

Exploring CSR and Financial Performance in Oil and Gas Industry

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ABSTRACT

Paris Agreement requires many firms, regions, and nations to put more attention on corporate social responsibility (CSR). However, not all industries could move into climate change mitigation easily. Oil and gas industry is one of industries that have dilemma. This industry is highly contributed to gas emission, but they cover it by becoming the leading of CSR activities. On the other hand, doing CSR requires firms for using their resource for non-profitable purposes. This condition gets worse due to in recent years oil and gas industry struggles to operate their business. Hence, the decision for doing CSR needs to be evaluated. This research aims to determine the impact of corporate social responsibility (CSR) on the firm's financial performance which uses a fixed effect of panel data model for the study period from 2015-2019. Based on the results, CSR, especially social dimensions can increase the firm's financial performance in the short term. It enables firms to build a good reputation which can attract more investors who consider the social impact of their investment portfolio. Further, since the impact of CSR is more pronounced in the economic downturn, it may not be effective in the future market value.

Keywords: Climate Change, CSR, Financial Performance, Social



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INTRODUCTION

Over the past decade, there is increasing pressure for firms to do corporate social responsibility (CSR). This, in turn, requires firms for spending their resource and time for corporate activities on the society and environment. While the majority CFO and investment professionals argue that these activities could create value for shareholder (McKinsey & Company, 2009), mixed results are found in the academic studies. According to (Friedman, 2007), firms need to focus on the activities for profitable purpose. Otherwise, it would bring negative effect on the firm performance. CSR activities could also have different impact in short run and long run period. In the short-run, it is found that it doesn't bring much benefit for the firms, meanwhile in the long-run, it could provide remarkable benefit (Baird et al., 2012). Although firms have some concern for doing CSR, some academic studies found the benefit for it. One of the reasons to engage in CSR is it can enhance public trust and building good reputation. The ability to make positive market response could improve the financial performance (Wu & Shen, 2013). Further, many firms are motivated due to perceived benefits from micro and macro performance. Micro performance is about firms are able to sell in

the higher price according to its reputation and high-quality workers, while, for macro performance, it could help to improve environmental environment and reduce social inequality.

For firms, in order to achieve higher financial performance, gaining a sustainable competitive benefit is crucial. As one of strategic instrument, CSR could help firms to have a good position in the market. By doing CSR, it enables firms to have a higher level of competitive advantage which in turn could enhance customer satisfaction and create superior profit (Saeidi et al., 2015). Further, social and environmental superior quality can affect firm's stock return. The other type of CSR also brings benefit by improving the relationship with regulator and society (Malik, 2015). A recent study found that CSR could bring a negative impact on the firm performance. They argued that this negative impact is due to CSR takes time and effort to be fully showcased in the market capitalization. Further, after taking one lag time, they could find a positive impact of CSR (Lee, 2020). The mixed finding can also be found in (Lee et al., 2018) who doesn't find any impact of material CSR initiatives on firm performance. They revealed that the perspective from society regarding firm behavior tends to contribute more on the firm survival than competitive advantage. Hence, it may not give significant financial benefit for firms. In such manner, firms need to carefully evaluate the costs and benefits.

For a comprehensive analysis, this research utilizes two different measurements. First, ROA for accounting based and indicate short term financial performance. Second, Tobin'Q shows the stock market value and indicates long-term financial performance. Previous studies found mixed results for these measurements. For example, Kang et al. (2010) found a positive relationship between CSR on Tobin's Q, and a negative relationship between CSR and ROA. They argued that it may be due to CSR makes a loss in the short-term profit but in the long-term CSR provide benefit for the firm. Similarly, doing CSR can increase long-term stock market valuation, while there is no guarantee for firms for having short-term success (Kim, 2010).

Despite the mixed results from academic studies, all nations are encouraged to undertake ambitious effort to talking global warming and climate change. In international level, start from 2015, there is a legally binding international treaty on climate change, which is called Paris Agreement. This agreement will evoke firms to put more attention on CSR expansion. More and more firms, region, and countries are establishing zero carbon solutions. However, not all industry could move into climate change mitigation easily. Compared to other greenhouse gases, the most significant contributor for causing climate crisis is carbon dioxide. After carbon dioxide, the second-highest contributor is held by Methane. A new study finds that emissions from methane contribute about 25-40% of warming. It revealed the contribution from oil and gas industry is much more than previously thought (Kann, 2019). Despite its huge impact on the environment, oil and gas industry has been leading the industry for doing CSR. The requirement for doing CSR is partly due to their highly visible negative effects of daily operations such as oil accidents (Frynas, 2009).

Over the past decade, renewable power is getting cheaper and deducted the market share of fuel energy. While doing CSR requires firms use their resources for non-profitable purposes, the oil and gas industry struggles to operate their business. The stock price has fallen, profit and revenue have sagged, and many companies have filed for bankruptcies (EWG, 2021). In this situation, the decision for doing CSR needs to be questioned. If it could bring benefit to firm performance, greater CSR should be conducted. Otherwise, it might need to evaluate on how much CSR activities shall be considered. The primary purpose of this study is to investigate CSR, including the environmental and social dimension on firm performance.

METHODS

The sample for this study consists of oil and gas industry in the United States. The data is collected from Thomson Reuters with time period 2015 until 2019. This research follows previous study for the criteria of company, that is, the company need to conduct CSR at least 3 years. Our final sample includes 43 companies. To run and analyze the impact of CSR on firm performance this research use E-views 10. Since in this research we have both cross-sectional and time-series, therefore we use panel data regression. In the beginning, descriptive statistic is used to check the statistic of each variable. Then, it follows with correlation matrix. The correlation between variables needs to be less than 0.7, otherwise it would indicate multicollinearity problem. After that, to determine the best model, likelihood and Hausman test will be employed. The likelihood test is applied to choose between common and fixed effect model, while Hausman test will be employed to choose between random effect and fixed effect model. If the probability of Hausman test is lower than 0.05, it means that fixed effect model shall be used.

RESULTS AND DISCUSSION

Table 1 shows descriptive statistics of variables. It shows that on average the firm's age is 3 years. Almost all variables have probability of jarque-bera less than 0.05 shows that all the variable's distribution except firm_size is not normally distributed.

Table 1. Descriptive Statistics.

	CSR	Firm_Age	Firm_Size	Leverage	ROA	Tobin
Mean	36.9549	3.2953	9.0575	0.3201	-0.02887	1.4277
Std. Dev	18.4495	1.3342	1.6094	0.2102	0.1949	2.1710
Jarque-Bera	12.1913	86.7631	0.0137	373.8712	1697.007	23541.60
Probability	0.0023	0.0000	0.9932	0.0000	0.0000	0.0000

Source: Data Processed (2022)

The multicollinearity test shows the relationship between variables. From the Table 2, it shows that all of the relationship between variables is less than 0.7. These results indicate that multicollinearity does not exist in this data.

Table 2. Correlation Matrix

	CSR	Firm_Age	Firm_Size	Leverage	ROA	TOBIN
CSR	1.0000					
Firm_Age	0.2440***	1.0000				
Firm_Size	0.6654***	0.1793**	1.0000			
Leverage	-0.1785**	-0.0025	0.1872**	1.0000		
ROA	0.1003	0.0035	0.1994**	-0.2186**	1.0000	
TOBIN	-0.1587**	-0.1401**	-0.0942	0.0717	-0.1541**	1.000

Note: *, **, *** denotes the significant level at 10%, 5%, and 1%

Source: Data Processed (2022)

Impact of CSR on Firm Performance

The null hypothesis for Likelihood test is fixed effect does not have any impact. The result of F-statistic in model 1 is 1.6814 with probability 0.0121. While for model 2, the F-statistic is 13.4361 with probability 0.0000. Therefore, hypothesis null can be rejected, and it can be concluded that for both model, fixed effect has significant value added than pooled OLS. Further, Hausman test is used to measure the difference between fixed effect model and random effect model. For model 1, the value of $\chi^2_{(4)}$ statistic for testing differences between all coefficients is 32.9457. Its corresponding p-value of 0.0000 suggest that the null hypothesis should be rejected. Hence, fixed-effect model should

be used. On the other hand, for model 2, the p-value is 0.1746, it suggests that random-effect model should be used instead of fixed effect model.

Table 3 shows that CSR has positive and significant effect to firm performance with level of significance 10%. Better CSR would ensure greater firm performance due to it helps firm to be more efficient in utilizing their labor commitment, financial resources, and others. In addition, CSR enables firms to increase their reputation and build stronger relationship with investors (Ahamed et al., 2014). However, model 2 depicts that increase in CSR will lower Tobin's Q. Suggesting in Oil and Gas Industry, doing CSR hardly improve the market performance of firms (Yang et al., 2019).

Table 3. CSR and Firm Performance

Variable	ROA (1)	Tobin's Q (2)
C	-0.4969 (0.4351)	3.1330** (1.5009)
CSR	0.0039* (0.0022)	-0.0125 (0.0116)
log(Firm_Age)	0.0150 (0.0383)	-0.1467 (0.1589)
log(Firm_Size)	0.0585 (0.0530)	-0.0846 (0.1809)
Leverage	-0.8085*** (0.1237)	-0.0118 (0.8265)
ROA		-0.4230 (0.4733)
R-squared	0.3933	0.0304
Adjusted R-squared	0.2144	0.0055
F-Statistic	2.1982	1.2228
Prob (F-Statistic)	0.0002	0.299845

Note: *, **, *** denotes the significant level at 10%, 5%, and 1%

Source: Data Processed (2022)

Leverage shows a significant negative effect to ROA. This result is in line with previous research (Yazdanfar & Öhman, 2015), which argued that firms that has lower debt can have more profit. Retained earnings and equity capital can be used efficiently by manager. Firms with higher leverage will have a higher financial cost. As a result, if the profit is not sufficient to cover the borrowing cost, the value of ROA will decrease (Nguyen et al., 2019). The negative effect of leverage on ROA was similar with previous studies (Kang et al., 2010; Salim & Yadav, 2012).

Further investigation was conducted to analyze the impact of environment activities on firm performance. Similar with previous section, the result from Likelihood and Hausman test suggest that fixed effect model should be used for ROA, and random effect model should be used for Tobin's Q. Table 4 displays the result of environment impact on firm performance. Based on the result, it shows that environment have different impact on ROA and Tobin's Q. Environment activities positively effect on ROA, and negatively effect on Tobin's Q. Unfortunately, the effect is insignificant, indicating that focusing on environment dimension does not have any impact on firm performance.

Table 4. Environment and Firm Performance

Variable	ROA (1)	Tobin's Q (2)
C	-0.5836 (0.4478)	2.3407 (1.6666)
ENV	0.0012	-0.0156

	(0.0020)	(0.0103)
log(Firm_Age)	0.0193 (0.0386)	-0.1430 (0.1587)
log(Firm_Size)	0.0783 (0.0542)	-0.0085 (0.2023)
Leverage	-0.8090 (0.1250)	-0.0900 (0.8269)
ROA		-0.4785 (0.4687)
R-squared	0.3826	0.0357
Adjusted R-squared	0.2005	0.0110
F-Statistic	2.1018	1.4457
Prob (F-Statistic)	0.0004	0.2095

Note: *, **, *** denotes the significant level at 10%, 5%, and 1%

Source: Data Processed (2022)

Table 5 displays that social dimension have positive and significant impact on ROA. In economic terms, a 1% increase in CSR will positively impact on ROA by 0.0034. The social aspects of CSR enable firms to attract investors who particularly concern about social issue. Actively contributing to social activities such as charity events and community development creates a good image of firms. Further, it also can help firms to have a better position in negotiate for favorable policy with government (Yang et al., 2019). In model 2, it shows that social dimension has insignificant negative influence on Tobin's Q. In sum, doing either social, environment, or combination could not bring positive impact on this market future expectation. This could be explained due to the effect of CSR is more pronounced during an economic recession. This is because CSR directly help firms to increase profitability and cost saving, which is more useful during economic downturn (Yoon & Chung, 2018).

Table 5. Social and Firm Performance

Variable	ROA (1)	Tobin's Q (2)
C	-0.6773 (0.4264)	3.1511** (1.4840)
SOC	0.0034* (0.0020)	-0.0105 (0.0101)
log(Firm_Age)	0.0148 (0.0383)	-0.1548 (0.1572)
log(Firm_Size)	0.0804 (0.0502)	-0.0913 (0.1772)
Leverage	-0.8018*** (0.0020)	-0.0483 (0.8245)
ROA		-0.4526 (0.4713)
R-squared	0.3922	0.0301
Adjusted R-squared	0.2130	0.0052
F-Statistic	2.1888	1.2110
Prob (F-Statistic)	0.0002	0.3054

Note: *, **, *** denotes the significant level at 10%, 5%, and 1%

Source: Data Processed (2022)

Last, we also conduct research related governance pillar. Based on the result in Hausman test, random effect model is employed for model 1. While for model 2, it suggests using fixed effect model.

Table 6. Governance and Firm Performance

Variable	ROA (1)	Tobin's Q (2)
C	-0.1452* (0.0849)	5.5331** (2.7397)
GOV	-0.0008 (0.0007)	-4.35E-05 (0.0082)
log(Firm_Age)	0.0035 (0.0105)	-0.0788 (0.2278)
log(Firm_Size)	0.0250** (0.0093)	-0.4177 (0.3206)
Leverage	-0.2674*** (0.0621)	-0.2085 (0.9967)
ROA		-0.2427 (0.4919)
R-squared	0.1208	0.7981
Adjusted R-squared	0.1030	0.7361
F-Statistic	6.7991	12.8694
Prob (F-Statistic)	0.0000	0.0000

Note: *, **, *** denotes the significant level at 10%, 5%, and 1%

Source: Data Processed (2022)

Table 6 shows that governance pillar does not have significant impact on the firm performance. This finding is consistent with Sila & Cek (2017) who found that compared to environment and governance, social pillar is the one which had a more positive and significant value on firm performance. Firm size has positive and significant on firm performance. Larger firms can have a better financial performance due to greater efficiency and ability to access external funds (Yazdanfar & Öhman, 2015).

CONCLUSION

This study aimed to analyze the impact of CSR on firm performance in the oil and gas industry. Not only CSR, but we also assess the component of CSR such as environment, social, and governance aspect. We find that CSR and social dimension effectively increase firm performance during short-term. By doing CSR, especially social dimension, it helps firms to build a good image corporation which can attract investor who consider social impact of their portfolio. This finding helps company to make decision on which area need to be enhanced to achieve greater financial performance. Further, CSR activities may not be effective to enhance firm's future market value. It could be due to the impact of CSR is more effective on economic downturn. CSR enables firm to save more cost and increase profitability. Hence, it helps firms to survive particularly during recession than normal situation.

There are several limitations occurs on this study. First, the data used in this study only cover publicly traded companies. Therefore, it may not cover the entire gas and oil industry in US, such as private companies. To improve the validity of CSR effects, study related different type of company could be considered. Second, as we could not find the impact of CSR on Tobin's Q, future studies may investigate the impact of CSR during economic downturn.

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