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Can Doing Good Reduce Risk? Corporate Social Responsibility and Risk for Firms in Controversial Industries

Emily Iehl
University of Northern Iowa

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Corporate Responsibility and Risk for Firms In Controversial Industries

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ABSTRACT.   A firm's main goal is to add firm value. There are many ways to do this: increase sales, advertise, change management, and, possibly, doing good for the environment, employees, and others. The latter approach is often called corporate social responsibility. This paper tests to see if corporate social responsibility will reduce risk for a firm. There are two hypotheses created by Jo and Na (2012): the risk reduction hypothesis and the window-dressing hypothesis. Jo and Na conclude that corporate social responsibility in controversial firms can help reduce firm risk. However, my results do not show that.

I. Introduction

The definition of corporate social responsibility (CSR) has evolved throughout time (Laskowska 2018). CSR is when a firm uses corporate resources to support social initiatives (Godfrey et al. 2008). Can a business do well while doing good? Should a firm focus on more than just adding firm value? Does CSR add firm value? These questions get muddier when thinking about firms in controversial industries. This paper will evaluate controversial firms and the effectiveness of CSR. Specifically, does CSR lower firm risk in controversial industries? Jo and Na use data from 1991 until 2001 and find a statistically significant negative relationship between firm risk and CSR (2012). Using updated data from years 1999 to 2016, I find that the results from Jo and Na do not hold true.

II. Background

Firm value is the number of shares times stock price. When I first heard about CSR, it struck me as odd that most firms don't do good simply to do good, but rather because firms believe it is necessary to increase firm value. My curiosity led me to listen to a podcast called "Does Doing Good Give You License to be Bad?" from Freakonomics (Dubner 2018). The podcast discusses the effectiveness of CSR and employee work

ethic/productivity. The podcast argued through real life experiments that employees working at firms that engage in CSR are more likely to act unethically than employees working at firms that do not engage in CSR activities.

The earliest debate about a firm's social responsibility was between Adolph Berle (1931) and Merrick Dodd (1932). Berle argued that a firm should act in a way that is most beneficial to the firm regardless of social and economic implications. Dodd argues that firms do have a social responsibility, do need to be economically fair, and ought to be socially responsible. Scholars have since then fallen on each side of the debate. Recently scholars seem to agree that CSR activities most often generate higher corporate financial performance (CFP) (Godfrey et al. 2008) and overall is beneficial for both the firm and society.

III. Literature Review

Because of growing concern from customers and employees on the social effects of firms, there has been an increase in work examining CSR. Stakeholder theory is closely tied to CSR. Stakeholder theory suggests that managers must meet standards that are no longer limited to shareholders but include many other individuals and groups. These include employees of the firm, customers and suppliers, society, and all those who might suffer from negative externalities of the firm. The stakeholder theory is why many scholars and firms feel CSR is not optional but mandatory for adding value to the firm. Spiller asks if it is possible for a business to achieve a triple bottom line (2000). The triple bottom line is a bottom line for environmental, social, and financial performance. Firms engaging in CSR are trying to achieve a positive triple bottom line. Spiller and many others agree that most firms can achieve it (2000).

When it comes to controversial firms, are their CSR efforts done in vain? Controversial firms will be defined later more specifically in the Data section. For now, think of controversial firms as firms involved with one or more of these industries: tobacco, gambling, alcohol, nuclear power, firearms, and/or military activity. Time and place do matter for defining the term controversial. Much of this paper could be used to debate whether these industries should be considered controversial, but instead let's skip the politics and just consider them to be controversial here in the United States.

Many scholars believe that CSR can help society and firms. CSR is seen as a way to reduce firm risk, defined as the standard deviation of a firm's daily stock returns, and to improve corporate financial performance (CFP) through building strong relationships among employees, stakeholders, and management, hedging risk in times of economic instability, providing insurance-like protection, increased profitability and respect (Laskowska 2018), and through praise and attention in the eyes of the media (Zyglidopoulos et al. 2012).

First, Spiller argues that through CSR a firm can expect "increasing productivity and loyalty of employees; improving customer sales and loyalty; growing supplier commitment; improving environmental quality; and reducing legislative demands with strengthening community and government relations (2000, 150)." He argues that investing ethically, having an ethical business, and spending on CSR need not hurt your firm, but will reduce risk and increase CFP (2000).

Second, Braune, Charosky, and Hikkerova go further and explain that firms with high CSR can increase stock performance relative to firms with less CSR, especially in times of uncertainty and economic instability (2019). Their paper looks at the years 2005-2014 and examines the changing financial markets. It includes times prior to the financial crisis, the peak of the financial crisis, and the rebound from the crisis. They evaluate a firm's social performance and financial performance while taking into consideration the volatility of the S&P100 securities. They conclude that the negative relationship between CSR and systematic risk does hold. In times of crisis and uncertainty, there is an increase in demand for firms with higher CSR.

Third, Godfrey et al. argues that certain CSR activities can reduce risk by providing insurance-like benefit (2008). In this case, CSR is used as a mechanism to preserve CFP rather than generate CFP. CSR is used to signal to customers and stakeholders that the firm is acting in a way that considers others rather than just the firm's needs in hope of earning respect. This in return will help preserve their financial performance. "This study's findings indicate that CSR, particularly investment aimed at secondary stakeholders, represents a potential method of creating value for shareholders in the face of certain types of negative events (Godfrey et al. 2008 p.442)." Insurance is a way to lower risk in times of hardships. Godfrey's work gives great insight for how CSR may decrease risk for firms.

Fourth, Laskowska (2018) argues that CSR firms perform as well, if not better than firms that are not CSR firms. There are unquantifiable benefits to implementing CSR, such as growing respect, loyalty, and positive impacts on society. With that in mind, it is hard to run an empirical analysis knowing that CSR has benefits that go further than numbers may show.

Last, it is not a secret that media and news lines can dramatically shift the perception of a firm in the eyes of consumers and society. There are two different ways a firm can engage in CSR. It can either increase its positive effects (for example donate to charity) or decrease its negative activities (decrease pollution emissions). Increased media attention will in turn increase CSR activities. This may be evidence for the stakeholder theory. Firms are acting as if they believe that stakeholders care about more than just financial bottom lines (Zyglidopoulos et al. 2012).

Jo and Na develop and test two hypotheses (2012). The sources above compliment **Hypothesis 1**, the risk-reduction hypothesis. Under

the risk-reduction hypothesis, there is a negative association between CSR engagement of firms in controversial industries and firm risk. In short, an increased CSR score for a controversial firm will decrease firm risk. Jo and Na conclude that the risk-reduction hypothesis holds true.

The opposing view to hypothesis 1 is that consumers and society see through the CSR activities done by firms in controversial industries. They perceive CSR efforts as window dressing. The CSR efforts will increase or not affect firm risk. Few scholars argue for this opposing view.

Campbell explains that most papers have CSR as the independent variable and CFP or firm risk as the dependent variable (2007). However, he argues that we may need to pay more attention to which is the causal variable. Perhaps firms with higher CFP are engaging in more CSR activities because of the extra profits. He makes a strong argument that the relationship of CSR to CFP too often may be misplaced in regression models. Campbell's conclusion summarized his argument well: "To summarize briefly, I have argued that economic conditions - specifically, the relative health of corporations and the economy and the level of competition to which corporations are exposed affect the probability that corporations will act in socially responsible way (Campbell 2017 p. 962)."

Palazzo and Richter speak directly about the tobacco industry and how any effort towards CSR is done in vain because the very nature of the tobacco industry does not help advance any social agenda (2005). Hypothesis two is in alignment with their argument.

Hypothesis 2 is the window dressing hypothesis. With this hypothesis, we predict a positive or a statistically insignificant association between CSR activities and firm risk in controversial industries. The idea is that consumers can see through the facade of doing good yet producing products that are harmful to society.

IV. Data

The data come from multiple sources. I used MSCI ESG KLD STATS: 1991-2016 data set for CSR measurements. Due to lack of data in years 1991-1998, I ran the regression with firms from 1999-2016. For financial calculations and stock returns, Professor Ryan Flugum gathered data from COMPUSTAT and CRSP (Center for Research in Security Prices) database. MSCI ESG KLD STATS puts out annual data sets of both positive and negative environmental, social, and governance performance indicators for publicly traded firms (MSCI 2015). MSCI ESG assigns a binary (0,1) indicator for both strengths and concerns depending on if the firm meets the criteria. Table 5 below explains strengths and concerns recognized by the database.

The sample of firms used for my model consist only of controversial firms. MSCI ESG KLD indicates whether a firm is considered controversial or not. Controversial firms are defined in the KLD dataset

as firms involved in producing, distributing, licensing, owners of, retailers of one or more of the following: alcohol, firearms, gambling, military weapons or systems, nuclear power, and/or tobacco.

V. Model

I use Jo and Na's model with a few simplifications. As stated earlier, the regression model will try to evaluate the relationship between CSR and firm risk for controversial firms. Firm risk will be the dependent variable. This will be measured by the standard deviation of a stock's daily returns. Several control variables will be included in the model to help explain firm risk (CSR score, market to book ratio of assets, firm size, firm debt, research and development, return on asset, and operating cash flow). These all play a role in explaining firm risk and to ignore them would compromise the validity of the regression model.

To find the CSR score, I will follow a CSR scoring metric as used by Hillman and Keim (2001) and Baron et al. (2009). Letting the variable C^{ijt} denote the CSR activities for firm i with strength j in year t, C^{ikt} denote the CSR activities for firm i with concern k in year t, and C^{jt} and C^{kt} the maximum number of strengths and concerns in year t for any given firm. C^{it} will be the CSR score for firm i in year t with from the formula below.

$$C^{it} = \frac{\left(\Sigma_j C^{ijt} - \Sigma_k C^{ikt} + C^{kt}\right)}{\left(C^{jt} + C^{kt}\right)}$$

Firm Risk was estimated using the following model:

$$\begin{aligned} VOLATILITY_t = \ & \beta_0 + \beta_1 \times CSRINDEX_t \\ & + \beta_2 \times MBR_{t-1} + \beta_3 \times LOGASSET_{t-1} + \beta_4 \\ & \times LOGDEBT_{t-1} + \beta_5 \times RD_{t-1} + \beta_6 \\ & \times ROA_{t-1} + \beta_7 \times CAPXR_{t-1} + \Sigma_i \beta_i \\ & \times Industry \ Dummy_i + \varepsilon_t \end{aligned}$$

Volatility is measured by the standard deviation of the firm's daily stock returns in the current years. I calculated this in excel. This paper is most interested in the independent variable of the CSR index. I suspect that CSR will help decrease the volatility of a firm, hypothesis 1 risk-reduction; this is in line with the majority of scholars. The expected coefficient sign would then be negative. Market to book ratio is the total value of assets divided by the book amount of assets. A firm with a higher market to book ratio is thought to be riskier than a firm with a low market to book ratio, so the expected coefficient is positive. The amount of assets a firm has also helps explain the volatility in a firm. A firm can use assets to pay off liabilities and will therefore reduce risk/volatility.

The coefficient for assets should be negative. Debt on the other hand will drive risk up. Debt is an obligation that the firm needs to pay. Debt should have a positive coefficient. Both research and development are the amount of money a firm spends on staying innovative and educated on relevant topics. I would imagine this could be either negative or positive. A firm needs to spend money on development and research, but it also is risky because the research and development may not always end up with a positive return. For that reason, I suspect that research and development would have a negative coefficient. Return on assets is the net income divided by total assets. The expected coefficient is negative. Capital expenditures are the amount of money spent on fixed assets. Some fixed assets are riskier than others, so I think that this variable may not have a lot of influence on determining volatility in a firm. All variables are lagged by one year, except the CSR index. This is to help see how CSR in year t changes volatility in year t. Table 1 lists independent and dependent variables that are used in the model.

Table 1: Variable Description

Variables	Description	Expected Sign
VOLATILITY	Standard deviation of daily stock return in current year	Independent variable
CSRINDEX(t)	CSR score in current year. Sum of strength minus sum of concerns plus max concerns over the sum of the max strengths and concerns in year t	Risk Reduction: - Window Dressing: +
MBR	Total market value of assets divided by book value of assets	+
LNASSET	Firm size. Natural log of firm total assets	-
LNDEBT	Natural log of firm debt	+
XRD	Research and Development	+
ROA	Return on Assets	-
CAPX	Capital Expenditures	+
BETA	CAPM Beta: Covariance of risk-free market rate and firm risk / variance of firm risk	Alternative independent variable

There were 3,345 total observations, consisting of 497 unique firms. The data are from years 1991 to 2016 depending on when data became available for a given firm. Table 2 shows the summary of the sample statistics including mean, standard deviation, minimum, maximum, and the break down of the industries.

Table 2: Summary of Sample Statistics

	# of observations	% of observation
Controversial Industries		
Alcohol	604	18
Tobacco	385	12
Gambling	586	18
Military	1394	42
Firearms	93	3
Nuclear Power	704	21

% of observations does not add to 100 because some observations fall into up to three industries.

Variable	Obs	Mean	Std. Dev.	Min	Max
VOLATILITY	3,345	0.02258	0.01193	0.00382	0.09876
CSR_INDEX	3,345	0.38303	0.11441	-0.13043	0.73214
LNTA	3,345	8.40679	1.85253	2.44695	14.46465
MBR	3,345	0.00071	0.00343	-0.00406	0.13366
LNDEBT	3,345	5.21849	3.4568	-6.21461	13.01127
XRD	3,345	210.5125	802.956	0	16085
CAPX	3,345	815.459	2316.574	0	34271
ROA	3,345	0.035595	0.124002	-2.5079	0.544211
ALC	3,345	0.18057	0.3847	0	1
TOB	3,345	0.115097	0.319187	0	1
FIR	3,345	0.027803	0.164431	0	1
GAM	3,345	0.175187	0.380184	0	1
MIL	3,345	0.416741	0.493093	0	1
NUC	3,345	0.210463	0.407699	0	1
YEAR	3,345	2009	4.67134	1999	2016
BETA	3,345	1.0445	0.46965	-0.91692	3.7135

VI. Results and Discussion

The regression results were not what I had expected. Many of the independent variables were not significant at a 95% level, and ones that were often had an unexpected coefficient sign.

The results are presented in Table 3:

Table 3: Regression Coefficients and Statistical Significance

	Coef.	Std. Err	P-Value
CSR_INDEX	.0220366	.00185	****
LNTA	-.0031069	.0002202	****
MBR	.1718821	.0628456	**
LNDEBT	.0005241	.0001055	****
XRD	.0000002	.0000004	
CAPX	.0000004	.0000001	***
ALC	-.0012112	.0008899	
TOB	-.0031364	.0009084	***
FIR	.0008331	.0017008	
GAM	.0013007	.0009836	
MIL	-.0008257	.0008979	
NUC	-.0001729	.0009844	
ROA	-.0248701	.0020635	****
Constant	.038698	.001902	****

Note: (****) indicates a P value less than or equal to .0001, (***) indicates a P value less than or equal to .001, (**) indicates a P value less than or equal to .01, (*) indicates a P value less than or equal to .05

The coefficient for the CSR index as calculated in the data section was a positive .022, and this was statistically significant. The positive coefficient would confirm hypothesis 2, the window-dressing hypothesis. This is contrary to the results of Jo and Na. There could be several explanations for the different results. One is that I ran my regression with data from 1999 to 2016, whereas their regression was from 1991 to 2001. The consumers could have shifted their perspective on controversial firms in this time with more recent years being window-dressing and with former years being risk reduction. Also, I had over 1,000 more observations in my regression. Another difference could come from the data sources. Jo and Na did not make it clear where they gathered and how they calculated their data for the CSR metric. The difference in the data source or even the validity of the data I gathered could explain why the main results were different.

The Coefficient for the natural log of assets is a negative .0031. This is as predicted and is also very statistically significant. The natural log of debt is a positive .00052 as predicted. The coefficient on the return

on assets is a negative .0249 also as predicted and statistically significant. The only dummy variable industry that was statistically significant was the tobacco industry. This could be there is no difference to the consumers and shareholders what the controversial industry is just that it is controversial.

Table 3 summarized the variables coefficients, standard errors, and P values. The R-squared of the regression was .3 which is not a good R-squared. R-squared is the total variation in the dependent variable explained by the model. And only 30 percent of the variation is explained in the model ran. Stock returns can be very difficult to predict and model so a low R-square is not all that surprising. However, if more financial measurements were added to the regression this may help explain the dependent variable better.

Table 4 has the correlation matrix. This will help to see if there is a possibility of heteroskedasticity. As you can see, there are not any variables that are highly correlated. If there were, this might have explained why my results were not as expected.

Table 4: Correlation Matrix

	ROA	CAPX	XRD	LNDEBT	MBR	LNTA	CSR_INDEX	VOLATILITY
VOLATILITY	-0.3510	-0.1648	-0.0768	-0.0576	0.0200	-0.4360	0.1389	1.0000
CSR_INDEX	0.0036	0.0183	0.0899	-0.0750	-0.0328	0.0770	1.0000	
LNTA	0.1580	0.4958	0.3428	0.3654	0.0770	1.0000		
MBR	-0.0269	0.0038	-0.0115	-0.0093	1.0000			
LNDEBT	0.1062	0.1251	0.2709	1.0000				
XRD	0.0353	0.3916	1.0000					
CAPX	0.0260	1.0000						
ROA	1.0000							

Table 5: CSR Strengths and Concerns

	Strength Item	**Concern Item**
Environment	Clean Tech Waste Management Natural Resource Use Energy Efficiency Other Strengths	Toxic Emission and Waste Impact of Products Water Stress Operational Waste Other Concerns
Social	Community Engagement Human Right Policies Union Relations Board of Directors-Gender Nutrition and Health Other Strengths	Community Impact Human Rights Violations Health and Safety Concern Child Labor Customer Relations Other Concerns
Governance	Financial System Instability Other Strength	Bribery & Fraud Controversial Investments Other Concerns

Some other areas of improvement for the paper would include comparing these results to firms that are not in controversial industries. This would allow us to see how CSR and firm risk are related in other industries. Another improvement might be to run the regression with CAPM beta as the measurement of firm risk. Beta measures firm risk relative to the market risk. This might be interesting to examine as well. However, I was limited on my ability to calculate CAPM beta due to lack of computing power and time. Also, doing a similar regression but with non-controversial firms would help compare if the CSR index were a useful metric in determining firm risk.

VII. Conclusion

Does CSR reduce firm risk in controversial industries? Under the risk reduction hypothesis, the answer should be yes. Under the window dressing hypothesis, CSR would not decrease firm risk.   The paper I was replicating concluded that corporate social responsibility does statistically significantly decrease firm risk within controversial industries. I did not find that to me true in this paper. Though statistically significant, corporate social responsibility seemed to increase firm risk in controversial industries.

There could be improvements to improve the regression as stated in the results section. Despite the room for improvements, I was able to learn about firm risk and the ever-growing concept of corporate social responsibility and corporate governance.

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