluding that despite the growing importance of environmental issues, this does not explain an increase in the Weighted Average Cost of Capital and WACC Cost of Equity. No statistically significant correlations were found for the WACC Cost of Debt variable. In the next step, multivariate regression functions were estimated in which the roles of dependent variables were Weighted Average Cost of Capital, WACC Cost of Equity, WACC Cost of Debt, respectively. On the other hand, the variables ESG Score, Social Pillar Score, Governance Pillar Score, Environmental Pillar Score are served as independent variables. While

considering the effect of all endogenous variables on the Weighted Average Cost of Capital in 2018 components, the Governance Pillar Score, Environmental Pillar Score significantly affected the WACC. In 2019 and 2020, the only factor significantly shaping WACC was the Environmental Pillar Score. As the WACC Cost of Debt variable was not significantly correlated with ESG and its components, this was confirmed by the significance of the regression parameters.

**Table 1.** Pearson's linear correlation coefficients

Variable	ESG – ESG Score					S – Social Pillar Score					G – Governance Pillar Score					E – Environmental Pillar Score					
	2020	2019	2018	2017	2016	2020	2019	2018	2017	2016	2020	2019	2018	2017	2016	2020	2019	2018	2017	2016	
WACC – Weighted Average Cost of Capital (%)	2020	0.093	0.112	0.115	0.113	0.048	0.072	0.070	0.092	0.079	0.071	0.092	0.101	0.104	0.081	0.102	0.101	0.091	0.082	0.087	0.071
	2019		0.148	0.146	0.149	0.138	0.103	0.096	0.128	0.110		0.090	0.111	0.102	0.103		0.158	0.149	0.147	0.137	0.129
	2018			0.131	0.143	0.126		0.087	0.117	0.094			0.111	0.121	0.110			0.130	0.121	0.122	0.113
	2017				0.071	0.057			0.069	0.061				0.044	0.013				0.050	0.048	0.048
	2016					0.098				0.100					0.081						0.059
WACC of Equity (%) In the last 10 FY	2020	0.064	0.082	0.078	0.092	0.066	0.039	0.064	0.054	0.086	0.061	0.015	0.033	0.049	0.067	0.048	0.078	0.070	0.070	0.055	0.041
	2019		0.107	0.103	0.112	0.087		0.080	0.071	0.098	0.073		0.049	0.064	0.079	0.063		0.113	0.106	0.090	0.075
	2018			0.087	0.107	0.075			0.063	0.095	0.069			0.054	0.083	0.049			0.095	0.083	0.069
	2017				0.108	0.083				0.089	0.073				0.093	0.062				0.088	0.077
	2016					0.046					0.070				0.017						0.022
WACC Cost of Debt (%) In the last 10 FY	2020	0.043	0.057	0.058	0.050	0.031	0.033	0.055	0.053	0.039	0.045	0.025	0.036	0.035	0.032	0.015	0.007	0.001	0.000	0.006	0.001
	2019		0.035	0.034	0.053	0.048		0.047	0.045	0.052	0.059		0.008	0.032	0.004			0.032	0.013	0.002	0.001
	2018			0.025	0.044	0.031			0.031	0.036	0.040			0.025	0.008				0.024	0.014	0.012
	2017				0.035	0.025				0.040	0.042				0.009					0.035	0.042
	2016					0.007					0.022				0.019						0.053

Source: An original compilation based on Eikon Thomson Reuters.

**Table 2.** Regression function parameters for the dependent variable: Weighted Average Cost of Capital

Dependent variable: Weighted Average Cost of Capital						
Year	b*	Standard error	b	Standard error	t	p
2020						
Constant term			0.074	0.003	25.743	0.000
E	0.059	0.044	0.000	0.000	1.335	0.182
S	-0.038	0.033	0.000	0.000	-1.150	0.251
G	-0.128	0.045	0.000	0.000	-2.839	0.005
2019						
Constant term			0.088	0.003	32.091	0.000
E	0.024	0.043	0.000	0.000	0.552	0.581
S	-0.031	0.033	0.000	0.000	-0.951	0.342
G	-0.162	0.044	0.000	0.000	-3.678	0.000
2018						
Constant term			0.076	0.002	31.395	0.000
E	0.015	0.042	0.000	0.000	0.344	0.731
S	-0.069	0.033	0.000	0.000	-2.072	0.038
G	-0.111	0.044	0.000	0.000	-2.512	0.012
2017						
Constant term			0.094	0.010	9.693	0.000
E	-0.064	0.043	0.000	0.000	-1.485	0.138
S	-0.023	0.033	0.000	0.000	-0.692	0.489
G	0.004	0.044	0.000	0.000	0.099	0.921
2016						
Constant term			0.087	0.002	35.255	0.000
E	-0.112	0.044	0.000	0.000	-2.567	0.010
S	-0.061	0.033	0.000	0.000	-1.821	0.069
G	0.047	0.045	0.000	0.000	1.046	0.296

Source: An original compilation based on Eikon Thomson Reuters.

**Table 3.** Regression function parameters for the dependent variable: WACC Cost of Equity

Dependent variable: WACC Cost of Equity						
Year	b*	Standard error	b	Standard error	t	p
2020						
Constant term			0.084	0.003	24.992	0.000
E	0.036	0.044	0.000	0.000	0.823	0.410
S	0.019	0.033	0.000	0.000	0.561	0.575
G	-0.113	0.045	0.000	0.000	-2.483	0.013
2019						
Constant term			0.100	0.003	30.033	0.000
E	0.002	0.043	0.000	0.000	0.056	0.956
S	-0.003	0.033	0.000	0.000	-0.096	0.923
G	-0.114	0.044	0.000	0.000	-2.566	0.010
2018						
Constant term			0.085	0.003	27.726	0.000
E	0.008	0.043	0.000	0.000	0.195	0.846
S	-0.017	0.033	0.000	0.000	-0.511	0.609
G	-0.093	0.044	0.000	0.000	-2.096	0.036
2017						
Constant term			0.093	0.003	31.457	0.000
E	-0.044	0.043	0.000	0.000	-1.024	0.306
S	-0.065	0.033	0.000	0.000	-1.969	0.049
G	-0.030	0.044	0.000	0.000	-0.683	0.495
2016						
Constant term			0.098	0.003	31.841	0.000
E	-0.113	0.044	0.000	0.000	-2.569	0.010
S	-0.002	0.033	0.000	0.000	-0.074	0.941
G	0.061	0.045	0.000	0.000	1.341	0.180

Source: An original compilation based on Eikon Thomson Reuters.



**Table 4.** Regression function parameters for the dependent variable: WACC Cost of Debt

Dependent variable: WACC Cost of Debt						
Year	b*	Standard error	b	Standard error	t	p
2020						
Constant term			0.032	0.002	13.253	0.000
E	-0.056	0.044	0.000	0.000	-1.258	0.209
S	-0.023	0.033	0.000	0.000	-0.676	0.499
G	0.043	0.045	0.000	0.000	0.938	0.349
2019						
Constant term			0.038	0.002	24.757	0.000
E	-0.143	0.043	0.000	0.000	-3.319	0.001
S	0.005	0.033	0.000	0.000	0.144	0.886
G	0.132	0.044	0.000	0.000	2.979	0.003
2018						
Constant term			0.030	0.001	21.295	0.000
E	-0.097	0.043	0.000	0.000	-2.266	0.024
S	0.022	0.033	0.000	0.000	0.664	0.507
G	0.083	0.044	0.000	0.000	1.867	0.062
2017						
Constant term			0.034	0.002	22.001	0.000
E	-0.131	0.043	0.000	0.000	-3.058	0.002
S	0.004	0.033	0.000	0.000	0.129	0.897
G	0.126	0.044	0.000	0.000	2.870	0.004
2016						
Constant term			0.032	0.002	17.753	0.000
E	-0.127	0.044	0.000	0.000	-2.897	0.004
S	0.004	0.033	0.000	0.000	0.108	0.914
G	0.144	0.045	0.000	0.000	3.183	0.001

Source: An original compilation based on Eikon Thomson Reuter.

## 5. Conclusion

Corporate social responsibility has been a hallmark of sustainable business for many years. From the investor perspective, practices that broaden the scope of information on non-financial aspects, on actions taken by companies in environmental protection, social responsibility, and corporate governance have become attractive. Applying good CSR/ESG practices and reporting has become an obligation for all companies that care about their reputation.

The purpose of this paper was to identify the relationship between both ESG score and its components and costs: equity, debt, and their weighted average. Correlation and regression analysis were used for this purpose. The research showed a relationship between the information contained in ESG reports and the weighted average cost of capital and equity and debt. The results confirm that the correlation between ESG, S – Social Pillar Score, G – Governance Pillar Score, E – Environmental Pillar Score, and WACC – Weighted Average Cost of Capital, WACC of Equity show significant and negative correlations. In contrast, the correlations between ESG and its elements and WACC Cost of Debt are insignificant, albeit negative.

Considering the impact of ESG and its components on the weighted average cost of capital and the cost of equity and debt identified negative correlations between the variables. It is worth noting that for this article, correlation and regression tests between variables were applied in a given year, but also, or even primarily, with a time lag, as it was assumed that there were dependencies between variables from different periods of the study. According to the authors, this framing is necessary to

capture the actual relationships occurring in this area reliably. The impact of information presented in the financial statements of a given year is visible for the recipients of the statements with a delay, after the books have been closed, de facto in the following financial year at the earliest.

It is also worth noting not only the comprehensiveness of the research conducted, which provides a complete answer to the question of the parallel existence of many links (between many elements studied in parallel) but also the fact that this research, unlike many described in earlier papers, was conducted on a large sample, thanks to which the results obtained allow for more objective and broader generalization.

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