Relationships Between Corporate Social Responsibility, Firm Value, and Institutional Ownership: Evidence from Indonesia*

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Abstract

This study aims to look into the causal relationships between corporate social responsibility and firm value, corporate social responsibility and institutional ownership, and firm value and institutional ownership. This study develops a triangle model of causal relationships among the three endogenous variables. Samples for this study are manufacturing companies listed on the Indonesia Stock Exchange for the period 2014–2018. The model is operated in the system of simultaneous equation models using the generalized method of moments technique to estimate parameter coefficients. After controlling the effects of trade-off/balancing capital structure and managerial ownership, the research findings show a positive causal relationship between CSR and firm value and firm value and institutional ownership. Institutional ownership has a positive effect on CSR, while the effect of CSR on institutional ownership is negative in the firms without managerial ownership and positive in the firms with managerial ownership. This study finds that the causal relationship between CSR and firm value is stronger after the trade-off/balancing of capital structure is included in the model. Capital structure has a convex effect on firm value and positively impacts institutional ownership. In addition, an independent commissioner has a negative impact on CSR but has no direct impact on firm value.

Keywords: CSR, Firm Value, Institutional Ownership, Corporate Governance

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1. Introduction

The company's contribution to supporting social needs in Indonesia has been notable since the early 1970s. A prominent contribution was the company's role in advancing the sport, especially talent search, training,

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and education of badminton players that supported the success of Indonesian athletes in winning international and world level badminton competitions until the present. The Government of the Republic of Indonesia released Law No. 40 of 2007, which stipulates that companies engaged in the natural resource business sector are required to carry out CSR. The mandatory provisions for the implementation of CSR are described in Government Regulation No. 42 of 2012. Who bears the costs of CSR and what the benefits are for the company have become an interesting issue in academics and practices. There is a view that the public has a critical attitude and appreciates companies that have social concerns to generate goodwill and increase the company's income (Friedman, 1970). Servaes and Tamayo (2013) find that CSR and the value of the firm are positively related for firms with high customer awareness, while the relationship is either negative or insignificant for firms with low customer awareness. A number of empirical studies support the positive relationship between CSR and firm value (Chung et al., 2018; Hu et al., 2018; Murashima, 2020).

On the other hand, Crisóstomo et al. (2011) found a negative relationship between CSR and firm value. Jo and

Harjoto (2011) find endogeneity issues in the relationship between CSR and firm value. While Lee (2020) found that CSR activity has a negative impact on the firm value over a concurrent period, it has become a strong positive impact at one-period and two-period time lag.

Other studies investigating the relationship between CSR and institutional ownership have also found mixed results, such as; a negative relationship (Cheng et al., 2021); a concave relationship (Harjoto et al., 2017); an irrelevant relationship (Coffey & Fryxell, 1991). Rehman et al. (2020) found a negative relationship between CSR and market value, while the relationship becomes positive when the CSR is moderated with institutional ownership.

This study proposes a new approach by building a triangle model of the causal relationship between CSR, firm value, and institutional ownership. The model explains causal relationships between CSR and firm value, firm value and institutional ownership, and CSR and institutional ownership in the system of simultaneous equation model. This study considers corporate governance, agency problem, and firm characteristics such as profitability, capital structure, asset intensity, and size as instruments and controls in the CSR has a negative system.

Samples of the study are manufacturing companies listed on the Indonesia Stock Exchange over the period of 2014–2018. By employing the general method of moments to estimate parameter coefficients, research findings show that: There is a positive causal relationship between CSR and firm value, as well as firm value and institutional ownership; institutional ownership has positive effect on CSR, while the effect on institutional ownership for the firm without managerial ownership, and positive effect for a firm with managerial ownership; the findings are sensitive to the effect of trade-off/balancing of capital structure that has a concave effect on firm value; independent commissioners as a proxy of corporate governance have a negative effect on CSR but insignificant effect on firm value.

The rest of the paper is organized as follows. Section 2 discusses the literature review and developing hypotheses. Section 3 describes the data collection procedure, research framework and measuring variables, and model construction. The research results will be provided in Section 4. The last section provides a conclusion and suggestions for further research.

2. Literature Review and Hypotheses Development

2.1. CSR and Firm Value

The relationship between CSR and corporate value is a debatable issue among academics and practitioners.

Does CSR relevant to maximizing shareholders' wealth? All elements and management efforts are directed to maximize shareholders' wealth, which is to maximize firm value. Is corporate responsible for social responsibility activities? Does corporate engage in CSR activities to lead firm value? Actually, people have responsibilities, not business or corporate. A corporation is an artificial person and it may have artificial responsibilities as the basic rule of society. They use corporation resources and engage in CSR activities, which are designed to generate goodwill and increase profits (Friedman, 1970). CSR refers to company activities to build better relationships with primary stakeholders that could lead to increased shareholder wealth (Hillman & Keim, 2001). Servaes and Tamayo (2013) proved that CSR and firm value are positively related to firms with high customer awareness, which spend advertising expenses to generate goodwill. In contrast, Hu et al. (2018) found the opposite results.

Several studies show CSR has a positive impact on firm value (Chung et al., 2018; Harjoto & Jo, 2011; Murashima, 2020). Machmuddah et al. (2020) found a positive relationship between CSR disclosure and firm value at companies listed on the Indonesia stock exchange. They find that profitability was able to strengthen the influence of CSR on firm value. Jihadi et al. (2021) provide a different result; the interaction of profitability and CSR negatively affects firm value. Guo et al. (2020) found that CSR has a negative effect on firm value. Meanwhile, Rehman et al. (2020) found CSR has a negative effect on firm value; however, the relationship becomes positive after institutional ownership moderates the effect. Lee (2020) provides further evidence from tour and travel companies listed on Chinese stock markets to clarify the mixed results from previous studies. Based on panel data, he finds that CSR activity has a negative impact on firm value during a concurrent period; however, the effect becomes positive during the one-period and the two-period time lag.

Slack resource theory suggests that a firm with a surplus of funds can run the CSR activities continuously because CSR activities need a strong firm's financial support. The theory predicts that a firm with better performance is more likely to lead a surplus financial resource that provides a firm with the chance to invest more in CSR activities (Sial et al. 2018). They provide evidence that firm value has a positive effect on CSR reporting. At the same time, Jo and Harjoto (2011) examined the causal relationship between CSR and firm value in the system of simultaneous equation model. They find a positive causal relationship between CSR and firm value. Hypothesis 1 is stated as follows:

H1: There is a positive causal relationship between CSR and firm value.

2.2. Institutional Ownership and Firm Value

Institutional ownership is relevant to firm value for at least two reasons. First, institutional investors are run by professional and competent managers who are assigned according to their expertise to select and invest their funds in potential companies. Second, institutional ownership generally has a higher proportion of ownership than individuals who control the company (Pound, 1988). McConnel and Servaes (1990) provide evidence that institutional ownership has a positive effect on firm value. They also find corporate insider has a concave effect on firm value. Other studies show that the effect of institutional ownership on firm value is mixed, less robust, and sensitive to the type of CSR and other proxies of corporate governance and control variables in the system of simultaneous equation models (Harjoto & Jo, 2011; Jo & Harjoto, 2011).

Ferreira and Matos (2008) investigate the role of institutional ownership around the world. They find institutional ownership has a positive effect on firm value, however firm value has a negative impact on institutional ownership. Hypothesis 2 is stated as follows:

H2: There is a positive causal relationship between institutional ownership and firm value.

2.3. CSR and Institutional Ownership

The relationship between CSR and institutional owner-ship is unclear. There is maturity mismatching of the investment horizon between CSR and institutional owner-ship. According to myopic institutional theory, institutional investors tend to be more short-sighted than individual investors (Graves & Waddock, 1994; Hansen & Hill, 1991). CSR investment is concerned with generating goodwill (Friedman, 1970) and sustainable development policies, which tend to be long-term (Mahapatra, 1994; Sepetis, 2020).

According to efficient market theory (Fama, 1991), CSR can be viewed as a corporate action to make information available to the public. The information content of CSR disclosures is related to the company's future cash flows, and investment risks simultaneously responded to by investors. Graves and Waddock (1994) argued that institutional investors would tend to choose shares of companies with lower risk by choosing companies that have strong CSR performance. They support evidence that CSR has a positive impact on institutional ownership. Dhaliwal et al. (2011) found that CSR disclosure reduces a firm's cost of capital. Firms with a lower cost of capital will tend to have higher firm value. They also discovered that corporate social performance attracted institutional investors. While the net human and net community components of CSR, according to

Lyssimachou and Bilinski (2022), have a detrimental impact on institutional ownership.

An understanding of institutional investors' preferences for companies that implement CSR is important because institutional investors have enough power to influence the company's strategy. Institutional investors generally have a sufficient number of control shares to determine the direction and strategy of the company, including determining whether CSR is in line with their investment horizon and how to cover CSR expenses to acquire critical resources needed by the company (Harjoto et al., 2017).

Some studies provide empirical results on the effect of institutional ownership on CSR. Nurleni et al. (2018) examined the effect of institutional and managerial owner-ship on CSR disclosure in manufacturing companies listed on the Indonesia Stock Exchange. They find institutional ownership has a positive effect on CSR while managerial ownership has a negative effect. Dakhli (2021) found that Institutional ownership has a positive effect on CSR engagement, while managerial ownership shows a negative effect. However, Jo and Harjoto (2011) found that institutional ownership has a negative effect on CSR. While, Harjoto et al. (2017) provided evidence that institutional ownership does not strictly increase or decrease CSR; rather, institutional ownership is a concave function of CSR. Dyck et al. (2019) provided international evidence that institutional investors positively affect CSR. Hypothesis 3 is stated as follows:

H3: There is a positive causal relationship between CSR and institutional ownership.

3. Research Method

3.1. Sample and Data

The sample of this study is manufacturing companies listed on the Indonesia Stock Exchange with an observation period of 5 years from 2014 to 2018. The sample should meet the following criteria: All manufacturing companies listed on the Indonesia Stock Exchange (IDX); The company was consistently listed on the IDX over the analysis periods; The company's financial statements used in the calculations are available completely and clearly for the reporting year over the analysis periods; The company publishes financial statements with the financial year ending on December 31.

108 companies meet the sample criteria. Some companies did not allocate funds for CSR activities every year consecutively during the study period, so the data in the sample did not meet the time-series pattern. To minimize the probability of type II error, each observation is considered a single firm-year observation. Table 1 summarizes a single firm-year observation of companies that do not spend on CSR expenditures and companies that spend on CSR expenditures (hereafter firms without CSR and firms with CSR).

Table 1: Summary of Sample Number of Manufacturing Companies Listed on IDX

Year	Firm without CSR	Firm with CSR	Total Firms
2014	54	54	108
2015	47	61	108
2016	45	63	108
2017	40	68	108
2018	41	67	108
Total	227	313	540

Data in this study is company financial reports, including share ownership data, as well as stock market price data annually. The source of data for the company's annual financial statements is obtained from Osiris, while data on stock market prices are accessed through the Indonesia Stock Exchange.

## 3.2. Research Framework and Variable Measurement

Figure 1 integrates the three hypotheses into a triangle model of causal relationships among CSR, institutional ownership, and firm value equations. These relationships will be examined in the system of simultaneous equation model, whereas the system needs instrument variables that meet sufficient and necessary conditions for each equation.

3.2.1. Firm Value and Its Determinants

This study adopts market to book value of assets (MBA) as a measure of firm value, *MBA* is calculated as the book value of total assets minus the book value of equity plus the market value of equity divided by the book value of total assets (Ferreira & Matos, 2008; Rajan & Zingales, 1995). Firm value has related to fundamental factors of the firm, such as profitability, capital structure, and agency cost. These factors will be used as instrument variables of the MBA equation.

Chen and Chen (2011) investigated the effect of profitability and capital structure on firm value. They found that profitability has a positive impact on MBA, while capital structure as mediating variable has a negative impact on firm value. Jihadi et al. (2021) find that profitability and capital structure have a positive impact on MBA. Profitability is calculated as the net income divided by the book value of total assets (*ROA*) (Jihadi et al., 2021). The capital structure is calculated as the book value of debt divided by the book value of equity (*DER*) (Chen & Chen, 2011).

Wang (2010) provided evidence that agency cost has a positive effect on MBA. This study adopts the asset utilization ratio as a proxy of agency cost (*ACOST*), which
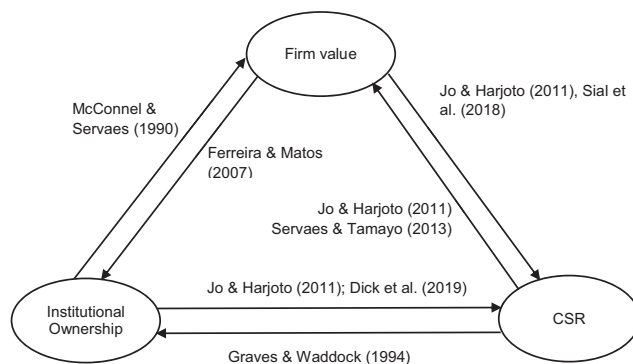
Figure 1: Triangle causal Relationship Among CSR, Institutional Ownership, and Firm Value

is calculated as annual sales divided by the book value of the total assets (Ang et al., 2000).

3.2.2. CSR and Its Determinants

This study measures CSR based on the company's annual expenditure to finance CSR activities. To control for differences in the size of CSR spending, the annual CSR expenditure is divided by the book value of total assets.

CSR activities are often associated with corporate governance mechanisms. This study uses independent commissioners (ICOM) and audit committee size (ACS) as instrument variables. ICOM is based on the number of independent commissioners, and ACS refers to a number of the audit committees. Previous studies provide empirical evidence that independent directors have a positive impact on CSR (Jo & Harjoto, 2011; Shu & Chiang, 2020) and audit committee size has a positive impact on CSR (Mohammadi et al., 2021), but Kassim et al. (2020) found that ACS has a negative impact on CSR.

To meets the necessary condition of identification in the system, this study adds profitability and firm size as instrument variables in the CSR equation. Profitability is calculated as earnings after tax divided by annual sales, called Net Profit Margin (NPM) (Nemlioglu & Mallick, 2017), while company size (SIZE) is calculated as the natural log of total assets (Harjoto & Jo, 2011).

3.2.3. Institutional Ownership and Its Determinants

Institutional ownership (IOWN) is measured by the total shares owned by the institution divided by the total shares outstanding (Harjoto et al., 2017). Instrument variables for the institutional ownership equation are capital structure and profitability (Chung & Zhang, 2011). Profitability refers to return on equity (*ROE*), which is calculated as net income after tax divided by the book value of equity, while capital structure refers to *DER*.

Other instrument variables of the IOWN equation are managerial ownership and asset intensity. Managerial ownership in Indonesia historically has a close relationship with the controlling owners, which are dominated by blockholders, who have long-term oriented and control of the company. The pattern of managerial ownership data in Indonesia shows the binomial distribution, hence the measurement with a dummy variable of managerial ownership (DMO) is more appropriate, DMO = 1 for companies with managerial ownership and 0 otherwise.

Asset intensity (ASIN) is calculated as the book value of total assets divided by sales (Nemlioglu & Mallick, 2017). Asset intensity measures information asymmetry in agency problems because managers can exercise discretion over increases and decreases in sales receipts (Chen et al., 2012). Asset intensity also reflects barriers to entry for new entrants. The higher this ratio, the larger the assets needed to control it. This ratio will take an economic scale efficiently when the business scale increases so that the barriers to entry are higher. This is relevant to institutional ownership which tends to have a larger asset size than the individual.

3.3. Model Estimation

This study uses a simultaneous equation model for hypothesis testing. The preliminary tests conducted in this study with the Hausman test provides evidence for simultaneity. The Generalized Method Moments (GMM) technique is used to estimate the parameter coefficients in the system of simultaneous equation model which consists of the three equations as follows:

$$MBA = \beta_{10} + \beta_{11} \, CSR + \beta_{12} \, IOWN + \beta_{13} \, ROA \\ + \beta_{14} \, ACOS + \beta_{11} \, DER + \varepsilon_1 \qquad (1)$$

$$CSR = \beta_{20} + \beta_{21} \, MBA + \beta_{22} \, IOWN + \beta_{23} \, ICOM \\ + \beta_{24} \, ACS + \beta_{25} \, NPM + \beta_{26} \, SIZE + \varepsilon_2 \qquad (2)$$

$$IOWN = \beta_{30} + \beta_{31} \, MBA + \beta_{32} \, CSR + \beta_{33} \, DMO \\ + \beta_{34} \, DER + \beta_{35} \, ASIN + \beta_{36} \, ROE + \varepsilon_3 \qquad (3)$$

Where:

Tick	Description
MBA	Market to book value; Book value of the total asset minus book value of equity plus the market value of equity, divided by book value of total assets
CSR	Corporate social responsibility; CSR expenditure divided by book value of total assets
IOWN	Institutional ownership; Total share of institutional ownership divided by total outstanding share

ICOM	Independent commissioner; Total number of an independent commissioner
ACS	Audit committee size; Total number of the audit committee
DMO	Dummy managerial ownership; Equal to 1 for a firm with managerial ownership, 0 otherwise
ACOS	Agency cost; Sales to book value of total assets
ASIN	Assets intensity; Book value of total assets to sales
DER	Debt to equity ratio; Book value of debt to book value of equity
ROA	Return on assets; Earning after tax divided by book value total assets
ROE	Return on equity; Earning after tax divided by book value total equity
NPM	Net profit margin; Earning after tax divided by sales
SIZE	Natural log of assets

4. Empirical Results

4.1. Univariate Analysis and Probit Regression

Table 2 shows descriptive statistics of variables on firms with and without *CSR*s. Based on the table, the mean and standard deviation of *MBA* and *SIZE* for firms with *CSR* are higher than for firms without *CSR*. The mean *IOWN* for firms with *CSR* is higher than for firms without *CSR,* but the standard deviation is lower. The same results are also found for *ACS*, *ROA*, *ROE,* and NPM. The mean *ICOM* firms with *CSR* are lower than firms without *CSR*, but the standard deviation is higher. The mean and standard deviation of ACOS firms with *CSR* is lower than firms without *CSR*. The same results are also found for DER, ASIN. Overall, the results of the descriptive statistics show the ratio and performance of firms with *CSR* are better than firms without *CSR*.

This study conducts a preliminary analysis to understand the characteristic differences between firms with and without *CSR*s. This study adopts the probit regression technique to analyze the probability of companies allocating funds for *CSR* expenditures. This technique refers to the studies of Jo and Harjoto (2011) and Harjoto and Jo (2011), which examine the differences between companies with and without *CSR*s engagement using probit analysis.

$$Pr\,[DCSR|Z] = Pr\,[DCSR|Z] = \Phi\,[\beta' \, Z] \qquad (4)$$

Where DCSR is a Dummy CSR equal to 1 if the firm expense for CSR activities and 0 otherwise. *Z* is a vector of firm value, institutional ownership, governance, agency

Table 2: Descriptive Statistics for Firm without *CSR* and Firm with *CSR*

Variables	Firm with *CSR*				Firm without *CSR*			
	Mean	Min.	Max.	Std. Dev.	Mean	Min.	Max.	Std. Dev.
MBA	2.1134	0.0720	23.2858	3.0919	1.6578	0.0391	16.3340	2.3662
CSR	0.0063	0.0000	0.3820	0.0349	0.0000	0.0000	0.0000	0.0000
IOWN	0.7002	0.0000	0.9852	0.2280	0.6593	0.0000	0.9827	0.2720
ACS	3.0735	2.0000	5.0000	0.3639	2.9295	1.0000	5.0000	0.4147
ICOM	0.3888	0.0000	0.8333	0.1073	0.4027	0.0000	0.6667	0.0980
ACOS	1.1901	0.0471	9.6903	1.0095	1.3153	0.0099	74.5011	4.9295
DER	0.6669	0.0005	5.7963	0.8350	0.9112	0.0139	9.0009	1.2722
ROA	0.0554	−0.2099	0.4666	0.0832	0.0420	−0.3918	0.9210	0.1095
ROE	0.0927	−0.8051	1.3585	0.1900	0.0800	−0.9556	2.2446	0.2569
NPM	0.0468	−0.6549	0.4459	0.0908	0.0003	−4.8428	1.9010	0.4625
ASIN	1.2360	0.1032	21.2292	1.3265	2.6103	0.0134	101.3822	9.0935
SIZE	12.4781	10.5598	14.7260	0.7651	12.2943	10.4866	14.0347	0.6831
DMO*	0.6390	0.0000	1.0000	0.4811	0.5595	0.0000	1.0000	0.4975
Observation Firm-year	313	313	313	313	227	227	227	227

Note: This table reports the descriptive statistics of variables for a firm with and without *CSR*s. Variables measurements are presented in Sub-section 3.2. *Dummy of managerial ownership is a binomial distribution.

cost, and other fundamental characteristics of a firm. β is a coefficient vector.

Table 3 reports the results of the five probit regression models. The results show that the likelihood of opting for a firm with CSR is significantly and positively related to MBA, IOWN ACS, and DMO. The positive effect of IOWN on the likelihood of opting for a firm with CSR is in line with Jo and Harjoto (2011). While ACS and CSR show a strong and positive relationship, Independent commissioners (ICOM) — another proxy of corporate governance indicate a negative and significant effect on CSR. On the other hand, Jo and Harjoto (2011) and Harjoto and Jo (2011) found a positive effect of independent boards on CSR. ROA and ROE have negative effects on the likelihood of opting for a firm with CSR that was reported in models 3 (ROE) and 5 (ROE and ROA). Contrarily, Jo and Harjoto (2011) find that profitability has a positive effect. In addition, the relationship between CSR and MBA is stronger when the profitability variables are included in model 5.

Asset intensity has a negative and significant effect on the likelihood of opting for a firm with CSR, while leverage has negative and significant effects on CSR. Size, as measured by the natural logarithm of total assets, has a positive effect on the likelihood of opting for a firm with CSR. The findings support previous evidence by Harjoto and Jo (2011) and Jo and Harjoto (2011).

4.2. Testing the Hypotheses

Next, the samples used in this subsection are companies that allocate funds for CSR activities. This study employs the GMM technique to estimate the parameter coefficients in the system of simultaneous equation models. There are 6 models presented in Table 4 (Models 1, 2, and 3) and Table 5 (Models 4, 5, and 6).

Model 1 is the initial model with model specifications as in equations [1], [2], and [3]. Model 1 in Table 4 shows there is a causal relationship between CSR and MBA, as well as IOWN and MBA. IOWN has a positive and significant impact on CSR, but CSR has a negative and insignificant impact on IOWN. These results confirm hypothesis 1 and hypothesis 2. While the result doesn't confirm hypothesis 3, CSR has no significant effect on IOWN.

Model 2 considers the non-linear effect of capital structure on firm value by controlling for the variable DER^2 in the MBA equation in Panel A. There are two rational reasons underlying the non-linear model of capital structure. First, the trade-off theory explains there are trade-offs between bankruptcy risk and tax savings from increasing debt. The higher the debt, the more it saves tax payments, but debtholders demand higher compensation for the risk of bankruptcy from the increase in corporate debt (Baxter, 1967). Second, the Balancing theory explains the balance

Table 3: Determinants of D*CSR*

Independent Variables	1	2	3	4	5
	Coef.	Coef.	Coef.	Coef.	Coef.
C	−1.959***	−2.067***	−2.035***	−4.07***	−4.334***
	(−3.22)	(−3.36)	(−3.34)	(−3.67)	(−3.76)
MBA	0.039*	0.056**	0.050**	0.04*	0.081***
	(1.92)	(2.54)	(1.98)	(1.72)	(2.74)
IOWN	0.395*	0.476**	0.435*	0.29**	0.415*
	(1.79)	(2.10)	(1.93)	(1.23)	(1.69)
ICOM	−1.216**	−1.186**	−1.054*	−1.18**	−1.020*
	(−2.22)	(−2.12)	(−1.90)	(−2.10)	(−1.78)
ACS	0.765***	0.730***	0.747***	0.73***	0.686***
	(4.07)	(3.84)	(3.96)	(3.74)	(3.52)
DMO		0.237**			0.23*
		(1.97)			(1.85)
ACOS		−0.024			−0.022
		(−1.15)			(−1.05)
ROE			−1.473**		−0.085**
			(−2.36)		(−2.32)
ROA			2.750*		−1.468**
			(1.95)		(−2.20)
NPM			0.348		2.028
			(1.19)		(1.28)
DER				−0.15***	−0.014
				(−2.67)	(−0.02)
ASIN				−0.08**	−0.157***
				(−2.21)	(−2.57)
SIZE				0.20***	0.210**
				(2.57)	(2.55)
McFadden R^2	0.0426***	0.0501***	0.0522***	0.0733***	0.0875***
LR statistic	(31.30)	(36.82)	(38.33)	(53.89)	(64.31)

Note: This table reports the coefficient of estimates from the Probit model that explains the determinants of D*CSR* activities. D*CSR* is a dummy variable of corporate social responsibility based on the firm with *CSR* expenses = 1 and 0 otherwise. The sample size for a firm with and without *CSR* expensewas 313 and 227 observations. Variables measurements are presented in Sub–section 3.2. The *z*-value is in parentheses except for the LR statistic. ***, **, and * statistically significant at the 1%, 5%, and 10% levels, respectively.

of agency costs of debt and equity. Bondholders have an interest in monitoring their debt capital in the company. The higher the debt, the higher the agency cost of debt and the lower the agency cost of equity, and vice versa. Therefore, there will be a balance mechanism between shareholders and bondholders in determining optimal agency costs (Jensen & Meckling, 1976).

Model 2 in Table 4 shows there are no different results conclusions for the hypothesis testing; however, it provides better results than model 1. First, the negative effects of *CSR* become significant on *IOWN*. Second, the goodness of fit model R^2 and adjusted R^2 increase in all equation panels. The effect of capital structure is convex and significant on the *MBA* as predicted. Agency cost has

Table 4: Causal Relationship Between CSR, Firm Value, and Institutional Ownership: Controlling the Effect of Capital Structure Trade-off and Corporate Governance

Variable Independent	1		2		3	
	Coef.	*t*-value	Coef.	*t*-value	Coef.	*t*-value
Panel A: Dependent Variable is Market to Book Value of Assets (MBA)						
Intercept	−3.8067	−4.49***	−3.8005	−4.48***	−3.6615	−3.43***
CSR	23.7373	2.30**	26.1926	2.78***	29.4692	3.06***
IOWN	7.2356	5.83***	6.7872	5.54***	6.1227	3.82***
ROA	14.2188	6.81***	15.6002	7.64***	15.2776	7.44***
ACOST	−0.1696	−1.68*	−0.1977	−2.20**	−0.1671	−1.92*
DER	0.0003	0.00	0.7443	2.54***	0.7922	2.74***
DER^2			−0.2195	−3.54***	−0.2236	−3.88***
ICOM					1.3028	0.95
ACS					−0.0891	−0.47
R^2	20.04%		25.63%		30.29%	
Adj. R^2	18.74%		24.18%		28.45%	
Panel B: Dependent Variable is Corporate Social Responsibility (CSR)						
Intercept	0.1250	5.91***	0.1168	6.56***	0.1163	6.46***
MBA	0.0009	2.36**	0.0016	4.42***	0.0016	4.05***
IOWN	0.0547	6.56***	0.0402	5.14***	0.0402	5.04***
ICOM	−0.0207	−2.98***	−0.0220	−3.39***	−0.0228	−3.40***
ACS	−0.0002	−0.12	0.0006	0.33	0.0006	0.33
NPM	0.0308	4.13***	0.0214	3.14***	0.0209	3.00***
SIZE	−0.0122	−7.44***	−0.0110	−7.92***	−0.0109	−7.74***
R^2	−5.10%		4.13%		4.12%	
Adj. R^2	−7.16%		2.25%		2.24%	
Panel C: Dependent Variable is Institutional Ownership (*IOWN*)						
Intercept	0.7185	27.08***	0.7377	29.17***	0.7402	28.76***
MBA	0.0315	3.29***	0.0230	2.42**	0.0207	1.98**
CSR	−1.1817	−1.25	−1.8984	−2.20**	−1.7217	−1.92**
DMO	−0.1107	−4.37***	−0.1239	−6.01***	−0.1271	−5.99***
DER	0.0374	3.49***	0.0497	5.95***	0.0499	5.98***
ASIN	−0.0069	−1.41	−0.0071	−1.41	−0.0066	−1.25
ROE	−0.2141	−2.45***	−0.1590	−1.77*	−0.1299	−1.31
R^2	7.25%		11.54%		12.50%	
Adj. R^2	5.43%		9.81%		10.79%	

Note: This table uses Simultaneous Equation Model in the system equation. GMM in the system estimates the coefficient of parameters. The variable measurements are presented in Sub-section 3.2. ***, **, and * statistically significant at the 1%, 5%, and 10% levels, respectively.

a negative and significant effect on *MBA* stronger than model 1.

Model 3 controls corporate governance aspects — ICOM and ACS — for the MBA equation in Panel A. The results for hypothesis testing are not different from model 2. ICOM and ACS as a proxy of corporate governance, have no significant impact on MBA. While the effect of ROE on IOWN in Panel C, which was originally negative and significant in models 1 and 2 becomes insignificant in model 3.

Research findings in models 1, 2, and 3 show that agency issues are more dominant than corporate governance indirectly influencing firm value. The effect of corporate governance does not directly affect the value of the company but through CSR. ICOM has a significant negative impact on CSR in models 1, 2, and 3, while the effect of ACS is not significant. Other instrument variables considered in the research model showed mixed results. NPM has a positive and significant effect on CSR, while size has a negative and significant effect on all models 1, 2, and 3. ASIN as a representation of asset intensity has a negative but not significant impact on IOWN. The research findings confirm hypotheses 1 and 2 and do not confirm hypothesis 3.

Does CSR have a negative effect on institutional ownership? The next step investigates the role of managerial ownership in executing CSR activities, which brings about potential conflicts of interest between agents and principals. Barnea and Rubin (2006) argued that managers tend to over-invest in CSR activities. They find insider ownership and leverage to be negatively related to firms' CSR ratings. Surroca et al. (2018) provided empirical evidence that the combination of entrenchment strategies and the implementation of CSR action has a negative effect on firm performance. The model is modified by adding the interaction variables between DMO*CSR in the IOWN equation as follows:

$$
\begin{aligned}
\text{IOWN} = {} & \beta_{30} + \beta_{31}\,\text{MBA} + \beta_{32}\,\text{CSR} + \beta_{33}\,\text{DMO} \\
& + \beta_{34}\,\text{DER} + \beta_{35}\,\text{ASIN} + \beta_{36}\,\text{ROE} \\
& + \beta_{37}\,\text{DMO} * \text{CSR} + \varepsilon_3
\end{aligned} \tag{5}
$$

Hypothesis 3 is confirmed if $\beta_{32} + \beta_{37} > 0$, it means that *CSR* has a positive effect on *IOWN* for a firm with managerial ownership. Model 4 in Table 5 presents the results of the equation [18]. The results show that the interaction effect of DMO*CSR is positive and significant on IOWN, while CSR has a negative and significant effect on IOWN. The results indicate that the effect of CSR on IOWN is negative for companies without managerial ownership with a parameter coefficient of –1.2588, and positive for companies with managerial ownership with a parameter coefficient of 2.5949 – 1.2588 = 1.3361 (meet the criteria $\beta_{32} > \beta_{37} > 0$). Thus, managerial ownership plays an

important role in the positive effect of *CSR* on *IOWN*. These results confirm hypothesis 3.

Models 5 and 6 by adding trade-off/balancing capital structure and corporate governance provide consistent results to model 4. The research findings robustly confirm hypotheses 1, 2, and 3. However, inconsistent results occur in the effects of instrument variables. The effect of NPM on CSR which was originally positive and significant in models 1, 2, 3, and 4 became insignificant in models 5 and 6. Likewise, the effect of ROE on IOWN which is initially negative and significant in models 1, 2, 3, 4, and 5 becomes insignificant in model 6. While the effect of ASIN on IWON is only significant in model 4, and not significant in other models.

5. Conclusion

This study develops an empirical study model of the causal relationship triangle of CSR, firm value, and institutional ownership. Previous studies have discussed the relationship between CSR and firm value, institutional ownership and CSR, or corporate ownership and firm value separately. This study considers the endogeneity factor, which leads to analysis bias if it is not controlled (Jo & Harjoto, 2011). The research sample in this study is a manufacturing company listed on the Indonesia Stock Exchange with an observation period of 2014–2018. This study uses a simultaneous equation model in the system with the GMM technique to estimate the parameter coefficients.

The conclusion of the hypothesis testing of this study can be summarized as follows. First, the results of this study confirm hypothesis 1 that there is a positive causal relationship between CSR and firm value. This relationship is strengthened by the existence of a capital structure trade-off model in the firm value equation. Leverage has a convex and significant effect on firm value. Meanwhile, the inclusion of corporate governance in the model does not contribute significantly to firm value and the research hypothesis. Second, the results of the study confirm hypothesis 2 that there is a positive causal relationship between institutional ownership and firm value. The relationship is consistent in the model before and after the control variables are considered in all analysis models. Third, hypothesis 3 regarding the positive causal relationship between CSR and institutional ownership has a different pattern. Institutional ownership has a positive and significant effect on CSR, while the effect of CSR on institutional ownership is divided into two directions; CSR has a negative and significant impact on institutional ownership in companies without managerial ownership, but CSR has a positive and significant impact on institutional ownership in companies with managerial ownership. The difference in these effects is consistent both before and after controlling for the trade-off of capital structure and corporate governance in the *MBA* equation.

Table 5: Causal Relationship Between *CSR*, Firm Value, and Institutional Ownership: Controlling the Effect of Managerial Ownership

Variable Independent	4		5		6	
	Coef.	*t*-value	Coef.	*t*-value	Coef.	*t*-value
Panel A: Dependent Variable is Market to Book Value of Assets (*MBA*)						
Intercept	–3.6949	–4.54***	–3.6839	–4.50***	–3.6798	–3.56***
CSR	21.8234	2.22**	26.9030	2.98***	30.8366	3.32***
IOWN	7.1233	6.01***	6.6118	5.61***	6.5650	4.26***
ROA	15.6498	7.59***	16.9399	8.47***	16.4727	8.19***
ACOST	–0.3035	–3.19***	–0.3029	–3.51***	–0.2454	–2.87***
DER	0.0988	0.65	0.8327	2.88***	0.8428	2.96***
DER^2			–0.2033	–3.26***	–0.2096	–3.63***
ICOM					1.2825	0.94
ACS					–0.1755	–0.95
R^2	21.36%		27.63%		29.07%	
Adj. R^2	20.08%		26.21%		27.20%	
Panel B: Dependent Variable is Corporate Social Responsibility (*CSR*)						
Intercept	0.1077	5.51***	0.1062	6.21***	0.1045	5.90***
MBA	0.0013	3.84***	0.0020	5.87***	0.0021	5.42***
IOWN	0.0346	4.56***	0.0207	2.90***	0.0197	2.61***
ICOM	–0.0174	–2.70***	–0.0199	–3.18***	–0.0218	–3.27***
ACS	0.0001	0.04	0.0011	0.63	0.0014	0.78
NPM	0.0167	2.58***	0.0071	1.18	0.0068	1.13
SIZE	–0.0099	–6.35***	–0.0093	–6.79***	–0.0092	–6.42***
R^2	5.10%		11.58%		11.88%	
Adj. R^2	3.24%		9.85%		10.15%	
Panel C: Dependent Variable is Institutional Ownership (*IOWN*)						
Intercept	0.7213	26.51***	0.7496	29.28***	0.7507	28.82***
MBA	0.0326	3.21***	0.0233	2.36**	0.0212	1.97**
CSR	–1.2588	–1.33	–2.5457	–2.94***	–2.3917	–2.65***
DMO	–0.1177	–4.41***	–0.1500	–6.91***	–0.1504	–6.82***
DER	0.0353	3.13***	0.0509	5.94***	0.0510	5.95***
ASIN	–0.0083	–1.72*	–0.0079	–1.64*	–0.0072	–1.44
ROE	–0.2280	–2.44***	–0.1694	–1.78*	–0.1429	–1.39
DMO*CSR	2.5949	1.67*	4.3163	2.58***	4.2159	2.27**
R^2	5.84%		8.30%		9.46%	
Adj. R^2	3.68%		6.20%		7.38%	

Note: This table uses Simultaneous Equation Model in the system equation. GMM in the system estimates the coefficient of parameters. The variables measurements are presented in Sub-section 3.2. ***, **, and * statistically significant at the 1%, 5%, and 10% levels, respectively.

This study has not investigated in depth why corporate governance represented by ICOM and ACS has no effect on firm value. ICOM has a negative effect on CSR, while ACS has no effect. The previous study shows independent boards have a negative effect on firm value (Jo & Harjoto, 2011). This needs more in-depth investigation for further studies. This study also has not distinguished whether the non-linear effect of capital structure on firm value is relevant to the trade-off theory of bankruptcy risk and tax savings (Baxter, 1967) or the balancing theory of equity-debt agency costs (Jensen & Meckling, 1976). This issue is also interesting to get more attention for further research.

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