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Bi-directional in sustainability reporting and profitability: A study in Indonesian banks and non-banks

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Abstract

We investigate the sustainability reporting differences in banks and non-banks sample firms and investigates reserve causality between sustainability reporting and profitability. The independent-sample t-test implemented to analyze the differences. The results report evidence that there are differences in sustainability reporting between the banks and non-bank. The average score of the sustainability reporting index in banks is higher than non-bank. The multiple regressions implemented in reserve causality between sustainability reporting and profitability. The empirical evidence shows that there is a negative relationship between sustainability reporting and profitability. We suggest that sustainability is merely a cost. The bi-directional relationship emerges in the economic and social dimension of sustainability reporting index. This result indicates that sustainability reporting influences firm performance and vice versa.

Abstrak

Kami menyelidiki perbedaan pelaporan keberlanjutan di bank dan perusahaan sampel non-bank dan menyelidiki reserve causality *antara pelaporan keberlanjutan dan profitabilitas. Uji-sampel independen dilaksanakan untuk menganalisis perbedaan. Hasilnya membuktikan bahwa ada perbedaan dalam pelaporan keberlanjutan antara bank dan non-bank. Skor rata-rata indeks pelaporan keberlanjutan di bank lebih tinggi daripada non-bank. Berbagai regresi diimplementasikan dalam* reserve causality *antara pelaporan keberlanjutan dan profitabilitas. Bukti empiris menunjukkan bahwa ada hubungan negatif antara pelaporan keberlanjutan dan profitabilitas. Kami menyarankan bahwa keberlanjutan hanyalah biaya. Hubungan dua arah muncul dalam dimensi ekonomi dan sosial dari indeks pelaporan keberlanjutan. Hasil ini menunjukkan bahwa pelaporan keberlanjutan memengaruhi kinerja perusahaan dan sebaliknya.*

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1. Introduction

Many studies attempted to analyze the relationship between sustainability reporting and company performance in recent years, but there are no conclusive results. Some studies support the argument that there is a positive relationship between sustainability reporting and firm performance, but other studies reported negative and neutral/mixed results. Gaspar (2013) compiled the results of 159 research in the correlation between sustainability and accounting/market matrics base on National Business Sustainability from 1972 to 2008. The result depicted in Table 1.

Table 1 describes the inconclusive results, even though the most results are positive 68 percent in accounting metrics and 51 percent in market metrics). In accounting metrics, the second largest is a negative relationship (23 percent), while in the market metrics are neutral/mixed results (24 percent). The lowest relationship results in accounting are neutral/mix (20 percent) while in market metric is negative (21 percent).

Some recent empirical evidence in sustainability and financial performance shows mixed results as well. Some empirical studies support the arguments that sustainability reporting increases firm performance Bartlett (2012), Kusuma & Koesrindartoto (2014), Haryono et al. (2016), Nnamani et al. (2017), Weber (2017), Whetman (2017), Diantimala (2018), Gunarsih & Ismawati (2018)), while some studies found that there is no relationship between sustainability reporting to firm performance Utami (2015) and Sejati & Prastiwi (2015). The mixed results found in Xie (2015). Xie (2015) investigates the relationship between corporate social responsibility (CSR) as the dependent variable and organizational financial performance Tobin's Q and ROA) as an independent variable and some control variables. Tobin's q is statistically positive significant, while ROA is statistically negative significant. These results suggest that the market value drives CSR positively, while book value drives CSR negatively. The control variable, firm size has a significant positive coefficient; this indicates that the larger the firm size, the higher the CSR.

Xie (2015) also analyze the causality relationship between CSS and CFP. Two sample firms, Apple and Nike, analyzed further using Granger Causality test. Gaspar (2013) gives insight into the relationship between sustainability and financial performance, just like the relationship between chicken and eggs. Do better sustainability practices lead to improved business results, or does the availability of funds lead to increased investments in sustainability? Empirical evidence, as mentioned before, support both relationships.

Other studies investigate the bi-directional relationship. Fodio, Abu-Abdissamad, & Oba (2013) and Uwuigbe et al. (2018) conducted a bi-directional relationship between sustainability reporting and firm performance in different proxies and different industries. Fodio et al. (2013) found a reserve causality between sustainability and firm performance. Uwigbe et al. (2018), base on data in quoted Deposit Money Banks (DMBs) in Nigeria, found a bi-directional relationship between those two variables as well. The inconclusive results of the study about the relationship between sustainability and firm performance and also the bi-directional research in different industries motivate this research to investi-

Table 1. Results of 159 studies in sustainability reporting and accounting/market metrics from 1972-2008.

	Percentage of total studies analyzed (%)		
	Positive	**Negative**	**Neutral/Mix**
Accounting Metric	68	23	20
Market Metric	51	21	24

Source: Gaspar (2013)

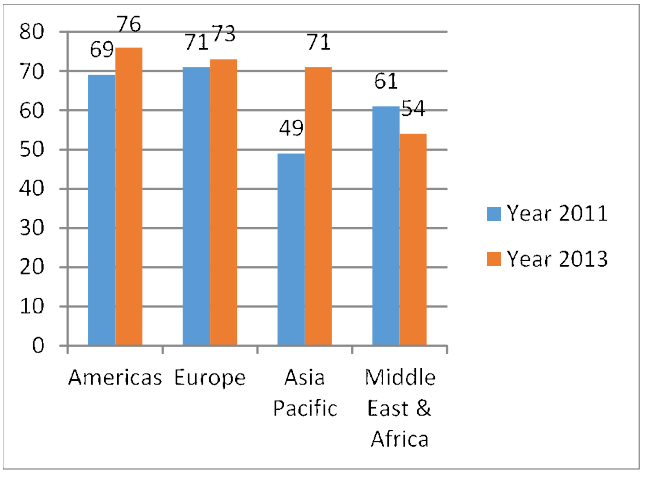
gate further about sustainability report and financial performance. This study analyzes the bi-directional relationship between sustainability reporting and financial performance in the bank and non-bank listed companies in Indonesia Stock Exchange.

This study also compares the sustainability reporting between banks and non-banks. This comparison is interesting since banks are highly regulated institutions. A Sustainability Reporting (SR) is a report published by a company or organization about the economic, environmental, and social impacts caused by its everyday activities (GRI, 2016). SR report implemented in all industry, including banks and non-banks. While the banks are highly regulated Regulation by Central Bank (Bank Indonesia) and also regulation by Financial Service Authority (OJK)), the non-banks are not highly regulated as banks.

2. Hypotheses Development

Sustainability reporting is a non-financial report that consists of three elements, which are economic performance, environmental performance, and social performance. Sustainability reporting is prepared to base on The Global Reporting Initiative (GRI) Standards. The GRI Standards structured as a set of interrelated standards. The standards developed primarily to be used together to help an organization prepare a sustainability reporting, which is based on the reporting principles and focuses on material topics (GRI, 2016). In Indonesia, in line with GRI, sustainability reporting is regulated by the Financial Service Authority (FSA), as regulation number 51/POJK.03/2017 Date July 18th, 2018. The regulation is mandatory for financial service institutions as well as public companies with the year book ending 1 January to 31 December 2019.

The growing of sustainability reporting across Europe, the Americas, Asia, and the rest of the world were marked. KPMG (2013) reported CR reporting in 4100 companies comprises of 100 largest companies in 41 countries and four regions, Americas, Europe, Asia Pacific, and Middle East & Africa as in Figure 1. Figure 1 compares the percentage of CR reports in the year 2011 and 2013 in four regions. There are increasing percentages in the three areas, but there is one decreasing percentage in the Middle East & Africa. The highest rate in 2011 is Europe (71 percent), but in 2013 the Americas company encompass Europe (76 percent compared to 73 percent). Asia Pacific companies have the most significant increasing percentage number, from 49 percent in 2011 to 71 percent in 2013 and suggest that more companies that published CR reports.



Source: KPMG (2013)

Figure 1. Corporate responsibility reporting by region (percentage of companies with CR reports)

Karagiorgos (2010) investigates the relationship between CSR and firms' financial performance in Greek firms based on stakeholder theory. The study shows that there is a positive correlation between stock returns and CSR performance in Greek companies.

Nnamani et al. (2017)'s study reveals that sustainability reporting has a positive and significant effect on the financial performance of firms studied. Weber (2017) investigates the causality between financial performance and sustainability performance in Chinese banks. The results show that there is a bi-directional causality between those two vari-

ables. Whetman (2017) examines how corporate sustainability reporting affects the financial performance of firms and find a positive and significant effect of sustainability reporting on a firm's return on equity, return on assets, and profit margin in the subsequent year. Amacha & Dastane (2017) investigate the relationship between sustainability practices and financial performance. Three profitability parameters were chosen in the Malaysian Oil and Gas sector. The result shows that the relationship between sustainability practices and better business performance is stable and significant. This result suggests that the companies that practiced sustainability were found to perform better than their counterparts that did not.

Some studies also conducted in Indonesia. Utami (2015) examined the disclosure index as the proxy of the quality of sustainability and Tobin's Q as the proxy of the firm's value. Other variables that predicted to firm value were leverage and profitability. The moderating variable in her study is revenue growth. Using samples of listed companies in manufacturing industries listed in Indonesian Stock Exchange year 2011-2013, the result of her research suggests that the quality of sustainability disclosure does not have a significant influence on firm value. Revenue growth has a role as a moderating variable that makes stronger the relationship between the quality of sustainability disclosure and firm value. The result of the study in Sejati & Prastiwi (2015) suggests that the three indicators of the sustainability report, the disclosure of economy performance, environment performance, and social performance do not have significant relation to firm performance and firm value. Haryono et al. (2016), employing data from mining firms in Indonesia find that corporate social performance improvement can be served to increase organizational financial performance.

Uwuigbe et al. (2018) conducted a study about the bi-directional relationship between sustainability reporting and firm performance. This study provides an insight into the quoted Deposit Money Banks (DMBs) in Nigeria. The population of this study is all deposit money banks quoted on the floor of the Nigerian Stock Exchange. Uwuigbe et al. (2018) applied the panel regression technique to analyze the data. The empirical findings show that there is a bi-directional relationship between sustainability reporting and firm performance of quoted Deposit Money Banks (DMBs) in Nigeria.

Fodio et al. (2013) analyzed the reserve causality between corporate social responsibility and financial performance (market value). The regression model was implemented to examine the impact of CSR on business performance and the impact of economic performance on CSR. The study found a robust positive significant effect of CSR proxies (Human Resource Management and Community Development) on market value. The reserve causality also supported in the study; there was an impact of positive earnings in the previous year are significant instruments in estimating CSR.

Prior studies in Indonesia show mix results. Some support the argument that sustainability performance will increase firm value while other empirical evidence shows that the quality of sustainability disclosure does not have a significant influence on firm value. That inconsistency of the finding motivates the study about the impact of sustainability reporting on firm performance and then further test the bi-directional causality between them. The hypothesis in this study is that there is a bi-directional between sustainability reporting and financial performance.

3. Method, Data, and Analysis

An independent sample t-test is conducted in this study to compare the sustainability reporting between banks and non-banks, and regression analysis is implemented to test the hypothesis. The regression model in this study is as Fodio et al. (2013), that analyzed the reserve causality between

sustainability reporting and financial performance. Samples and variables described as follows. The bi-directional analysis may implement Granger causality test as in Gunarsih et al. (2018), and may implement regression model as in Fodio et al. (2013) and Uwuigbe et al. (2018). Subject to data limitation, this study implement the regression model.

Samples in this study are banks and non-banks companies listed in Indonesia Stock Exchange in 2014-2017. The samples are selected using purposive sampling based on the criteria banks and non-banks listed companies that published sustainability reporting in 2014-2017.

Variables in this study are profitability measured by return on assets (ROA) as the proxy of financial performance and Sustainability Reporting Index (SRI) as total average SRI and the three dimensions of SRI comprises of the economic aspect, environment dimension, and social dimension. The index developed base on GRI guidelines and the use of content analysis and coded to obtain the sustainability disclosure index. The four formulas implemented in SRI computed as follows.

Economic dimension

$$SRDI_{ec} = \frac{n}{k} \quad (1)$$

Where: $SRDI_{ec}$ = SR Disclosure Index economic dimension; n= total number of levels disclosure in economic dimension disclosed by the company; k= total item of economic dimension published by the company

Environment dimension

$$SRDI_{env} = \frac{n}{k} \quad (2)$$

Where: $SRDI_{env}$ = SR Disclosure Index environment dimension; n= total number of level disclosure in environment dimension disclosed by the company; k = total item of environment dimension disclosed by the company

Social dimension

$$SRDI_{soc} = \frac{n}{k} \quad (3)$$

Where: $SRDI_{soc}$= SR Disclosure Index social dimension; n = total number of level; disclosure in social dimension disclosed by the company; k= total item of social dimension published by the company.

SR average

$$SRI = \frac{SRDIec + SRDIenc + SRDIsoc}{3} \quad (4)$$

Where: SRI = SR average

4. Results

This section describes the statistic descriptive, independent sample t-test to test the comparison of sustainability reporting between banks and non-banks and regression results to test the hypothesis.

Descriptive Statistics

The statistic descriptive depicted in Table 2. The highest number of SRI means is the economic dimension (4.37) followed by the social aspect (4.18), and the lowest is the environment (3.78). The minimum number of $SRDI_{ec,}$ $SRDI_{env,}$ $SRDI_{soc}$ are 2,0 and one, respectively. The 0 number mean of $SRDI_{env}$ occurs because there is a sample firm that doesn't disclose the environmental dimension in SR. The maximum number of $SRDI_{ec,}$ $SRDI_{env,}$ and $SRDI_{soc}$ are 5. These suggest that there are sample firms that fully applied in those three dimensions. ROA is the dependent variable, while revenue is the proxy of firm size. The negative value of ROA due to negative profit (substantial loss) of the sample firm. The revenue variable measured in a million rupiah, then in the regression model, the revenue transformed to ln.

Total samples in this study are 99 companies consist of banks and non-banks listed companies. Bank as an intermediary financial institution is highly regulated, then exciting to compare the SRDI between banks and non-banks sample. Figure 2 provides information about the $SRDI_{ec,}$ $SRDI_{env,}$ and $SRDI_{soc}$ and SRI average of banks and non-banks samples. The mean average of the three indexes seems higher in banks than non-banks.

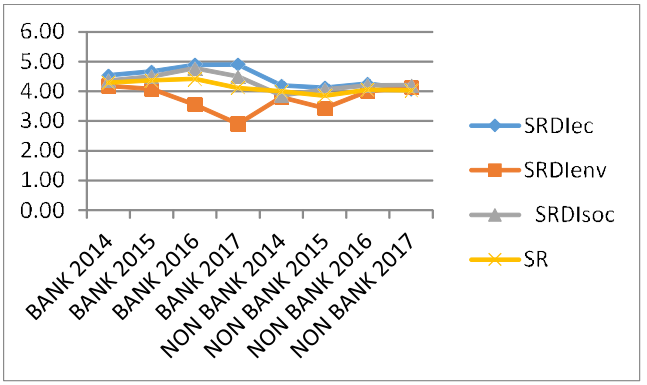


Figure 2. SRDI comparison between banks and non-banks in 2014-2017

This study conducted a test of the SRDI differences between banks and non-bank sample firms using an independent sample t-test. The samples of this study comprises of seven industries out of nine industry classification in IDX, they are agriculture; basic industry and chemical; miscellaneous industry; property, real estate and building construction, infrastructure, utilities and transportation; finance; and trade, service and investment. Subject to data limitation in all industries, the sample divided into two categories, finance (bank), 42 observations and 57 observations otherwise.

The results of the independent sample t-test are as in Table 3 and 4. Table 3 describes the group statistics. The total number of bank firms is 42, while non-banks are 57. The mean, standards deviation and standard error mean of the two groups are as in Table 3.

Table 4 illustrates the significance of the mean difference between the two groups of samples in each variable. The t value of $SRDI_{ec}$ is -4.448 sig at α 1%, suggests that there is a difference of $SRDI_{ec}$ be-

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Dev
$SRDI_{ec}$	99	2	5	4.37	0.774
$SRDI_{env}$	99	0	5	3.78	1.186
$SRDI_{soc}$	99	1	5	4.18	0.818
SRI	99	2.13	5.00	4.1108	0.70048
ROA	99	-12.00	18.26	3.5790	4.53205
REVENUE	99	2106	206057	33552.10	40805.710
Valid N (listwise)	99				

Table 3. Independent sample t test: Group statistics

Groups		N	Mean	Std. Dev.	Std. Error Mean
$SRDI_{ec}$	Non-Bank	57	4.11	0.780	0.103
	Bank	42	4.73	0.609	0.094
$SRDI_{env}$	Non-Bank	57	3.80	0.798	0.106
	Bank	42	3.75	1.578	0.244
$SRDI_{env}$	Non-Bank	57	4.00	0.790	0.105
	Bank	42	4.43	0.800	0.123
SRI	Non-Bank	57	3.97	0.655	0.087
	Bank	42	4.30	0.723	0.112

tween non-bank and bank sample firms. The mean difference is -0.621, which indicates that the $SRDI_{ec}$ non-bank is lower than the bank. The t value of $SRDI_{env}$ is 0.213, not statistically significant; this means that there is no difference of $SRDI_{env}$ between non-bank and bank sample firms. The t value of $SRDI_{soc}$ is -2.628 statistically significant at α= 5%; this means that there is a difference of $SRDI_{soc}$ between non-bank and bank sample firms. The mean difference is -0.425 suggests that the $SRDI_{soc}$ non-bank is lower than bank sample firms. The t value of SRI is -2.369, significant at α= 5%, and this means that there is a difference of SRI between non-bank and bank sample firms. The mean difference is -0.3298. This number implies that the SRI of non-bank is lower than bank sample firms.

Regression results

The regression results summarized in Table 5 (ROA as the dependent variable and SRDI and revenue as independent variables and Table 6 (ROA and revenue as independent variables and SRDI as the dependent variable. Subject to data limitations (99 observations), the regressions are multiple regression with one primary variable and one control variable. Hair et al. (2014) suggest that the ratio between independent variables and the number of observations is 1:15 to 1:20. Other possible control variable is industry classification, but it wasn't implement in this study, because of data limitation and other study shows that there is no impact of industry dummy in the relationship between sustainability reporting and firm performance (Gunarsih, Transistari, & Rudatin, 2019).

The four regression results with ROA as the dependent variable depicted in Table 5. Model 1 has an F value 4.312 significant at α= 5% and low R^2 0.082. The independent variables, $SRDI_{ec,}$ have t value -2.914, significant at α= 1%. The model 2 has an F value 0.077, and the model is not significant. The F value of model 3 is 3.050, significant at á= 10% with low R^2 (0.060). The t value of $SRDI_{soc}$ is -2.443 significant at α= 5%. Model 4 has F value 2.273 and sig 0.109, suggests that the model is not significant. These negative relationship results described that sustainability reporting is merely a cost.

Another four regression results are as in Table 6. The F value of model 5 is 7.091 significant at α= 1%. ROA in model 5 has t value -2.914 significant at α= 1%, and R^2 is 0.129. The negative sign suggests that the higher the ROA, the lower the $SRDI_{ec}$. The control variable significant as well at α= 5% with a positive sign. Model 6 has an F value of 0.018 and not statistically significant. Model 7 has F value 4.745, significant at α= 5%, and R^2 is 0.090. The t value of ROA in model 7 is -2.443, significant at α= 5%. The negative sign of coefficient suggests that ROA hurts $SRDI_{soc}$. Model 8 has R^2 0.094, and the F value is 4.982 significant at á= 1%. ROA in model 8 has t value -2.101 significant at α= 5%. The negative sign of the coefficient suggests that ROA hurts SRI.

The reserve causality between ROA and SRD shows that there is bi-directional causality between them, especially in $SRDI_{ec}$ and $SRDI_{soc}$. The empirical evidence is shown in model 1 and 5 and model 3 and 7. Model 1 gives empirical evidence that there is a negative impact between $SRDI_{ec}$ and ROA. The reserve causality is seen in model 5 that there is a

Table 4. Independent sample t test: Mean difference

	F value*)	Sig.	t value**)	Sig.	Mean difference
$SRDI_{ec}$	6.487	0.012	-4.448***	0.000	-0.621
$SRDI_{env}$	13.839	0.000	0.213	0.832	0.057
$SRDI_{soc}$	0.514	0.475	-2.628**	0.010	-0.425
SRI	0.122	0.728	-2.369**	0.020	-0.3298

Note: *) Levene's Test for Equality of Variances **) t-test for Equality of Means ***) significant at α=1% **) significant at α=5%

negative impact between ROA and $SRDI_{ec}$. Other empirical evidence of reserve causality between ROA and SRD. Model 3 shows that there is a negative relationship between $SRDI_{soc}$ and ROA, while model 7 indicates that there is an adverse impact between ROA and $SRDI_{soc.}$ The reserve causality suggests that there is a bi-directional between ROA and $SRDI_{soc.}$ The result of this study supports the hypothesis that there is a bi-directional between sustainability reporting and financial performance, but both signs are negatives.

5. Discussion

This study analyzes the sustainability reporting differences between bank and non-bank. The results indicate that there is a difference in both groups. The average of sustainability reporting index in banks are higher than in non-banks. The results give empirical evidence that in a more regulated industry, the compliance to sustainability reporting is better. FSA produce some regulations to financial services institution as well as public companies. Financial service institutions, including Banks, will also be regulated by the Bank Indonesia. The bank listed companies should comply with the FSA and Bank Indonesia as well.

This study also attempts to test the hypothesis of bi-directional between sustainability reporting and financial performance. The results of this study show that there is a negative relationship between sustainability reporting and profitability and vice versa. This reserve causality supports the hypothesis that there is bi-directional causality between sustainability reporting and profitability. The negative signs of causality inform that sustainability reporting is merely a cost.

Table 5. Regression results of ROA as dependent variable

	ROA (1)	ROA(2)	ROA(3)	ROA(4)
$SRDI_{ec}$	-1.714***			
	(-2.914)			
$SRDI_{env}$		-0.067		
		(-0.172)		
$SRDI_{soc}$			-1.362 **	
			(-2.443)	
SRI				-1.393**
				(-2.101)
LN_REV	0.446	0.167	0.352	0.371
	(1.022)	(0.373)	(0.805)	(0.833)
R Square	0.082	0.002	0.060	0.045
F	4.312**	0.077	3.050*	2.273
Sig.	0.016	0.926	0.052	0.109

Note: *** significant at α=1%, ** significant at á=5% * significant at α=10%; t value in parentheses

Table 6. Regression results of ROA as independent variable

	$SRDI_{ec}$ (5)	$SRDI_{env}$ (6)	$SRDI_{soc}$(7)	SRI(8)
ROA	-0.047***	-0.005	-0.043**	-0.032**
	(-2.914)	(-0.172)	(-2.443)	(-2.101)
LN_REV	0.176**	0.151	0.150*	0.159**
	(2.490)	(1.316)	(1.964)	(2.430)
R Square	0.129	0.018	0.090	0.094
F	7.091***	0.873	4.745**	4.982***
Sig.	0.001[b]	0.421[b]	0.011[b]	0.009[b]

Note: *** significant at α1%, ** significant at α5% * significant at α10% t value in parentheses

The negative sign in the accounting metric of financial performance is in line with 23% empirical results, as in Gaspar (2013). The negative sign of this relationship supports Xie (2015) that analyzed CSR as the dependent variable and Tobin's Q and ROA as independent variables. One of the results in Xie (2015) is that ROA is statistically negative significant while Tobin's Q is statistically positive significant. According to Xie (2015), the book value dives CSR negatively.

The reserve causality between sustainability reporting and profitability supports Uwuigbe et al. (2018) and Fodio et al. (2013) that conducted the bi-directional relationship between sustainability reporting and firm performance. This study differs from Uwuigbe et al. (2018) and Fodio et al. (2013) in terms of industry and the proxies. Uwuigbe et al. (2018) and Fodio et al. (2013) analyzed the firms in financial services, while samples in this study are banks and non-bank listed companies. Fodio et al. (2013) implement CSR proxies as a Human Resource Management and Community Development while this study implements Sustainability Disclosure Index as GRI (2013).

6. Conclusion

The objectives of this study are to investigate the sustainability reporting differences in banks and non-banks sample firms and to investigate a reserve causality between sustainability reporting and profitability. This study implements the independent-sample t-test to analyze the differences and multiple regressions to analyze the reserve causality between sustainability reporting and profitability. The result of the independent-sample t-test suggests that there are differences in sustainability reporting between the bank and non-bank, and the average score of sustainability reporting index in banks is higher than non-bank. The results of multiple regressions show that there is a negative relationship between sustainability reporting and profitability. The results suggest that sustainability is merely a cost. The bi-directional relationship emerges in the economic and social dimension of sustainability reporting index. This result indicates that sustainability reporting influences firm performance and vice versa in both aspects of sustainability reporting disclosure.

The negative sign on the relationship between sustainability reporting and financial performance remains a question to further research. One of the theories, good management theory predicts that there is a positive relationship between sustainability and firm performance. This study subject to data limitations so that the entire sustainability reporting dimension index does not include in the multiple regression. Further research with more data can be conducted to reexamine the relationship between the sustainability reporting dimension index and financial performance in the future.

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