CORPORATE SOCIAL RESPONSIBILITY AND INFORMATION ASYMMETRY IN 2SLS ESTIMATION OF DYNAMIC SIMULTANEOUS EQUATION MODELS

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ABSTRACT

Several studies have shown that information imbalance is affected by the availability of relevant information in the market. Such information can be either financial information or non-financial information. It has been studied in previous literature that both financial information and non-financial information should be considered by firms. These studies generally assume that non-financial information has value relevance and serves as additional information for stakeholders and market participants. This study aims to examine the impact of CSR on information imbalance in the Financial Industry. The focus is to prove that CSR can reduce information imbalance in Indonesia. The analytical method used is Two-Stage Least Squares (2SLS) Regression Analysis to evaluate the relationship between the variables. Therefore, this study has the potential to provide important insights for the financial industry in understanding the impact of CSR practices on information dynamics in the market.

Keywords: *corporate social responsibility, information asymmetry, dynamic model*

1. INTRODUCTION

Studies on non-financial information, particularly CSR studies have reported that firms in environmentally and socially sensitive industries pay more attention to sustainability issues (Wu & Shen, 2013). While firms operating in non-sensitive industries do not take CSR. Little is known about how firms operating in non-sensitive industries deal with CSR practices. The lack of empirical research in this area is due to the nature of voluntary characteristics and or due to data limitations, as in many countries, CSR practices are still considered as voluntary disclosures. However, nowadays, such requirements are recently in practice, especially in European countries. In 2018, the European Directive required companies operating in Europe to publicly disclose non-financial information (i.e., CSR reports). Even regulations in Indonesia also require companies to carry out social and environmental responsibilities, especially for businesses related to natural resources (Law No. 40/2007 on Limited Liability Companies).

This study will use a dataset of companies listed in Indonesia. The decision to focus on Indonesian companies is based on the very high level of information asymmetry in the Indonesian capital market compared to the rest of Asia. CSR information is considered to be a relevant additional value for stakeholders, but an open question is whether this relationship also holds in the Indonesian context, where the operating conditions of companies differ from those of companies in industries that are sensitive to such issues.

Furthermore, this study uses 2SLS (Two-Stage Least Squares) and GMM (Generalized Method of Moments) regression. Since most research designs may contain endogeneity issues, the usual OLS model is considered inappropriate because it has not been able to provide consistent and efficient results. To handle this problem, 2SLS regression is one of the commonly used options. In addition, to anticipate data that may suffer from heteroscedasticity and autocorrelation problems that may result in inefficient or inconsistent parameter estimates, the GMM method is recommended by the literature.

2. RESEARCH METODOLOGY

Data and Sampel

This research was conducted on all companies listed on the Indonesia Stock Exchange (IDX) at the end of the 2022 period. By considering the number of listed companies, purposive sampling was determined as a sampling technique in this study. The sample criteria used are 1) Active companies listed at the end of the 2022 period; 2) Companies that are listed consecutively during the 2018-2022 period; and 3) Listed companies with complete observations and financial fundamental data (control variables). By using these criteria, the final sample was obtained as many as 108 companies.

Research Design

Tests in overcoming endogeneity problems due to simultaneity, and omitted variables, apply the two-stage least squares (2SLS) method and the generalized method of moments (GMM) dynamic panel system method. This method is used to minimize the problem of a negative relationship between CSR and information asymmetry determined simultaneously by some omitted variables. The econometric equations that will be estimated by applying the two-stage least squares (2SLS) method are as follows:

First-stage

$$CSR_{i,t-1} = \beta_0 + \beta_1 \Delta CSR_{i,t-2} + \beta_2 \Delta CSR_{i,t-3} + \beta_3 \text{INDUSTRY\_MEDIAN\_CSR}_{i,t-1} + \sum_{j=4}^{n} \beta_j \, CONTROL_{i,t-1} + \varepsilon_{i,t-1} \quad \textbf{(1)}$$

Second-stage

$$AI_{i,t} = \gamma_0 + \gamma_1 \widehat{CSR}_{i,t-1} + \sum_{j=2}^{n} \gamma_j \, CONTROL_{i,t-1} + \upsilon_{i,t} \quad \textbf{(2)}$$

Where AI is information asymmetry (measured by AMIHUD as the main proxy for information asymmetry); CSR is Corporate Social Responsibility; is lagged industry-median CSR; and control variables (CONTROL) are company size (SIZE), leverage (LEV), and return on equity (ROE).

3. RELATED RESEARCH/LITERATUR REVIEW

Disclosure of environmental information as part of a firm's non-financial disclosures reduces information asymmetry, thereby reducing information acquisition costs and increasing firm value (Lang & Lundholm, 1993). Managers' performance of good CSR practices will reduce information asymmetry, which may affect adverse relationships between customers and suppliers (Michelon et al., 2015). Empirically, an inverse (negative) relationship between CSR engagement and information asymmetry has been found after controlling for various firm characteristics (Kim & Lee, 2019). In addition, it has also been shown that the negative relationship between CSR activities and information asymmetry is strengthened by firm risk (Cui et al., 2018a). Furthermore, it is also emphasized that positive corporate CSR signals are attractive to prospective and current employees (Greening & Turban, 2000). Therefore, retaining qualified personnel is essential for companies to keep their CSR programs competitive, develop good information in their environment, and will reduce information asymmetry among employees.

The accuracy with which companies disclose their CSR performance is of utmost importance (Clarke, 2013), especially in order to discern appropriate actions and consequences, intentions and goals for stakeholders (Kalbouneh et al., 2023). In addition, the decision to use CSR information shows a useful way of comparability. On the one hand, sustainable activities (voluntarily participating in environmental programs and innovations) aim to influence society's perception of the company's actions more clearly and tangibly to gain and increase legitimacy (Berrone et al., 2011; Islam et al., 2021; L'Abate et al., 2023) However, on the other hand, the quality of sustainable information (reports) can be used to address corporate issues (Boiral, 2013). It reflects the ethical values of the company and companies that fulfill their social obligations by using CSR are associated with corporate accountability (Michelon et al., 2015). CSR plays a role in improving the quality of corporate information (Chulkov & Wang, 2023; Yoon et al., 2019) Managers are responsible for producing high-quality financial reports even though it will reduce the company's profits. They argue that CSR is more reflective of management ethics and thus encourages transparent and reliable financial reporting. Furthermore, transparent companies tend to reduce information asymmetry between companies and shareholders (Lambert et al., 2007)..

The negative relationship between CSR performance and bid-ask spread as a proxy for information asymmetry is reduced for firms with high levels of institutional investors (Cho et al., 2013). Their findings suggest that informed investors can exploit CSR information from related companies to benefit. In general, their study noted that CSR performance plays a positive role for investors, especially in reducing the level of information asymmetry as experienced by uninformed investors and stakeholders. Different from previous studies, this study does not only focus on CSR performance and its relationship with bid-ask spread. But rather investigates the effects of CSR practices in several forms on different proxies of information asymmetry indicators.

Taking into account the empirical literature found inconsistent results, the hypothesis built in this study is that Corporate Social Responsibility significantly reduces information asymmetry.

4. RESULTS AND DISCUSSION

Results

Table 1. Pearson correlation among the variables

	Variable	1	2	3	4	5
1	AI	1				
2	CSR_	0.203**	1			
3	SIZE	0.374***	-0.121	1		
4	LEV	-0.512***	0.022	-0.585***	1	
5	ROE	0.628***	0.007	0.433***	-0.322***	1

Table 1 outlines the results of the correlation analysis. It can be seen that the dependent variable, information asymmetry (AI) is proxied by AMIHUD price impact, and the independent variable is proxied by CSR. In more detail, the independent variable, CSR is reported to show a positive ($r = 0.203$) and significant ($p < 0.01$) correlation with AI.

Hypothesis Testing

The analysis was conducted by empirically testing the relationship between CSR practices and information asymmetry using the 2SLS model. However, the test is broken down into two different models because it follows the stages of 2SLS testing, namely estimating the first stage by regressing the endogenous variable (CSR) on instrumental variables and other exogenous variables to obtain the predicted value of the endogenous variable. Furthermore, the second stage estimates by regressing the dependent variable (information asymmetry) on the predicted value of the endogenous variable (CSR) and other exogenous variables.

Tabel 2. 2SLS regression analysis

VARIABLES	Expected Direction	First-Stage	Second-Stage
$CSR_{i,t-1}$	-		-0.0272**
			[-2.720]
$CSR_{i,t-2}$	-	-0.0301***	
		[2.663]	
$CSR_{i,t-3}$	-	-0.0305**	
		[-2.276]	
SIZE	+/-	-0.0760***	-0.0713***
		[-5.801]	[-5.484]
LEV	+/-	0.00000847	-0.00000702
		[0.042]	[-0.035
ROE	+/-	0.0027***	0.0022**
		[3.375]	[2.444]
Observations		540	540
R-squared		0.453	0.298

*** p<0.01, ** p<0.05, * p<0.1 indicate statistical significance at the 1 percent, 5 percent and 10 percent level respectively (two-tailed). t values are available in parentheses.

Table 2 displays the statistical output of the 2SLS regression analysis, which empirically tests the relationship between CSR practices and information asymmetry. The results obtained show that CSR is negatively and significantly related to information asymmetry. More precisely, the coefficient value of CSR is reported to be negative (□= -0.0272) and statistically significant ($p < 0.05$) when tested directly against information asymmetry. These results indicate that the hypothesis is statistically supported.

Discussion

Information asymmetry is a condition in which there is an imbalance of information between company management and external parties, such as investors and other stakeholders. Information asymmetry can cause agency problems and affect investment decisions and firm value. Therefore, it is important for companies to reduce information asymmetry by increasing transparency and information disclosure. In this context, Corporate Social Responsibility (CSR) can act as one of the mechanisms to reduce information asymmetry. CSR is a company's commitment to be responsible for the environment and surrounding communities, as well as considering the interests of stakeholders in decision making. By implementing good CSR practices, companies can increase transparency and trust from stakeholders, which in turn can reduce information asymmetry. Companies that implement CSR tend to have higher levels of transparency in their financial and non-financial reporting. This can reduce information asymmetry between companies and investors, thus allowing investors to make more informed and sustainable investment decisions..

In addition, CSR can also play a role in reducing information asymmetry between companies and consumers. By providing clear information about their production practices and supply chains, companies can build consumer trust and enable consumers to make more sustainable purchasing decisions. This is consistent with previous research which also found that good CSR practices will reduce information asymmetry (Michelon et al., 2015).

The relationship between CSR and information asymmetry can be affected by endogeneity issues, where there is a possibility of unclear causality or the presence of unobserved variables that affect both variables. To overcome this problem, Two-Stage Least Square (2SLS) regression can be used as a model to minimize the endogeneity problem. 2SLS regression is an econometric method used to overcome endogeneity problems in regression models. Relevant research has proven that there is an inverse (negative) relationship between CSR engagement and information asymmetry (Cui et al., 2018b; Kim & Lee, 2019).

5. CONCLUSION

This study examines the effect of CSR and information asymmetry in Indonesia using the 2SLS model. Using a sample of 108 companies from 2018 to 2022, it was found that CSR can reduce information asymmetry. The effectiveness of CSR in reducing information asymmetry depends on the extent to which companies implement CSR practices consistently and transparently. In addition, proper regulation and supervision from the authorities are also necessary to ensure that firms actually adhere to their CSR commitments and do not simply engage in greenwashing or pseudo-CSR actions. Thus, while CSR can act as a mechanism to reduce information asymmetry, consistent implementation and strict oversight are needed to ensure that CSR actually fulfills its purpose of increasing corporate transparency and accountability.

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