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A Combine Effect of Firm Characteristics and Corporate Social Responsibility on Supply Chain Performance

Mohd Haizam Mohd Saudi[#1], Aida Wijaya[#2], Dini Arwaty[#3], Dr. Fazluz Zaman[*4], Dyah Purnamasari[#5]

[1,2,3,5] Widyatama University

[4*]Institute of Business and Management, Australia

*fazluzzaman@gmail.com

Abstract--- Objective of this study is to examine the role of firm characteristics in supply chain performance (SCP) with mediating role of corporate social responsibility (CSR). Various lower income countries are facing different issues in supply chain which has effect on SCP. These issues are related to the firm characteristics. Firm characteristics include; size and ownership. Additionally, this study examined the mediation effect of CSR between firm characteristics and SCP. 500 questionnaires were distributed to get the response of supply chain employees in Indonesian supply chain companies. The companies only dealing with supply chain were selected to get response. The companies which were involved in other activities are not included in the survey. After data collection, data were examined through structural equation modeling. It is found that firm characteristics have direct relationship with CSR and CSR has direct relationship with SCP. Moreover, CSR playing a mediating role between firm characteristics and SCP.

Keywords: supply chain, CSR, firm size, ownership.

1. Introduction

Supply chain performance (SCP) is vital to get success in business [1, 2]. Better SCP performance has critical role in firm performance [3, 4]. Therefore, supply chain activities must be consistent in terms of performance to gain success in business performance. The companies unable to be consistent in SCP have the major chances to decreases in overall business performance. Thus, a well-managed supply chain is crucial.

Various lower income countries are facing different issues in supply chain which has effect on SCP [5, 6]. Indonesia is also facing issues to boost SCP. Table 1 shows the ranking of different countries in concept to logistic performance. Performance index is given from 2012 to 2018. According to below performance index, Vietnam is on the top having 39 position, improved from 64 in 2016, following by the India having 44 ranking. India logistic performance decreases in 2018 as compared to 2016. Indonesia is ranked as 46 in 2018. Indonesian logistic performance increases in 2018 as compared to 2016, as the logistic performance index improved from 63 to 46.

Table 1. Logistics Performance Index of 10 low-income and lower-middle income countries

Economy	2018		2016		2014		2012	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Vietnam	39	3.27	64	2.98	48	3.15	53	3.00
India	44	3.18	35	3.42	54	3.08	46	3.08
Indonesia	46	3.15	63	2.98	53	3.08	59	2.94
Côte d'Ivoire	50	3.08	95	2.60	79	2.76	83	2.73
Philippines	60	2.90	71	2.86	57	3.00	52	3.02
Ukraine	66	2.83	80	2.74	61	2.98	66	2.85
Egypt, Arab Rep.	67	2.82	49	3.18	62	2.97	57	2.98
Kenya	68	2.81	42	3.33	74	2.81	122	2.43
Lao PDR	82	2.70	152	2.07	131	2.39	109	2.50
Jordan	84	2.69	67	2.96	68	2.87	102	2.56

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It is evident from Indonesian logistic performance index that the performance is increases as compared to previous years, however, these companies are facing various issues related to firm characteristic. Company size is one of the important challenges which has effect on SCP. As the size of company has important relationship with performance [7-10], [54-58]. Therefore, the firm size has important role in supply chain. Comparatively bigger size firms have more ability to deal with supply chain activities as compare to the firms having small size.

Moreover, ownership also has a role in supply chain. Previous studies proved that ownership has a relationship with performance [11-13]. The property right theory illustrates that companies having public ownership should performance less as compared to the other firms having private ownership. Thus, it indicates the ownership matters. There is a significant difference among companies supply chain in respected to ownership.

Moreover, profitability of companies also matters in SCP. The companies having better return generally has good supply chain system which ultimately has important role in performance. Both

profitability and supply chain have relationship with each other's [14-16]. The company having good profitability can invest in SCP. However, the company having low profitability generally face issues to invest heavily in SCP. Profitability is also based on the size of companies. Generally, the companies have huge size having huge profit.

Apart from firm characteristics, corporate social responsibility (CSR) also has role in SCP. CSR has relationship between firm characteristics and SCP. As it is clear from previous studies that CSR has relationship with SCP [17, 18]. Therefore, objective of this study is to examine the role of firm characteristics in SCP with mediating role of CSR. The relationship between firm characteristics, CSR and SCP is shown in Figure 1.
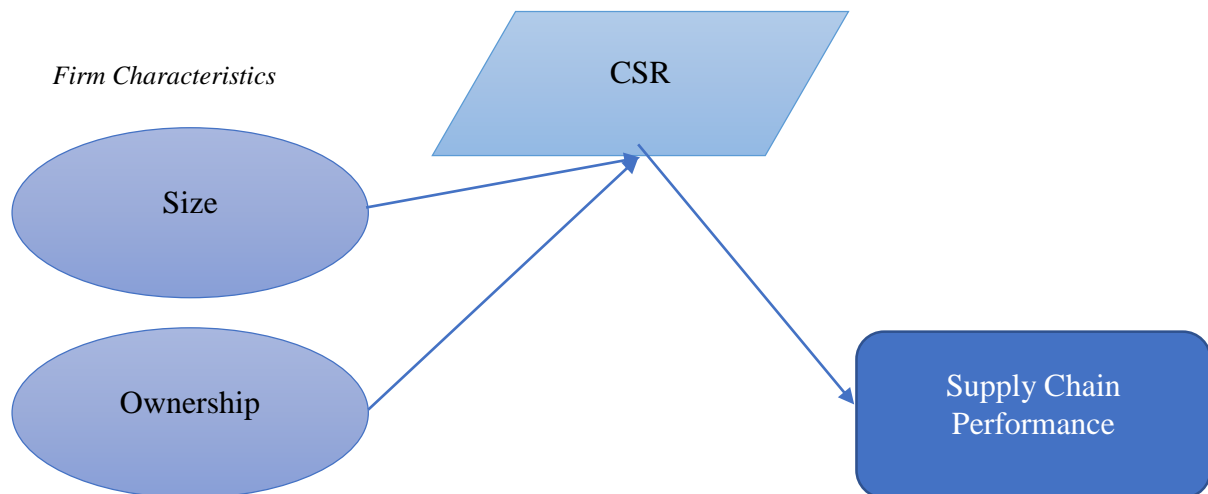

Figure 1. Theoretical Framework of the study

2. Literature Review

Now a days supply chain become the strategic tool of companies [19, 20]. Better supply chain system is one of the strength of companies which directly effect on performance. Now, it is also considered as one of the important tool to gain competitive advantage [21, 22]. Therefore, management of supply chain is most important in firms.

CSR increases the performance, because it has multiple benefits for the organization and stakeholders. Figure 2 shows various benefits of CSR. It has the ability to increases relationship with customers, win new benefits, save money and energy, increases the competitive advantage, increases the access to funding's and beneficial for stakeholders which increases the performance. Various other studies show the benefits of CSR

[23-25]. Thus, SCP is most important elements of supply chain companies [26, 27]. Various factors related to firm characteristics effect on SCP.

Important factors include; size and ownership. Additionally, CSR also has important relationship with supply chain.

Figure 2. Benefits of CSR

2.1 Relationship between CSR and Ownership

The earlier investigations led by Hawani Wan Abd Rahman, et al. [28] and Laudal [29] expressed that the size of a business is an imperative variable in CSR and an indicator with respect to why a company takes part in CSR exercises. Hawani Wan Abd Rahman, et al. [28] described that there is definitely critical relationship between complete CSR exposure and company size. This means extensive organizations in general uncover a more noteworthy measure of CSR data than small organizations. The purpose for this end is that huge organizations is getting more consideration from the general population as these organizations are more resources and these organizations may have bigger and progressively partner gatherings [30]. Ashbaugh, et al. [31] contends that economies of scale propose that extensive firms are bound to give increasingly deliberate exposure. As per McKinnon and Dalimunthe [32], bigger firms will in general draw in a larger number of analysts' followings than small firms and may be liable to more noteworthy interest by experts, in this way, disclosure expenses might be bringing down for substantial firms than small ones [33]. As indicated by Suttipun and Stanton [34] there is a positive connection between the measure of environmental elements in Thai corporate yearly reports and the size of the organizations.

Udayasankar [35] found a U-shaped connection between CSR investment and firm size. The small

and big firms being equally pushed to take part in CSR contrasted with medium-sized firms which are being the least inspired. Size might be vital because of the need to raise capital at the most reduced expense [36], pressure from investors themselves and venture analysis for greater disclosure [37]; closer checking by regulatory authorities (Firth, 1979); the unpredictability of the business structure [38] and more noteworthy requests to give data to several user groups for elements of economic significance [35].

H1: Size has significant relationship with CSR.

2.2 Relationship between CSR and Ownership

This study separates organizations into two kinds of ownership status, in light of the level of corporate regular stock held by either government or privately-owned businesses. In particular, if government associations possess in excess of 51 percent of the regular supply of organizations, at that point these organizations are called government organizations. If private companies or individuals hold in excess of 51 percent of the stock, these are named privately owned businesses. Actually, ownership status is not all the time considered in investigation into environmental reporting, perhaps because such study is mostly carried out in an Anglo-American setting where government firms are not common [39].

There are numerous studies on the connection between CSR and ownership structure in markets

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[40, 41]. Earlier studies found the presence of a positive as well as neutral connection among CSR and institutional ownership performance. Few studies also show positive effect of CSR on performance of supply chain. Therefore, the relationship is not clear, thus the current study attempted the relationship between CSR and ownership.

H2: Ownership has significant relationship with CSR.

2.3 Corporate Social Responsibility

For a time of more than 40 years there has been an extensive number of studies that concentrated on the idea of the connection among CSR and performance. Exact investigations of the connection among CSR and performance comprise basically two kinds. The first utilization the study methodology to measure the short-run financial influence when companies involve in socially responsible as well as irresponsible acts.

The consequences of these examinations have been mixed. Uadiale and Fagbemi [42] found a positive relationship; Aras, et al. [43] announced a negative relationship, while Roman, et al. [44] found no connection among CSR and performance. Different investigations are also inconsistent concerning the connection among CSR and short run financial returns.

The second kind of study related to the connection between a few proportions of CSR and measures long run financial performance, by applying financial proportions of benefit. The investigations that examine the connection between social duty and accounting based performance measures have additionally created mixed outcomes. Cochran and Wood [45] in his study find a direct relationship between social obligation and accounting performance.

Bird, et al. [46] found that CSR exercises directed by the firm could positively affect firm financial performance. Additionally, Ali, et al. [47] contended that CSR will be a positive attitude for a firm over the long run. There are a few points of interest for the firm who lead CSR, for example, the shopper will support more on their items with environmental insurance, great association with government, and simple access to the financial organization.

Conversely, Bidhari, et al. [48] found that the advancement of the CSR could decrease the impact of the financial emergency. Moreover, Bidhari, et al. [48] inspected the impact of the following usually cited characteristics: size, industry type, ownership and profitability and the outcome the

company that just the size of the company had a noteworthy association with the measure of environmental exposure while kind of company, size of company and ownership status had no critical association with disclosure. Thus, below hypotheses are proposed;

H3: CSR has a relationship with SCP.

H4: CSR mediates the relationship between size and SCP.

H5: CSR mediates the relationship between ownership and SCP.

3. Method

The current study utilized area cluster sampling techniques to collect the data. The population was spread on wide area as the data were collected from whole Indonesia. In this case when population spread on a wide area and sampling frame is not available, area cluster sampling is most suitable [49]. Additionally, it is most suitable to reduce data collection expanse and to save time.

Data were gathered from employees of Indonesian companies related to supply chain. Email survey was preferred in data collection because it was not possible to cover the whole Indonesia. Moreover, 7-point scale was used in this study. From total 500 questionnaires, 170 valid responses were returned and used for data analysis. Three remainders were sent to the respondents to approach the maximum response. Furthermore, partial least square version 3 was used in this study.

Collected data was entered into the SPSS sheet and preliminary analysis was performance. This analysis includes; missing value analysis, outlier identification and normality test which allows for further analysis. Table 2 shows the preliminary analysis.

Table 2. Preliminary analysis

	No.	Missing	Mean	Median	Min	Max	SD	Kurtosis	Skewness
SIZ1	1	0	5.047	6	1	7	1.887	-0.441	-0.799
SIZ2	2	0	5.412	6	1	7	1.791	-0.514	-0.859
SIZ3	3	0	5.294	6	1	7	1.859	0.032	-1.036
SIZ4	4	0	5.129	6	1	7	1.83	-0.52	-0.78
SIZ5	5	0	5.1	6	1	7	1.902	-0.563	-0.76
SIZ6	6	0	5.047	6	1	7	1.745	-0.569	-0.656
SIZ7	7	0	4.8	5	1	7	1.972	-1.04	-0.48
SIZ8	8	0	4.947	6	1	7	1.822	-0.553	-0.721
SIZ9	9	0	4.841	5	1	7	1.835	-0.857	-0.414
SIZ10	10	0	5.071	5	1	7	1.905	-0.74	-0.637
SIZ11	11	0	4.859	5	1	7	1.861	-0.865	-0.461
OWN1	12	0	5.229	6	1	7	1.86	-0.241	-0.926
OWN2	13	0	5.206	6	1	7	1.808	-0.582	-0.751
OWN3	14	0	4.965	6	1	7	1.837	-0.511	-0.74
OWN4	15	0	4.982	6	1	7	1.826	-0.538	-0.722
OWN5	16	0	4.918	5	1	7	1.807	-0.459	-0.746
OWN6	17	0	3.9	4	1	7	1.933	-1.183	0.281
OWN7	18	0	5.306	6	1	7	1.749	0.104	-0.95
OWN8	19	0	5.347	6	1	7	1.753	-0.116	-0.905
OWN9	20	0	5.259	6	1	7	1.838	-0.161	-0.908
CSR1	21	0	5.312	6	1	7	1.773	-0.363	-0.871
CSR2	22	0	5.294	6	1	7	1.807	-0.067	-0.953
CSR3	23	0	5.271	6	1	7	1.752	-0.095	-0.891
CSR4	24	0	5.135	6	1	7	1.834	-0.298	-0.859
CSR5	25	0	3.959	4	1	7	1.908	-1.147	0.152
CSR6	26	0	4.941	5	1	7	1.84	-0.703	-0.467
CSR7	27	0	5.206	6	1	7	1.818	-0.465	-0.754
CSR8	28	0	4.906	5	1	7	1.783	-0.855	-0.435
SCP1	29	0	4.059	4	1	7	1.853	-1.145	0.115
SCP2	30	0	5.171	6	1	7	1.725	-0.257	-0.745
SCP3	31	0	5.076	5	1	7	1.762	-0.752	-0.547
SCP4	32	0	5.124	6	1	7	1.806	-0.523	-0.712
SCP5	33	0	5.088	6	1	7	1.831	-0.56	-0.654
SCP6	34	0	5.253	6	1	7	1.773	-0.429	-0.76
SCP7	35	0	4.959	6	1	7	1.953	-0.854	-0.639
SCP8	36	0	5	6	1	7	1.994	-0.551	-0.835
SCP9	37	0	3.859	4	1	7	1.941	-1.198	0.313
SCP10	38	0	5.112	6	1	7	1.914	-0.439	-0.831
SCP11	39	0	5.129	6	1	7	1.855	-0.602	-0.698

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4. Results

Results of the study provided through structural equation modeling. In this process, Figure 3 highlights confirmatory factor analysis which shows internal item consistency. It is evident that all the factor loadings is above the minimum level. Hair, et al. [50] recommended that the items should not be included in analysis if the factor loading is below 0.4. Thus, few items were deleted from the

study. All the remaining items have factor loadings above 0.5.

Moreover, reliability and validity are also confirmed. All constructs have reliability above 0.7. Average variance extracted is also above 0.5 which confirms convergent validity. Discriminant validity was confirmed through AVE square root. All the measurement model results are given in Table 3 and Table 4.
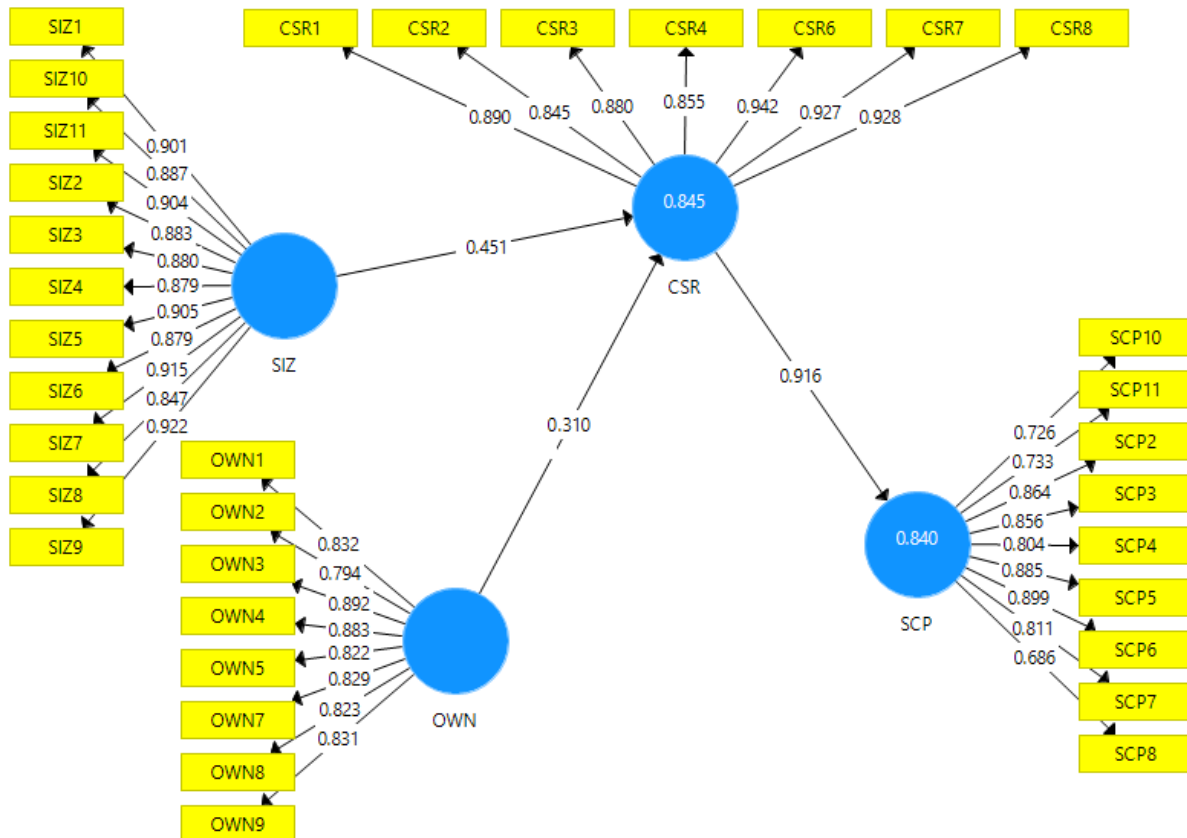

Figure 3. Factor loadings

Table 3. Measurement model results

	α	rho_A	CR	(AVE)
CSR	0.959	0.961	0.966	0.803
OWN	0.940	0.945	0.950	0.703
SCP	0.934	0.944	0.945	0.656
SIZ	0.974	0.976	0.977	0.794

Table 4. Discriminant Validity

	CSR	OWN	SCP	SIZ
CSR	0.896			
OWN	0.700	0.839		
SCP	0.716	0.770	0.810	
SIZ	0.742	0.710	0.738	0.891

After presenting the measurement model, structural model is shown in Figure 4 which depicts the direct and indirect hypotheses testing. Direct results are given in Table 5. All three hypotheses have t-value above 1.96 which supported H1, H2 and H3. It means that company size and ownership have significant relationship with SCP. Moreover, CSR also has significant relationship with SCP. Positive beta value shows direct relationship between all these variables.

Indirect effect with the help of CSR is given in Table 6. Both mediation effect is significant. Thus, CSR mediates the relationship between firm characteristics and SCP. Additionally, r-square value is given in Figure 3. R-square value is 0.840 which is substantial [51-60].
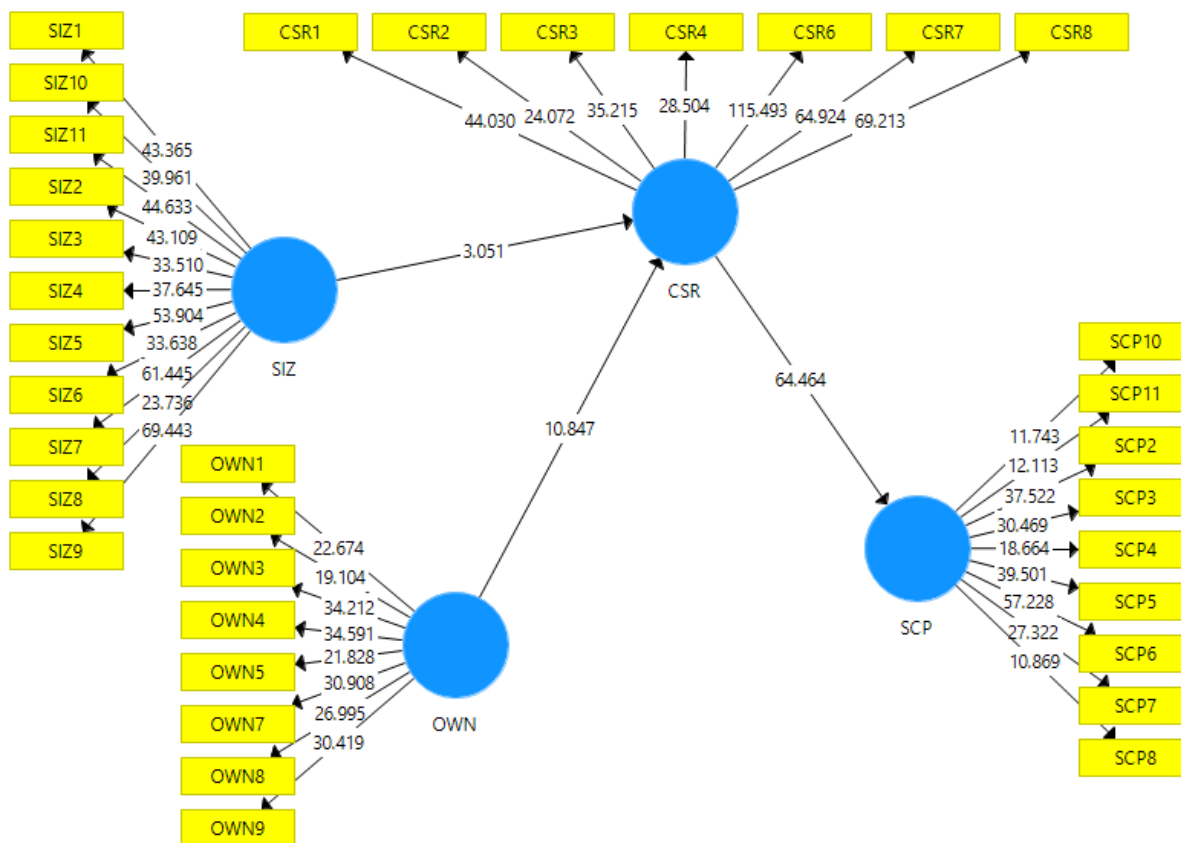

Figure 4. PLS Bootstrapping

Table 5. Direct effect results

	(O)	(M)	(STDEV)	T Statistics	P Values
CSR -> SCP	0.916	0.919	0.014	64.464	0.000
OWN -> CSR	1.31	1.278	0.121	10.847	0.000
SIZ -> CSR	0.451	0.413	0.148	3.051	0.002

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Table 6. In-direct effect

	(O)	(M)	(STDEV)	T Statistics	P Values
OWN -> CSR -> SCP	0.201	0.198	0.045	4.632	0.000
SIZ -> CSR -> SCP	0.413	0.38	0.137	3.013	0.003

5. Conclusion

There is an important link between firm characteristics and SCP. Study found that company size and ownership have significant association with SCP [52, 53]. Size of a business is an imperative element in CSR and an indicator with regards to why a corporation takes part in CSR exercises. The small and big firms being equally pushed to take part in CSR, however, large firms get success in CSR and ultimately effect on performance positively. Size of firm might be vital because of the necessity to elevation capital at the most reduced expense. Moreover, ownership also has important link with SCP through CSR. It is found a positive and neutral connection among CSR and institutional ownership performance. Therefore, firm characteristics has important to boost SCP.

Hence, Indonesian supply chain firms should focus on firm characteristics such as size and ownership. As in the success, firm characteristics and CSR has major role. Companies should take part in CSR activities. Future research is required to add other firm characteristics to examine the effect on SCP. Thus, this study is beneficial for Indonesian supply chain companies while making the strategies.

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