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Corporate Social Responsibility and Firm Risk: Controversial Versus Noncontroversial Industries

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Abstract

This study aims to analyze the benefits of corporate social responsibility (CSR) performance on corporate risk in controversial and non-controversial industries. The hypothesis of this study is based on the conflicting effects of industry type on CSR and firm risk. The research sample consisted of 927 companies listed on the Indonesia Stock Exchange from 2016 to 2019. The main method for data processing was the ordinary least square method and subgroup analysis as a robustness test. The findings suggest that the performance of CSR can reduce corporate risk. However, the impact was only significant for non-controversial firms and weakened for controversial industries. These results support risk management and signaling theory. Firm risk in this study reflects the company's total risk, further research can categorize it into systematic and idiosyncratic risk. Besides, the number of samples of controversial industry research is not as much as non-controversial; further research can use paired samples. Regulators can use the results to create a new policy regarding CSR implementation. This study contributes to the existing literature by showing that the ability of social responsibility to reduce corporate risk only works in non-controversial industries. This result may be due to the controversial industry receiving negative stigma from its stakeholders.

Keywords: Corporate Social Responsibility, Firm Risk, Controversial Industry, Systematic Risk, Perceived CSR

JEL Classification Code: G32, G41, M14, M41

1. Introduction

Companies that are actively involved in Corporate Social Responsibility (CSR) activities and publish public reports about their involvement are increasing (KPMG, 2017). Besides, many companies have incorporated CSR into their internal management, making it an important strategy for the future (Kotler & Lee, 2008). Previous research has shown that CSR investment can provide several benefits, including superior economic performance (Fatemi et al., 2018; Fombrun, 2005; Liu & Lu, 2019). CSR activities have a positive impact on market value and maintain this impact in the future (Lee, 2020). Michelon et al. (2013) stated that when a company pursues CSR initiatives that are linked to stakeholder preferences and allocate resources to these initiatives in a strategic way, the positive effect of its CSR initiatives on company performance strengthens in terms of both market-based and accounting-based measures of performance. The main conclusion of this study is that companies need to link their CSR initiatives to the likely preferences of their stakeholders and undertake the corporate social actions that are relevant to the company's strategy. These various benefits will provide the ability to produce better economic performance. The impact of CSR on company performance can be explained by several mechanisms, one of which is through risk reduction. Companies can use CSR as a tool to increase or reduce risk exposure. CSR was found to be negatively related to systematic and unsystematic risk (Kim, 2010). On the other hand, Nguyen and Nguyen (2015) showed that CSR increases the level of company risk. Research on the relationship between CSR and corporate risk is still limited, inconclusive, and has not been widely explored, so this study has three objectives. First, re-analyze this relationship by analyzing the entire study sample. Second,

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include industry category variables, namely controversial and non-controversial, in the relationship between CSR and company risk. Third, separate the dimensions of CSR to identify which social responsibility activities have more impact on risk mitigation.

This study uses a framework of risk management. Risk management encompasses the identification, analysis, and response to risk factors that form part of the life of a business. Effective risk management means attempting to control, as much as possible, future outcomes by acting proactively rather than reactively. Therefore, effective risk management offers the potential to reduce both the possibility of a risk occurring and its potential impact (Liu & Lu, 2019) Good CSR has been recognized as an important element of corporate risk management because it helps identify problems that arise, prevent fraud, safeguard the company's reputation, and minimizes penalties when violations occur (Francis & Armstrong, 2003; Tangngisalu et al., 2020). Chen et al. (2018) showed that the implementation of CSR provides a kind of protection that can mitigate corporate risk. Shiu and Yang (2017) also believed that good CSR performance will provide a mechanism such as insurance for companies and reduce the possibility of share prices falling sharply when suddenly, bad news occurs. Cheng and Christiawan (2011) stated that CSR disclosure sends a positive signal to the market and the condition of the company's future sustainability.

Dhaliwal et al. (2011) believed that carrying out CSR can build a positive business image, thereby minimizing the effects of asymmetric information and operating uncertainty. Koh et al. (2014) found that CSR can help companies to reduce the likelihood of facing lawsuits. Companies should not only aim at maximizing returns for shareholders but also focus on CSR and its implementation. CSR, particularly for a global company, is related to corporate risk management through two means: by providing intelligence about what those risks are, and by offering an effective means to respond to them. The key to both, as implied in the above definition, is more effectively "managing stakeholder relationships. In contrast, Viveros (2016) found that most stakeholders usually have a limited understanding of the company, which leads to a negative impact on the company's willingness to engage in CSR and causes a negative effect on the company's operations. Mishra and Modi (2013) said that CSR has an impact on risk, but it depends on the type of CSR and the condition of the company. The variation in the impact of CSR on corporate risk suggests that social and environmental responsibility can have a differential effect on preferential risks, depending on the firm's specific strategic activities. In other words, equal CSR investment among different companies may provide different benefits in risk reduction (Luo & Bhattacharya, 2009).

Most of the previous studies examined the empirical relationship between CSR and firm risk and found an inverse association between the two. However, they only focus on sensitive or controversial industries. Controversial industries can be grouped based on the products that are marketed, for example - tobacco, weapons, alcohol, and products related to health, or are inherently controversial, that is industries that are prone to be involved in environmental pollution or degradation (Byrne, 2010; Palazzo & Richter, 2005). Companies in this category may get investor funds but will cause environmental and social problems (Eriandani et al., 2020; Pratten, 2007). There is a debate between supporters and opponents of CSR in a controversial industrial sector. Proponents claim that even controversial companies have the right to engage in CSR activities because such activities are an important way of enhancing a company's reputation and corporate image. On the other hand, opponents say that based on their beliefs rooted in past events, the CSR activities undertaken by controversial industrial companies cannot be fully trusted (Jo & Na, 2012).

Hong and Kacperczyk (2009) provided evidence for the effects of social norms on markets by studying "sin" stocks--publicly traded companies involved in producing alcohol, tobacco, and gaming. They found that sin stocks are less held by norm-constrained institutions such as pension plans as compared to mutual or hedge funds that are natural arbitrageurs, and they receive less coverage from analysts than do stocks of otherwise comparable characteristics. Sin stocks also have higher expected returns than otherwise comparable stocks, consistent with them being neglected by norm-constrained investors and facing greater litigation risk heightened by social norms. Evidence from corporate financing decisions and the performance of sin stocks outside the US also suggested that norms affect stock prices and return. Song et al. (2020) aimed to unveil the effects of philanthropic CSR programs on consumers' perceptions toward CSR communication from corporations in 'issue-riddled' controversial industries, compared to noncontroversial industries. Particularly, this study examined how industry sector controversy, corporate reputation, and CSR Company cause-fit jointly affect the outcomes of CSR communication. The results implied that CSR communication could shorten the attitude gap between corporations in controversial and noncontroversial industries. More importantly, compared to employing specific communication tactics, maintaining a good corporate reputation is more important for corporations in controversial industry sectors to enhance communication effectiveness. For companies with a good corporate reputation in controversial industries, shifting reputation management strategy to industry reputation management can improve the effectiveness of CSR communication.

Empirically we find that engaging in CSR can significantly reduce uncertainty in the company and reduce business risk.

These results differ when separated between controversial and non-controversial industries. The negative effect of CSR on company risk is reduced when the industry variable is included, meaning that CSR programs in controversial industries are not able to reduce operating uncertainty or are not well responded to by stakeholders. When we further analyzed by categorizing the effect of CSR dimensions on firm risk, the results showed different significance values. This study contributes to complement the literature on CSR and corporate risk, which can be broken down into three. First, no previous research has comprehensively analyzed the effect of CSR performance on corporate risk in controversial and non-controversial industries. In contrast to research conducted in developed countries that show that CSR can reduce risk in controversial industries, CSR activities in developing countries, such as Indonesia, cannot mitigate risk in controversial sectors. Second, we use two measurement models to estimate firm risk to examine the relationship between CSR and business risk. Third, this study adds an analysis of the dimensions of CSR, namely environment, product and consumer, human resource, and community. The empirical results of this study can fill the research gaps in previous studies.

The rest of the paper proceeds as follows. Section 2 reviews the related literature and proposes a hypothesis. Section 3 describes the sample construction and summary statistics. Sections 4 and 5 present the empirical strategy and discuss the main results. The last part is the research conclusion.

2. Literature Review and Hypothesis Development

2.1. CSR in Indonesia

Known as the largest economy in Southeast Asia, and a member of the G20 forum of major economies, Indonesia has become an attractive market for many multinational companies and a growing number of local companies. As the competition becomes tougher, companies in Indonesia realize that high economic performance alone is insufficient to gain its competitiveness. It has become apparent that companies can't take a back seat with their responsibilities to the communities they operate in (Azheri, 2012). As the world gears towards achieving the SDGs, governments are actively calling for support from the private sector to help achieve these goals, hence there has been increasing investments in corporate social responsibility (CSR) by both local and international companies in recent years. The Indonesian government continues to prepare to implement Sustainable Development Goals (SDGs), a global development agenda consisting of 17 Goals and 169 Targets that are expected to be achieved by 2030. On July 4, 2017, President Joko Widodo signed Presidential Regulation No.59 of 2017 concerning the Implementation of the Sustainable Development Goals. Indonesia's ranking, when viewed from the Sustainable Development Solutions Network (SDSN), decreased from the 98th index in 2016 to 100th out of 157 countries in 2017 (Sachs et al., 2017).

Indonesia is a country with many companies whose businesses are related to natural resources, such as mining, plantations, and forestry, which makes the world demand Indonesian companies to be more serious in carrying out environmental and social responsibility. However, understanding and awareness of CSR in Indonesia are still low (Anjani & Astika, 2018), so, regulations are needed to encourage this activity. Of the 17 SDGs Goals, Indonesia succeeded in maintaining and increasing three SDGs, namely eradicating poverty, achieving decent work and economic growth, and tackling climate change. Eight SDGs have improved successfully, while six SDGs are stagnating and even decreasing; two of which are to reduce inequality and achieve responsible consumption and production (Sachs et al., 2019).

During the 1990s and in early 2000, CSR was a foreign concept to Indonesian companies, including state-owned companies, even though charities and philanthropic activities were a common practice. However, in 1998 after the reformation and decentralization of the political system, the increase in government involvement aided the CSR movement in Indonesia, making it now possible for the public to participate in decision making, including monitoring if the companies show irresponsible actions to the environment and society. Law Number 40, article 74 of 2007 concerning Limited Liability Companies stipulates that companies must participate in sustainable economic development to improve the quality of life and a beneficial environment, both for the Company itself, the local community, and society. Law Number 4 of 2009 states that Holders of Mining Business Permits for minerals and coal are required to develop and increase community participation in mining businesses by paying attention to environmental sustainability. Also, there are regulations regarding the obligation to submit annual reports for the issuer of public companies Rule No. Kep-431 / BL / 2012. This regulation concerns Annual Reporting for Publicly Listed Companies – superseding the Capital Markets Supervisory Agency Regulation No. X.K.6., 2006. Publicly listed companies can disclose the information in the annual report, in a separate sustainability report, or in a corporate social responsibility report, which needs to be submitted simultaneously to the Capital Market Supervisory Agency. Based on these regulations, it stipulates that disclosures on CSR should include policies, types of programs, and expenditure on; environmental performance, labor practices, social and community empowerment, and product responsibility.

2.2. CSR Performance and Firm Risk

The increasingly dynamic business environment makes companies face various risks, and the right way to deal with them is to have self-defense. One form of self-defense for companies is CSR activities (Minor & Morgan, 2011). The integration of CSR and risk management should be seen as a long-term investment, which can be much more relevant and important at an organizational level than the short-term costs involved by their integration. Therefore, by considering not only economic but also ethical and environmental aspects, organizations can have much more powerful brands, as well as an array of opportunities to innovate and reduce social risks (Godfrey, 2005b; Luo & Bhattacharya, 2009). McAlister et al. (2007) further showed that CSR protects companies from market decline by creating greater visibility. Intuitively, companies that show superior social performance are less prone to economic fluctuations because they are supported by more stakeholders. For example, if there is a service failure that causes doubt and uncertainty, it can damage the company's relationship with customers (Boon & Holmes, 1999). However, CSR can restore customer trust after service failure (Choi & La, 2013). Consumers with great loyalty will make the company's profit conditions less affected by aggregate economic conditions (Albuquerque et al., 2019). Existing studies also show that CSR can influence employees' attitudes and behaviors through improving their organizational pride. For example, CSR affects employees' attachment to and pride in their organization, and thus affects their work-related attitudes and behavior. CSR will be most effective at reducing turnover that is motivated by a preference for more meaningfulness at work. By creating a good working environment and developing internal CSR strategies, companies can stimulate productivity and satisfaction among employees. Committing to CSR boosts the morale and commitment of workers in a positive way (Ali & Rehman, 2010; Flammer & Kacperczyk, 2016). The support and trust of these stakeholders create sustainability and will reduce the company's risk in the future. Investors assume that investing in companies with bad CSR is a riskier investment (Spicer, 1978), and CSR can reduce stock volatility when something bad happens (Becchetti et al., 2015). In debt transactions, good CSR performance can reduce information asymmetry, be considered an indicator of creditworthiness, and reduce the risk of default (Chen et al., 2020).

2.3. CSR Performance, Firm Risk, and Controversial Industry

The question of whether CSR activities of companies in controversial industries can reduce risk has not been answered. Controversial industries are often referred to as 'sinful' because they inherently pose environmental, social, or ethical problems, for example - tobacco oil, cement, biotechnology, nuclear (Byrne, 2010; Lindgreen et al., 2012). According to legitimacy theory, companies disclose social responsibility information to present a socially responsible image so that they can legitimize their behaviors to their stakeholder groups. Legitimacy theory is based on the idea that a social contract exists between business and society (Suchman, 1995). However, CSR efforts made by companies in controversial industries cannot provide full legitimacy (Reast et al., 2013), because of the negative stigma that has been embedded in the minds of stakeholders (Grougiou et al., 2016). This negative stigma can be explained by the theory of perceived CSR, which says that stakeholders assess the alignment of environmental, social responsibility activities with the company's core business (Becker-Olsen et al., 2006). CSR activity in a controversial industry cannot be equated with a non-controversial one (Lindgreen et al., 2012), because the impact of damage from business operations is quite severe. As a result, stakeholders consider controversial companies are only capable of fulfilling legality aspects, but not contributing to social welfare and environmental sustainability. The existence of different stakeholder perceptions of CSR practices causes significant differences regarding CSR outcomes in controversial companies compared to non-controversial (Aqueveque et al., 2018).

Controversial companies may not have a sincere intention to use CSR as a long-term strategy and align their core business, or responsibility as an ongoing effort to reduce the negative impact of operations (Jo & Na, 2012). El Ghoul et al. (2011) focused on the nuclear and tobacco industries, showing that social and environmental responsibility increases the cost of equity capital, while in other industries, CSR activities reduce the cost of equity capital. Controversial industries are also considered to have a greater chance of facing lawsuits in the future than non-controversial industries, so they have a high risk of litigation (Hong & Kacperczyk, 2009). The negative stigma in the controversial industry has made investors think that the CSR activities carried out by companies in this category are only aimed at legitimizing their actions, avoiding conflict, or simply creating a good image without reducing the actual risk or providing tangible benefits to stakeholders. Then the hypothesis proposed is as follows:

H1: *The better the CSR performance, the lower the company risk.*

H2: *The ability of CSR to reduce corporate risk will diminish in controversial industries.*

3. Research Methodology

3.1. Data and Descriptive Statistics

The research data was selected using several criteria. First, the company must be registered on the Indonesian stock exchange in 2016–2019. Second, disclose information on CSR activities in the annual report. Third, all required data for control variables are available. Based on these criteria, a research sample of 927 years was obtained. The hypothesis will be tested by regressing all samples obtained. Then, we also performed subgroup analysis; the study samples would be grouped into two categories, namely controversial and non-controversial. Analysis using this subgroup refers to Sharma et al. (1981). The sample of this study consisted of 256 controversial and 671 non-controversial companies.

Table 1 presents descriptive statistics for the full sample. We also performed a descriptive analysis of the Controversial and non-Controversial subsample as an additional analysis. In the complete sample, the firm's Risk DSR has a mean of 0.03, and the maximum DSR value is 0.29. The average company beta is 0.91, meaning that the risk of the sample companies is not high. CSR performance has an average of 35.42%, a minimum CSR_{disc} of 2.44% and the maximum value of ROE is 82.93%. Meanwhile, the average CSR performance per dimension varies. The average environmental responsibility is 32.87%, the average product disclosure is 64.53%, the human resource responsibility is 57.5%, and the community disclosure is 17.07% on average. So, it can be concluded that the most social responsibility disclosures are in the product dimension. The CI variable shows how many sample companies are included in the controversial category, and in the table below, it can be seen that 27.62% are controversial companies. The descriptive subsample shows that the average CSR performance in the controversial industry category is 39.25%, while in the non-controversial industry, it is 33.95%. Companies do more CSR in industries that are vulnerable to social and environmental issues.

3.2. Measurement of Variable

The dependent variable of this study is company risk, which is measured by the volatility of daily stock returns. Measurement of the volatility of daily stock returns to prove that the company's stock price in the capital market fluctuates from time to time due to the different quality of the information received by investors (Bhagat & Frost, 1986; Dierkens, 1991; Thomas & Fee, 2005). This measure proves the greater the daily stock return volatility, the higher the company's risk. This is due to the level of information asymmetry in the capital market increases. This evidence shows that daily stock return volatility can be accepted as a simple risk measure, but robust because it uses a market microstructure approach based on high-frequency data.

$$R_{i,t} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}} \times 100\%$$

$$\sigma\left(R_{i,t}\right) = \sqrt{\frac{\sum_{i=1}^{k}\left(R_{i,t} - \overline{R_{i,t}}\right)^2}{n}}$$

Table 1: Descriptive Statistics

Variables	Obs	Min	Max	Mean	Std. Dev.
DSR_{t+1}	927	0.0000	0.2898	0.0325	0.0219
$beta_{t+1}$	927	0.3340	2.8110	0.9055	0.4491
CSRdisc	927	0.0244	0.8293	0.3542	0.1352
CI	927	0.0000	1.0000	0.2762	0.4473
CSR_env	927	0.0000	1.0000	0.3287	0.2701
CSR_prod	927	0.0000	1.0000	0.6453	0.2812
CSR_hr	927	0.0000	1.0000	0.5750	0.1950
CSR_comm	927	0.0000	0.7895	0.1707	0.1229
TobinQ	927	0.0710	229.1310	2.8455	14.2553
cash	927	0.0000	14.8360	0.1285	0.6481
size	927	20.7829	34.7988	29.0343	1.9295
Lev	927	0.0100	19.9700	0.5735	1.1061
EPS	927	−6045.06	4050.27	108.545	436.450

Where, $R_{i,t}$ is the daily stock return of firm i in year t. $\overline{R_{i,t}}$ is the average daily stock return of company i in year t. $P_{i,t}$ is the daily share price of the company i in year t. $P_{i,t-1}$ is the daily share price of the company i in year t–1. $\sigma\left(R_{i,t}\right)$ is the standard deviation of a company's daily stock return in a year. In the *robustness test*, we use beta (β) as a proxy for company risk with a capital asset pricing model (Zeng et al., 2020). Beta is defined as monthly beta, by regressing daily data between stock price returns (R_{it}) market index return (R_{mt}) for the last 3 years.

CSR performance is the independent variable of this study. The proxy for this variable is the disclosure of social responsibility in the company's annual report. The instrument for measuring CSR disclosure uses the standard GRI index that has been adjusted to conditions in Indonesia. CSR analysis is performed using content analysis, with a dummy score, 1 if disclosed, and 0 otherwise. Furthermore, the CSR score is obtained from the ratio between the number of items disclosed in the annual report and the total items that should be disclosed. The moderating variable of this study is the type of industry (CI) which is categorized based on vulnerability to social and environmental issues, namely controversial and non-controversial companies. Measurement of this variable uses a dummy, 1 if it is included in the controversial industry category, 0 if the opposite (Garcia et al., 2017; Lin et al., 2015). This study uses five control variables. First, Tobin Q is the ratio between the market capitalization value and the company's book value. Second, cash holding (CASH) is the logarithmic value of total cash. Third, company size (SIZE), which is calculated using total assets. Fourth, the debt ratio (LEV). Fifth, Earning per share (EPS).

3.3. Research Model

This study runs ordinary least square to test both hypotheses. The research models are listed below. Equation 1 (a–e) is the main model used to analyze research results. Equation 2 (a–e) is a model for robustness testing.

$$\begin{aligned}\mathrm{DSR}_{it+1} &= \alpha + \beta_1\mathrm{CSRdisc}_{it} + \beta_2\mathrm{CI}_{it} + \beta_3\mathrm{CSRdisc}_{it} \\ &\quad *\mathrm{CI}_{it} + \beta_4\mathrm{TobinQ}_{it} + \beta_5\mathrm{Cash}_{it} + \beta_6\mathrm{Size}_{it} \\ &\quad + \beta_7\mathrm{Lev}_{it} + \beta_8\mathrm{EPS}_{it} + \varepsilon_{it}\end{aligned} \tag{1a}$$

$$\begin{aligned}\mathrm{BETA}_{it+1} &= \alpha + \beta_1\mathrm{CSR\,dimension}_{it} + \beta_2\mathrm{CI}_{it} \\ &\quad + \beta_3\mathrm{CSR\,dimension}_{it} * \mathrm{CI}_{it} \\ &\quad + \beta_4\mathrm{TobinQ}_{it} + \beta_5\mathrm{Cash}_{it} \\ &\quad + \beta_6\mathrm{Size}_{it} + \beta_7\mathrm{Lev}_{it} + \beta_8\mathrm{EPS}_{it} + \varepsilon_{it}\end{aligned} \tag{1b)–(1e}$$

$$\begin{aligned}\mathrm{BETA}_{it+1} &= \alpha + \beta_1\mathrm{CSRdisc}_{it} + \beta_2\mathrm{CI}_{it} + \beta_3\mathrm{CSRdisc}_{it} \\ &\quad * \mathrm{CI}_{it} + \beta_4\mathrm{TobinQ}_{it} + \beta_5\mathrm{Cash}_{it} \\ &\quad + \beta_6\mathrm{Size}_{it} + \beta_7\mathrm{Lev}_{it} + \beta_8\mathrm{EPS}_{it} + \varepsilon_{it}\end{aligned} \tag{2a}$$

$$\begin{aligned}\mathrm{BETA}_{it+1} &= \alpha + \beta_1\mathrm{CSRdimension}_{it} + \beta_2\mathrm{CI}_{it} \\ &\quad + \beta_3\mathrm{CSRdimension}_{it} * \mathrm{CI}_{it} \\ &\quad + \beta_4\mathrm{TobinQ}_{it} + \beta_5\mathrm{Cash}_{it} + \beta_6\mathrm{Size}_{it} \\ &\quad + \beta_7\mathrm{Lev}_{it} + \beta_8\mathrm{EPS}_{it} + \varepsilon_{it}\end{aligned} \tag{2a)–(2e}$$

Where DSR_{it+1} is the standard deviation from the daily stock return t + 1. $BETA_{it+1}$ is the coefficient of the company's stock return with the market return. Both of these variables are proxies of company risk. $\mathrm{CSR}_{\mathrm{disc}}$ is the total corporate social responsibility disclosure. CSR dimension is a social responsibility disclosure for each dimension - environment, products, human resources, and community.

4. Results and Discussion

Table 2 presents the regression results from equation (1a)–(1e). All model tests use linear regression to analyze corporate risk and CSR performance. In model (1a), the CSR disc coefficient is negative and significant at the one percent level, indicating that companies with higher CSR performance will have lower corporate risk. When tested for each dimension of disclosure, models (1b)–(1e) also show consistent results, the variables $\mathrm{CSR}_{\mathrm{env}}$, $\mathrm{CSR}_{\mathrm{prod}}$, dan $\mathrm{CSR}_{\mathrm{hr}}$, are negative with a significance level of one percent. In comparison, $\mathrm{CSR}_{\mathrm{comm}}$ is significant and negative at a ten percent level. These results confirm hypothesis 1, that is, companies with more disclosures that reflect CSR performance will reduce corporate risk.

Next, to confirm the second hypothesis, we include the interaction of CSR and CI to examine the impact on the controversial industry. The CSR * CI coefficient in the model (1a) shows a significant positive result, which means that the effect of CSR performance on risk is weaker in controversial firms than in non-controversial firms, the second hypothesis (H2) is accepted. When the CSR performance is analyzed based on its dimensions, the results of the interaction of each CSR dimension with CI ($\mathrm{CSR}_{\mathrm{env}}$* CI, $\mathrm{CSR}_{\mathrm{prod}}$* CI, $\mathrm{CSR}_{\mathrm{hr}}$* CI, dan $\mathrm{CSR}_{\mathrm{comm}}$* CI) in the model (1b)–(1e) provide consistent empirical results. As an additional analysis, we performed subsample testing to confirm these results (Sharma et al.,1981).

The estimation results for Equation (1a)–(1e) are reported in Table 2. We report that the total CSR performance ($\mathrm{CSR}_{\mathrm{disc}}$) and each dimension ($\mathrm{CSR}_{\mathrm{env}}$, $\mathrm{CSR}_{\mathrm{prod}}$, $\mathrm{CSR}_{\mathrm{hr,}}$ dan $\mathrm{CSR}_{\mathrm{hr}}$) show negative coefficients and are statistically significant in all models. These results imply that higher social and environmental responsibility is associated with lower levels of corporate risk. Therefore, these results are consistent with the risk management theory and support hypothesis 1 that current CSR performance negatively affects firm risk. If we look at the impact of CSR performance in each

Table 2: Regression Results – Full Sample

Variable	DSR_{t+1} (1a)	DSR_{t+1} (1b)	DSR_{t+1} (1c)	DSR_{t+1} (1d)	DSR_{t+1} (1e)
C	10.700***	12.082***	11.581***	14.402***	13.461***
CSRdisc	−3.079***				
CI	−3.169***				
CSRdisc * CI	2.215**				
CSRenv		−4.091***			
CI		−2.595***			
CSRenv * CI		2.057**			
CSRprod			−2.453***		
CI			−3.548***		
CSRprod * CI			2.329**		
CSRhr				−3.329***	
CI				−3.637***	
CSRhr * CI				2.324***	
CSRcomm					−1.284*
CI					−4.854***
CSRcomm*CI					2.499***
TobinQ	−0.198	−0.173	−0.154	−0.080	0.600
cash	−1.686*	−2.083**	−1.777*	−2.221**	−2.875***
size	−6.684***	−8.600***	−7.791***	−9.499***	−9.547***
Lev	4.703***	4.311***	4.617***	5.696***	5.772***
EPS	−3.519***	−3.194***	−3.775***	−4.216***	−4.378***
Obs.	927	927	927	919	905
Adj R^2	0.169	0.175	0.167	0.221	0.218
F-Stat.	24.501***	25.503***	24.162***	33.629***	32.515***

***significant 1% **significant 5% *significant 10%.

1a $DSR_{it+1} = \alpha + \beta_1 CSRdisc_{it} + \beta_2 CI_{it} + \beta_3 CSRdisc_{it} * CI_{it} + \beta_4 TobinQ_{it} + \beta_5 Cash_{it} + \beta_6 Size_{it} + \beta_7 Lev_{it} + \beta_8 EPS_{it} + \varepsilon_{it}$

1b $DSR_{it+1} = \alpha + \beta_1 CSRenv_{it} + \beta_2 CI_{it} + \beta_3 CSRenv_{it} * CI_{it} + \beta_4 TobinQ_{it} + \beta_5 Cash_{it} + \beta_6 Size_{it} + \beta_7 Lev_{it} + \beta_8 EPS_{it} + \varepsilon_{it}$

1c $DSR_{it+1} = \alpha + \beta_1 CSRprod_{it} + \beta_2 CI_{it} + \beta_3 CSRprod_{it} * CI_{it} + \beta_4 TobinQ_{it} + \beta_5 Cash_{it} + \beta_6 Size_{it} + \beta_7 Lev_{it} + \beta_8 EPS_{it} + \varepsilon_{it}$

1d $DSR_{it+1} = \alpha + \beta_1 CSRhr_{it} + \beta_2 CI_{it} + \beta_3 CSRhr_{it} * CI_{it} + \beta_4 TobinQ_{it} + \beta_5 Cash_{it} + \beta_6 Size_{it} + \beta_7 Lev_{it} + \beta_8 EPS_{it} + \varepsilon_{it}$

1e $DSR_{it+1} = \alpha + \beta_1 CSRcomm_{it} + \beta_2 CI_{it} + \beta_3 CSRcomm_{it} * CI_{it} + \beta_4 TobinQ_{it} + \beta_5 Cash_{it} + \beta_6 Size_{it} + \beta_7 Lev_{it} + \beta_8 EPS_{it} + \varepsilon_{it}$

dimension – environment, products, human resources, and community - on the volatility of stock prices, it shows the same results. The results of the F test on all models indicate that the model is significant at the one percent level.

Table 3 shows the differences between the Controversial and non-Controversial categories. In the Controversial group, the CSR_{disc} variable in the model (3a) shows insignificant results. Whereas in the non-controversial group, the CSR_{disc} showed significant negative results. It is complementing the previous results, where CI weakens the effect of CSR performance on company risk. This means that CSR performance is only able to reduce risks in non-controversial companies.

In robustness checks, we run equation (2a)–(2e) by using beta as a proxy for company risk. Beta is a measure of corporate risk that is often used in previous

Table 3: Subgroup Analysis

Variable	Controversial				Non-Controversial			
	DSR_{t+1} (3a)	DSR_{t+1} (3b)	$Beta_{t+1}$ (4a)	$Beta_{t+1}$ (4b)	DSR_{t+1} (3a)	DSR_{t+1} (3b)	$Beta_{t+1}$ (4a)	$Beta_{t+1}$ (4b)
C	4.755***	4.631***	−2.540***	−2.580***	9.122***	9.183***	−1.100***	−1.197***
CSRdisc	−0.184		0.227		−2.735***		−0.188*	
CSRenv		−1.305*		0.094		−3.364***		0.105*
CSRprod		1.141		0.172*		−1.337*		−0.086*
CSRhr		0.021		0.122		0.034		−0.05
CSRcomm		−0.16		−0.388*		0.468		−0.215*
TobinQ	−0.051	0.085	0.008	0.007	0.046	−0.110	0.001	0.001
cash	2.001**	2.030**	0.42*	0.421*	−1.874*	−2.018**	−0.003	0.003
size	−3.488***	−3.477***	0.119***	0.117***	−5.751***	−5.952***	0.068***	0.073***
Lev	1.883*	1.838*	−0.226*	−0.221*	4.408***	4.113***	0.056***	0.059***
EPS	−0.989	−0.89	$-8.21E^{-05}$	$-8.02E^{-05}$	−3.394***	−3.289***	$-5.97E^{-06}$	$-1.32E^{-05}$
Obs.	256	256	256	256	671	671	646	646
Adj R^2	0.072	0.07	0.195	0.2	0.184	0.192	0.129	0.122
F-Stat.	4.309***	3.145***	11.284***	8.104***	26.014***	18.510***	15.590***	10.965***

***significant 1% **significant 5% *significant 10%.

$$3a\ DSR_{it+1} = \alpha + \beta_1 CSRdisc_{it} + \beta_2 TobinQ_{it} + \beta_3 Cash_{it} + \beta_4 Size_{it} + \beta_5 Lev_{it} + \beta_6 EPS_{it} + \varepsilon_{it}$$

$$3b\ DSR_{it+1} = \alpha + \beta_1 CSRenv_{it} + \beta_2 CSRprod_{it} + \beta_3 CSRhr_{it} + \beta_4 CSRcom_{it} + \beta_5 TobinQ_{it} + \beta_6 Cash_{it} + \beta_7 Size_{it} + \beta_8 Lev_{it} + \beta_9 EPS_{it} + \varepsilon_{it}$$

$$4a\ BETA_{it+1} = \alpha + \beta_1 CSRdisc_{it} + \beta_2 TobinQ_{it} + \beta_3 Cash_{it} + \beta_4 Size_{it} + \beta_5 Lev_{it} + \beta_6 EPS_{it} + \varepsilon$$

$$4b\ BETA_{it+1} = \alpha + \beta_1 CSRenv_{it} + \beta_2 CSRprod_{it} + \beta_3 CSRhr_{it} + \beta_4 CSRcom_{it} + \beta_5 TobinQ_{it} + \beta_6 Cash_{it} + \beta_7 Size_{it} + \beta_8 Lev_{it} + \beta_9 EPS_{it} + \varepsilon_{it}$$

studies (Albuquerque et al., 2019; Liu & Lu, 2019). In Table 4, robustness testing shows consistent results, meaning that all CSR variables show a significant negative, except for the environmental dimension (CSR_{env}), which does not affect company beta.

The empirical results of this study support the results of Liu & Lu (2019) who documented that CSR performance is negatively related to company risk because these activities can build a reputation and enable companies to manage important resources well. Investing in CSR activities is a risk management strategy that can provide protection for cash flow, reduce corporate risk, and ultimately have an impact on the company's financial or systematic risk (Godfrey, 2005; Oikonomou et al., 2012). CSR disclosure can reduce information asymmetry, reduce information uncertainty faced by financial analysts so that profit forecasts can be better determined, in addition to reducing the cost of equity capital (Cormier & Magnan, 2014; Cui et al., 2016). Consistent with the development of the risk reduction hypothesis, empirical testing shows that social and environmental responsibility significantly and negatively affects total risk as measured by the standard deviation of daily stock returns and systematic risk as measured by the individual beta of the Capital Asset Pricing Model. The volatility of stock returns, which is reflected in the two measures, defines the level of risk of the company. When viewed in more detail, Table 2 shows the total CSR and each dimension (the responsibilities related to the environment, human resources, products, and community) is able to reduce the risk of companies in Indonesia. Companies can reduce risks by disclosing CSR as a form of concern for the balance of economic, social, and environmental dimensions. CSR activities and disclosures are used as an effort to gain legitimacy, reputation, trust, and support from stakeholders. In the end, investors will judge that all of this will provide stability in performance, sustainability and reduce risks in the future.

Table 4: Robustness Test

Variable	$Beta_{t+1}$ (2a)	$Beta_{t+1}$ (2b)	$Beta_{t+1}$ (2c)	$Beta_{t+1}$ (2d)	$Beta_{t+1}$ (2e)
C	−1.329***	−1.173***	−1.249***	−1.213***	−1.375***
CSRdisc	−0.239**				
CI	−0.182**				
CSRdisc*CI	0.598***				
CSR_env		0.037			
CI		−0.053			
CSRenv*CI		0.148*			
CSR_prod			−0.111**		
CI			−0.179***		
CSRprod*CI			0.315***		
CSR_hr				−0.105*	
CI				−0.156**	
CSRhr*CI				0.326**	
CSR_comm					−0.37***
CI					−0.056
CSRcomm*CI					0.509**
Tobin Q	0.001	0.001	0.001	0.001	0.001
cash	0.005	−0.003	0.005	0.002	0.005
size	0.077***	0.069***	0.074***	0.073***	0.078***
Lev	0.054***	0.052***	0.053***	0.053***	0.053***
EPS	$-9.13E^{-06}$	$-1.07E^{-05}$	$-8.23E^{-06}$	$-6.69E^{-06}$	$1.55E^{-06}$
Obs.	902	902	904	904	904
Adj R^2	0.136	0.132	0.129	0.124	0.128
F−Stat.	18.711***	18.059***	17.722***	17.016***	17.544***

***significant 1% **significant 5% *significant 10%.

2a $BETA_{it+1} = \alpha + \beta_1 CSRdisc_{it} + \beta_2 CI_{it} + \beta_3 CSRdisc_{it} * CI_{it} + \beta_4 TobinQ_{it} + \beta_5 Cash_{it} + \beta_6 Size_{it} + \beta_7 Lev_{it} + \beta_8 EPS_{it} + \varepsilon_{it}$

2c $BETA_{it+1} = \alpha + \beta_1 CSRprod_{it} + \beta_2 CI_{it} + \beta_3 CSRprod_{it} * CI_{it} + \beta_4 TobinQ_{it} + \beta_5 Cash_{it} + \beta_6 Size_{it} + \beta_7 Lev_{it} + \beta_8 EPS_{it} + \varepsilon_{it}$

1d $BETA_{it+1} = \alpha + \beta_1 CSRhr_{it} + \beta_2 CI_{it} + \beta_3 CSRhr_{it} * CI_{it} + \beta_4 TobinQ_{it} + \beta_5 Cash_{it} + \beta_6 Size_{it} + \beta_7 Lev_{it} + \beta_8 EPS_{it} + \varepsilon_{it}$

2e $BETA_{it+1} = \alpha + \beta_1 CSRcomm_{it} + \beta_2 CI_{it} + \beta_3 CSRcomm_{it} * CI_{it} + \beta_4 TobinQ_{it} + \beta_5 Cash_{it} + \beta_6 Size_{it} + \beta_7 Lev_{it} + \beta_8 EPS_{it} + \varepsilon_{it}$

2e $BETA_{it+1} = \alpha + \beta_1 CSRcomm_{it} + \beta_2 CI_{it} + \beta_3 CSRcomm_{it} * CI_{it} + \beta_4 TobinQ_{it} + \beta_5 Cash_{it} + \beta_6 Size_{it} + \beta_7 Lev_{it} + \beta_8 EPS_{it} + \varepsilon_{it}$

The benefits of CSR for companies cannot be generalized because companies in certain industries receive negative stigma from stakeholders (Grougiou et al., 2016). In general, the stigma arises from the company's output, routine, actions, and operations. For example, alcohol and tobacco companies have long been under the spotlight for the addictive nature of products as well as the devastating social impact on families and communities (Hudson, 2008; Vergne, 2012; Heal, 2008). The natural resource extractive industry tends to damage the environment and communities around the mines (Slack, 2012). Controversial companies have tried to suppress the negative stigma, seen in the number of disclosures made in that category about six percent higher than non-controversial companies (already described in the descriptive statistics

section). Then, the regression results show that the controversial industry weakens the relationship between CSR performance and company risk, both in total and in CSR dimensions. Even when we subgroup it, it became clear that there were differences between the two categories. Table 3 shows that in the controversial category, CSR performance consistently does not affect the beta and standard deviation of stock volatility, which are proxies of corporate risk. In contrast to the non-controversial group, CSR performance consistently affects firm risk in all models. These results support hypothesis 2, which is, controversial industry type affects the relationship between CSR performance and firm risk. However, if observed in more detail, the dimensions of CSR give varying impacts when doing subgroup analysis. Environmental performance can reduce the volatility of stock returns in controversial and non-controversial companies, but the beta measure cannot capture this effect. On the other hand, CSR in the community dimension can reduce the company's beta in both industries, but does not reduce the volatility of stock returns. Meanwhile, the other two dimensions show less consistent results.

There are several explanations of why CSR activities are only able to reduce risk in non-controversial companies and do not affect risk in controversial companies. First, CSR activities are carried out only to form the company's image, and do not align with the main business, or solve problems caused by the company. Sen and Bhattacharya (2001) suggest that consumers prefer it when CSR activities are relevant to company products, not just giving donations or carrying out unrelated activities. CSR activities that are integrated with products, for example, tobacco companies reward farmers who use fewer pesticides in the planting process, thereby reducing environmental damage. Besides, companies can work directly with smallholders and local suppliers to source tobacco raw materials and pay them fairly. CSR actions must be designed appropriately to be able to reduce the impact or harm caused by controversial companies to society and the environment (Aqueveque et al., 2018). So, it can be concluded, there is a possibility that social responsibility activities in controversial industries in Indonesia may not have been carried out in an integrated manner with the main business of the company, so they have not been able to reduce risks. Second, CSR activities do not fully get legitimacy from stakeholders because they have a negative stigma against controversial industrial businesses due to their impact. Yani-de-Soriano et al. (2012) argued that companies in this controversial sector cannot perform CSR responsibilities better than other industries. CSR activities in controversial industries are monitored more closely, standards are stricter, and are subject to negative expectations by stakeholders because their products are dangerous (Miller & Michelson, 2013; Palazzo & Richter, 2005). The negative stigma of corporate externalities triggers a worse public perception of the industry as a whole (Durand & Vergne, 2015).

5. Conclusions

In this study, we empirically examine the influence of social and environmental performance on firm risk in Indonesia. Social and environmental performance is viewed based on CSR disclosure in the annual report, because it is assumed that the more activities carried out, the wider the disclosure will be. In contrast to previous studies, which only focused on controversial industries, we compared them directly with non-controversial industries. Furthermore, as additional analysis, this study also examines the dimensions of social and environmental responsibility. The results show support for the theory of risk management - the better CSR performance means that the company can manage the company's resources and risks, and this gives a positive signal to stakeholders, as such, it can reduce firm risk. Also, we empirically find that controversial industries have a moderate effect on the relationship between CSR performance and firm risk. When subgroup analysis was carried out, it turned out that CSR performance was only able to reduce risk in non-controversial industries, but did not affect the risk of controversial companies.

This research enriches the understanding of the benefits of CSR activities in the industry with different characteristics. This paper highlights CSR issues in Indonesia, and its findings have implications for regulators and company management. Regulators are expected to be able to formulate standards that can encourage companies to carry out CSR in a more integrated manner with their main business. CSR activities must be able to solve problems caused by the company, not just creating a good image. If social responsibility has been carried out with more relevance, it might be able to reduce the risk of companies in controversial industries. The limitations of this study can be seen in two ways. First, the number of controversial companies is only twenty-five percent of the total sample. The sample problem might affect the results, even though we have done a robustness test. Second, the measurement of company risk is the total risk, without separating systematic and idiosyncratic risk. This limitation can be taken into consideration for further research.

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