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Profitability and Corporate Social Responsibility

by

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Abstract

Profitability and Corporate Social Responsibility

Alexander Kirk

This project examines the relationship between net margins and measures of corporate social responsibility for the companies in the S&P 500 index. This is conducted through linear regressions of overall, environmental, social, and governance scores on net margin percentages for firms from their annual 10-K reports filed with the Securities and Exchange Commission. The corporate social responsibility measures were taken from Sustainalytics via Yahoo Finance and combined with dummy variables for Global Industry Classification Standard sectors. Results indicate very limited role in corporate social responsibility measures for predicting net margins, instead favoring sector specific variables as driving net margins to a large degree.

Introduction

This project will examine the relationship between profit margins, the goal of the corporation, and how well corporations score on a variety of corporate social responsibility (CSR) measures. When the first concerted effort for an expanded role and mission for corporations arose in the late 1960s and early 1970s, legendary economist Milton Friedman took to the editorial pages of *The New York Times* in 1970 to forcefully push back on such inclinations, arguing that anything other than complete deference to shareholders for the goal of maximizing profit would result in unaccountable executives that would be robbing shareholders and effectively taxing them (Friedman 1970). Following Friedman 35 years later, *The Economist* published a "special report" on the topic of CSR. Published in January 2005, the report emphasizes the relative ease with which principles of broader social responsibility took hold in corporate board rooms (2005). Writing with a similar sentiment toward the subject as Friedman, *The Economist* pointed out the lack of a counterparty or countermovement to the push for CSR and the displeasure seen by activists believing that corporations only superficially believed in social responsibility when it benefited their bottom line (2005). While shareholder primacy became the corporate philosophy of the day throughout the rest of the twentieth century and the first decade and a half of the twenty-first, recent years have seen a renewed interest in a broader set of corporate responsibilities.

The importance of further research on this topic has never been greater, as politicians like Bernie Sanders, Elizabeth Warren, and others seeking the Democratic Party nomination for the 2020 presidential election have actively promoted regulations that would broaden the responsibilities of businesses in the United States by bringing terms like "accountable capitalism"

and policies like a federal corporate charter from the political left into the political mainstream (Sen. Warren 2018). For example, Warren's Accountable Capitalism Act would require that large corporations acquire a federal charter with the purpose of "creating a general public benefit" and reserving 40% of board seats for employees (Sen. Warren 2018). While Warren's bill came nowhere close to passing, it is still important to understand what effect an increased focus on corporate social responsibility at the federal level would have on the financial performance of America's largest and most successful firms.

In August 2019, a group of 181 chief executive officers of American corporations that are members of the Business Roundtable lobbying organization signed a letter pledging their firms to a broader set of corporate responsibilities (Business Roundtable 2019). Particularly, the letter states that corporations share a "fundamental commitment" to all of their stakeholders, naming customers, employees, suppliers, communities, and shareholders (Business Roundtable 2019). In response, *The Economist* revisited the topic in August 2019 with many of the same arguments as it had in 2005, plus more on the reliable rates of return that corporations earn for pensions, endowments, and the like (2019). Additionally, they point out that many of the CEOs that signed the Business Roundtable letter committing their firms to broader social responsibility helm companies that effectively operate as oligopolies in their respective industries, giving them a clear interest in raising the barriers to entry for their sector of the economy (2019).

Literature Review

Shortly after the first *Economist* report, Husted and Salazar published a microeconomic theory-based analysis of CSR spending (Husted and Salazar 2006). The authors take Friedman's original argument that profits cannot be maximized at the same time as social good and find that

when firms act strategically in terms of their CSR spending, they can maximize both measures (Husted and Salazar 2006, 86). However, when coerced by governments, shareholders, or societal pressure, it can neither maximize profits nor social good (Husted and Salazar 2006, 87).

Siegal and Vitaliano analyzed the relationship between firm performance and whether a firm engages in CSR (Siegal and Vitaliano 2007). As the research occurred before wider societal and political pressures for firms to be good corporate citizens, Siegal and Vitaliano only examined a simple binary in which a firm engages in CSR or it does not (Siegal and Vitaliano 2007, 790). They found that firms that engage in CSR have higher profits than they would if they did not and vice versa, lending support to the hypothesis that firms only engage in strategic CSR in a profit-maximizing way (Siegal and Vitaliano 2007, 790). Extending on Siegal and Vitaliano's research, Hernández-Murillo and Martinek find that the motivations driving firms to spend on CSR projects depends heavily on the industry within which the firm operates (Hernández-Murillo and Martinek 2009). For example, manufacturing firms engage in more environmental CSR while service firms engage in more community and human rights CSR (Hernández-Murillo and Martinek 2009).

On the stakeholder theory side, Hillman and Keim found that firms that invest in non-shareholder stakeholder relationships allows firms to develop intangible, valuable assets that can be sources of competitive advantage (Hillman and Keim 2001, 135). However, they also find that using firm resources on social issues that do not affect primary stakeholders is easily imitable and not a source of sustainable competitive advantage (Hillman and Keim 2001, 135). Choi and Wang built on that and found that positive stakeholder relations are one of the most consistent sources of sustained competitive advantage for leading firms (Choi and Wang 2009, 903). Additionally, they found that poorly performing firms can use improved stakeholder relationships in order to

return to good financial performance (Choi and Wang 2009, 903). Henisz, Dorobantu, and Nartey found a positive relationship between increasing stakeholder support and financial valuations in public markets (Henisz, Dorobantu, and Nartey 2013, 1743). Bettinazzi and Zollo found that similar positive stakeholder relationships in the acquiring firm leads to success in merger performance (Bettinazzi and Zollo 2017, 2481).

Empirical Model

The empirical model for this research is a straightforward one, with the goal of determining whether the extent that firms in engage in CSR is correlated with its traditional measures of financial performance. Therefore, the baseline regression is the following:

$$Net\ Margin = \beta_0 + \beta_1 Overall + \varepsilon$$

The dependent variable, *Net Margin*, is a simple calculation of the firm's bottom line net income divided by top line revenue. There is a number of reasons for selecting margins as the independent variable used to measure financial performance, as opposed to stock price or shareholder returns. First, margins capture consumer behavior on the revenue side and employee and firm behavior on the costs side. If better social responsibility convinces a potential customer to pay more for a firm's product, that would be reflected in higher revenues. Similarly, if better social responsibility convinced employees to work for the firm at a lower rate than they would otherwise, the firm can save on costs as well. Using stock prices or shareholder returns would capture none of the above behaviors, instead reflecting investor behavior that may take a drastically different approach. Additionally, shareholder returns would capture dividends that not all firms pay, making it difficult to compare different sized firms and those at different stages

of maturity. Finally, and on a similar note to the previous, margins allow different sized firms to be compared in a way that absolute measures like revenue and net income alone do not.

The *Overall* independent variable is the overall environmental, social, and governance (ESG) score that a firm received as a rounded sum of its three scores on the main measures of CSR, the source of which will be addressed in the next section. Technically measuring unaccounted for ESG risk, a lower score is associated with better performance on each particular measure and overall, therefore a negative coefficient is expected for a positive correlation between CSR performance and financial performance.

The next regression is simply breaking the overall score into its composite parts:

$$Net\ Margin = \beta_0 + \beta_1 Environment + \beta_2 Social + \beta_3 Governance + \varepsilon$$

As the overall score is a rounded sum of the *Environment*, *Social*, and *Governance* scores, the *Overall* variable must be removed. Each score is a reflection of the unaccounted-for risk arising from the particular category described. For example, an energy firm is especially exposed to risk revolving around environmental regulations and would thus have a higher environment score. Social and governance operate in much the same way, the former reflecting exposure to human rights violations or controversial issues like animal testing and the latter to the ability of shareholders to hold executives and firms accountable. Breaking them out allows one to see how each contributes to the effect of the overall score.

The three final regressions are simply the individual scores by themselves, as seen below:

$$Net\ Margin = \beta_0 + \beta_1 Environment + \varepsilon$$

$$Net\ Margin = \beta_0 + \beta_1 Social + \varepsilon$$

$$Net\ Margin = \beta_0 + \beta_1 Governance + \varepsilon$$

These regressions allow one to see how the scores affect margins independent of one another as there is a possibility of overlap among the three measures, for example local air pollution could be measured as both an environmental risk and a social risk.

In addition to the five regressions just covered, three variants will be run on them in various combinations. Those variants are including sector dummies, eliminating outliers, and taking the natural log of *Net Margin*. The sector dummies include dummy variables for the 11 Global Industry Classification Standard (GICS) sectors that represent the firms in the sample and will be discussed more in depth in the next section (MSCI Inc., n.d.). Outlier elimination involves removing the top and bottom ten percent of the *Net Margin* values in the sample set, as some firms had one-time gains from asset sales or losses from asset purchases or goodwill impairments that give them artificially high or low net margins for the year in question. Finally, taking the natural log of *Net Margin* allows for analysis of whether the effect that ESG scores have on profitability is more powerful at tighter margins than it is at high ones by measuring the percent change in net margin.

Data

There were two big pieces of data that needed to be collected for this project, net margins and CSR measures. Net margins were calculated from annual 10-K reports that publicly traded companies in the United States file with the Securities and Exchange Commission. While most firms end their fiscal years on December 31, many do not, instead opting for a fiscal year that runs from September 30 to September 30, for example. Even then, however, some firms end fiscal years on random days on the calendar that do not correspond to a calendar quarter or year. Therefore, because it was nearly impossible to gather the same data for the same timeframe for

every firm, data was collected from annual reports that corresponded to periods that ended in 2019, regardless of when in the year the report was filed.

For the CSR measures in the form of ESG scores, those were taken from an ESG investment research firm out of the Netherlands called Sustainalytics via Yahoo Finance. While the actual reports that Sustainalytics produces for its financial institution clients run into the thousands of dollars, it provides the headline overall, environment, social, and governance scores on the Yahoo Finance page for most major corporations for free. Thus, the ESG scores were derived from those Yahoo Finance entries that included the scores. Unfortunately, 30 of the firms in the S&P 500 did not have ESG scores on their pages, bringing the sample size from 500 to 470. However, there does not seem to be any systematic reason for the omissions so there is no reason to believe that the lack of data for those 30 firms would bias the results in any way.

As briefly mentioned, the firms that would be included in this analysis would be those that comprise the S&P 500 index as of December 31, 2019. The index was chosen because it is the most widely tracked collection of stocks in the United States and better represents the American economy as a whole than the Dow Jones Industrial Average, for example. Additionally, one of the criteria for inclusion in the S&P 500 is a number of consecutive quarters of positive net income, automatically screening out younger and newly listed firms like Uber and Lyft that generate huge losses in favor of mature firms that have relatively stable businesses. Due to the logistical constraint in terms of time required to collect financial data on 500 firms, only one year of data was collected.

Along with financial data and CSR measures, the full GICS classification for each firm was also gathered. GICS groups firms into increasingly more specific categories based on the nature

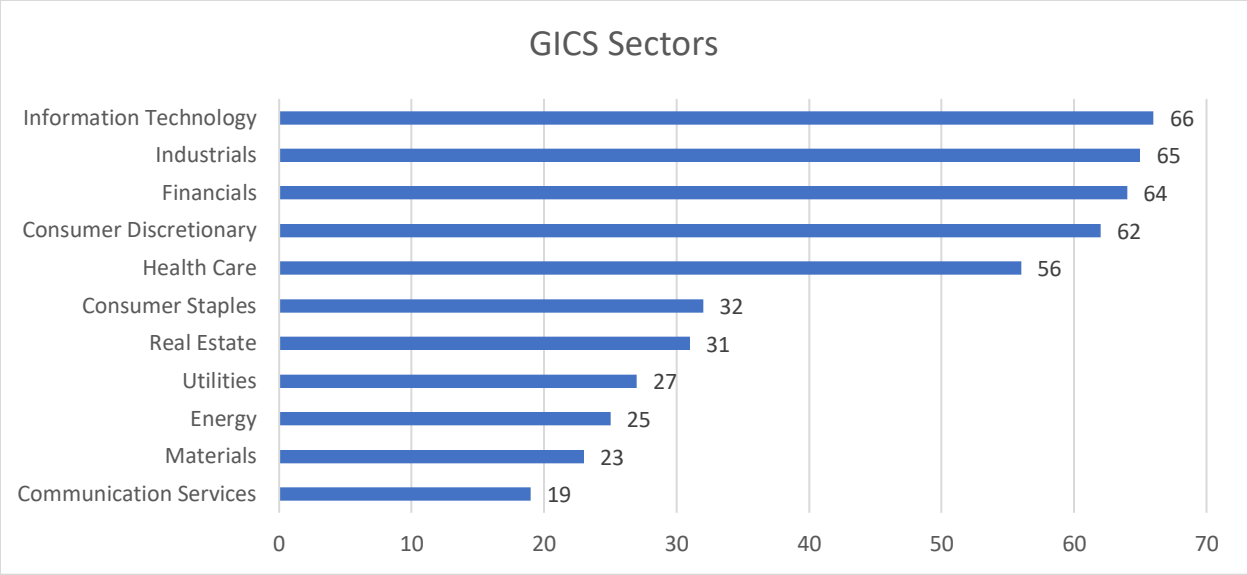
of the business it is in. Starting with 11 sectors, firms are then assigned to industry groups, industries, and subindustries that best describe their business activities. For example, Apple Inc. is in the Information Technology sector, Technology Hardware & Equipment industry group, Technology Hardware, Storage & Peripherals industry, and the Technology Hardware, Storage & Peripherals subindustry. While theoretically possible to include dummy variables all the way down to the subindustry level, the number of firms in each subindustry is often less than three. Therefore, the dummies that are included in this paper are sector dummies that break the dataset into 11 groups.

Results

To start, the descriptive statistics for the datasets are below:

	Mean	Median	Standard Deviation	Minimum	Maximum	Observations
Overall	24.1	23.0	7.9	7.0	52.0	470
Environmental	6.0	3.8	5.9	0.0	27.7	470
Social	10.5	10.2	4.1	0.6	24.2	470
Governance	7.6	6.9	2.6	3.2	16.4	470
Profit Margin	14.22%	11.80%	15.28%	-71.86%	173.24%	470

And here is the breakdown of the representation seen in the GICS sectors:



Below are the outcomes of the first set of baseline regressions with no dummy variables and all outliers included:

Baseline Regressions

	Model 1	Model 2	Model 3	Model 4	Model 5
Overall	-0.004*** (-4.25)				
Environmental		-0.006*** (-5.04)	-0.006*** (-5.26)		
Social		-0.004* (-1.90)		-0.003 (-1.47)	

Governance		0.003 (1.11)			0.003 (1.07)
R-Squared	0.03	0.06	0.06	0.00	0.00

(t-statistics), *** = p<0.01, ** = p<0.05, * = p<0.10

The next results are from regressions with the variants discussed above:

Baseline Regressions with Sector Dummies

	Model 1	Model 2	Model 3	Model 4	Model 5
Overall	0.000 (0.11)				
Environmental		0.001 (0.36)	0.000 (0.16)		
Social		0.002 (1.02)		0.001 (0.50)	
Governance		-0.005 (-1.45)			-0.004 (-1.08)
R-Squared	0.22	0.22	0.22	0.22	0.22

(t-statistics), *** = p<0.01, ** = p<0.05, * = p<0.10

Baseline Regressions, Outliers Removed

	Model 1	Model 2	Model 3	Model 4	Model 5
Overall	-0.000 (-0.48)				
Environmental		-0.002** (-2.20)	-0.002*** (-2.79)		
Social		-0.000 (-0.10)		0.001 (0.95)	
Governance		0.004** (2.40)			0.004*** (3.09)
R-Squared	0.00	0.04	0.02	0.00	0.02

(t-statistics), *** = p<0.01, ** = p<0.05, * = p<0.10

Baseline Regressions with Sector Dummies, Outliers Removed

	Model 1	Model 2	Model 3	Model 4	Model 5

Overall	0.000 (0.47)				
Environmental		0.001 (0.90)	0.001 (0.67)		
Social		0.002 (1.37)		0.001 (0.83)	
Governance		-0.004* (-1.78)			-0.002 (-1.18)
R-Squared	0.15	0.16	0.15	0.15	0.15

(t-statistics), *** = p<0.01, ** = p<0.05, * = p<0.10

Finally, here are the results for regressions run with a natural log on *Net Margin*:

Log (Net Margin)

	Model 1	Model 2	Model 3	Model 4	Model 5
Overall	-0.002*** (-4.50)				
Environmental		-0.003*** (-5.42)	-0.003*** (-5.61)		

Social		-0.002* (-1.75)		-0.001 (-1.39)	
Governance		0.001 (0.92)			0.001 (0.98)
R-Squared	0.04	0.07	0.06	0.00	0.00

(t-statistics), *** = p<0.01, ** = p<0.05, * = p<0.10

Log (Net Margin) with Sector Dummies

	Model 1	Model 2	Model 3	Model 4	Model 5
Overall	0.000 (-0.01)				
Environmental		0.001 (0.56)	0.000 (0.28)		
Social		0.001 (0.98)		0.000 (0.34)	
Governance		-0.003* (-1.75)			-0.002 (-1.39)

R-Squared	0.23	0.23	0.23	0.23	0.23

(t-statistics), *** = p<0.01, ** = p<0.05, * = p<0.10

Log (Net Margin) with Sector Dummies, Outliers Removed

	Model 1	Model 2	Model 3	Model 4	Model 5
Overall	0.000 (0.48)				
Environmental		0.001 (0.90)	0.000 (0.68)		
Social		0.001 (1.34))		0.000 (0.82)	
Governance		-0.002* (-1.72)			-0.001 (-1.13)
R-Squared	0.15	0.16	0.15	0.15	0.15

(t-statistics), *** = p<0.01, ** = p<0.05, * = p<0.10

Discussion

Taken all together, a few patterns emerge from the results. First, the vast majority of the predictive power of ESG scores on financial performance appears to be tied to the sector that the

firm is engaged in. In each of the models without sector dummies, one can find high statistical significance on the environmental coefficient and the overall coefficient. However, as soon as the sector dummies are included, the significance disappears, suggesting that it is the sectors and not the social responsibility that is driving the relationship. Additionally, it appears that there is a strong correlation between environmental measures and certain sectors. As alluded to earlier, energy firms in particular are going to have a higher level of environmental risk to manage than most other firms while information technology firms may have little or even no risk from environmental factors, as a few of them did have scores of zero.

Furthermore, social and governance issues appear to have no influence of any significance on measures of profitability, only showing statistical significance a few times across all the models. Interesting to note is the oftentimes positive coefficient on the governance coefficients, suggesting that more opaquely run firms that are less accountable to shareholders are more profitable than shareholder friendly ones. However, the sign does turn negative in the natural log regressions, indicating that that phenomenon may only hold for firms that are extremely profitable and thus able to get a long leash from shareholders.

Finally, when looking at the R-Squared values for the models, one sees very little explained by the ESG scores, if any at all. In these regressions, most of the explanatory power seems to come from the sector dummies, indicating that it is the line of business that is most important to a firm's financial prospects. However, even the sector dummies can only explain a small fraction of the variation in net margins, meaning there is certainly much more that determines a firm's prospects than sectors and ESG scores. Unfortunately, this paper will not calculate what those coefficients could be, but one can speculate.

For example, it is likely that sector is sweeping up many of the variables that would play a large role in determining net margins. Things like number of competitors, patent protections, ratios of fixed to variable costs, workforce size, and many more are oftentimes highly correlated within particular industries. Even high levels of regulation that narrow the range of outcomes for firms are sector specific. Banks, utilities, and communication services would all fit this description, operating with strict rules on debt and capital ratios for banks and geographic monopolies and rates set by law in the case of utilities and communication services. Environmental scores would be highly affected by the sector a firm was in, even in a negative direction. While oil firms would generally have higher scores due to the nature of their business, utilities could move toward lower scores depending on the state of regulation in the location in which they operate. California, for example, is very aggressive in mandating environmental improvements for its utilities, pushing them to improve their environmental score even if it hurts their bottom line. Financial harm arising from forced environmental investment would support the findings of Husted and Salazar, who found that firms engage in CSR in a profit maximizing way and can do so when they are not coerced (Husted and Salazar 2006, 86). However, when coercion is involved, firms are unable to maximize both their social responsibility and financial returns (Husted and Salazar 2006, 87).

Conclusion

Based on the models used in this paper, CSR measures determine very little of a firm's net margins. Even when statistical significance was found, oftentimes in the coefficient measuring the effect of the environmental score, subsequent models including dummy variables that controlled for a firm's GICS sector eliminated that significance, indicating that it is instead

the sector that was driving the significance in the environmental score and pointing to a strong correlation between the environmental score and certain sectors like energy and utilities. Therefore, when controlling for sector, very little statistical significance was found for the relationship between the CSR measures and net margins. Even when not controlling for sector, environmental scores were the only ones to consistently show strong significance, leaving social and governance scores with very little predictive influence. One notable exception to that finding, however, is when taking the natural log of the dependent variable, net margin. While the governance coefficient had been positive for all other models, it became negative in the logarithmic model. Initially, it appeared to suggest that opaquely run firms that were less accountable to shareholders were better performing, albeit without statistical significance. Instead, the logarithmic model suggests that firms operating on slim margins are better served by having less governance risk than similarly margined firms with more governance risk. Thus, at higher margins, shareholders seem more willing to give managers a longer leash as long as they maintain high returns.

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