OPERATIONS AND SUPPLY CHAIN MANAGEMENT
Vol. 15, No. 3, 2022, pp. 395 - 406
ISSN 1979-3561 | EISSN 2759-9363

Assessing the Impact of Green Supply Chain Management, Competitive Advantage and Firm Performance in PROPER Companies in Indonesia

Maya Novitasari
Department of Accounting, Faculty of Economics and Business
Airlangga University, Surabaya, Indonesia
Universitas PGRI Madiun, Madiun, Indonesia
Email: maya.novitasari-2019@feb.unair.ac.id *(Corresponding Author)*

Dian Agustia
Department of Accounting, Faculty of Economics and Business
Airlangga University, Surabaya, Indonesia
Email: dian.agustia@feb.unair.ac.id

ABSTRACT

The purpose of this study is to examine the effect of green supply chain management on firm performance with competitive advantage as a mediator. This study used purposive sampling to obtain a population comprising 516 companies which were part of a program called PROPER (which stands for *Program Penilaian Peringkat Kinerja Perusahaan* or company performance rating program) between 2010 and 2018. The data were obtained from the Indonesia Stock Exchange and OSIRIS software and were tested using STATA. The results obtained in this study demonstrate that green supply chain management has a positive effect on competitive advantage, competitive advantage has a positive effect on firm performance, and green supply chain management has no effect on firm performance. Competitive advantage is able to mediate the relationship between green supply chain management and firm performance. The results of this study provide insight into the importance of implementing green supply chain management in order to be able to create a competitive advantage and improve firm performance in the midst of intense competition.

Keywords: *green supply chain management, competitive advantage, firm performance*

1. INTRODUCTION

At the 2020 World Economic Forum, the Indonesian government committed itself to prioritizing a circular economy aimed at reducing environmental damage through concepts like reusing and refilling (Greenpeace, 2020). Companies in Indonesia, in supporting the World Economic Forum, have a responsibility to reduce the environmental impacts of their processes such as product development, design, logistics, company operations, marketing, and by complying with regulations and waste management (Srivastava, 2007). To reduce the environmental impact of a company in carrying out its production process, it can implement green operations in order to face the challenge of gaining competitive advantage from the process of green supply chain management (hereinafter referred to as GSCM) in order to improve firm performance. Facing environmental impacts and increasingly fierce competition, companies must have the competitive ability to maintain and improve their company's performance. GSCM is a company strategy for environmental development in the long term to face market competition and increase profits and reduce environmental impacts (Khaksar *et al.*, 2016).

GSCM pays attention to the environmental impact of the company's entire supply chain from suppliers to distributors. The conflicts that there are between economic growth and the environment do not only occur in academia; they happen in companies and communities too. To realize competitive advantage through GSCM, companies must be strict in the selection of their suppliers and distributors, especially those that have the capacity to impact the environment (Handayani *et al.*, 2017; Kim *et al.*, 2016). GSCM is a company's strategic capabilities in practices and policies for managing environmental impacts in the supply chain (Kirchoff *et al.*, 2016). There are two approaches to GSCM (Chu *et al.*, 2017): first, there is the monitoring approach in which the company participates in collecting information and setting supplier standards; second, there is a collaborative approach, namely providing training and education programs to assist management policies in implementing "green" practices and obtaining environmental certification. In this case, GSCM is a great opportunity to improve competitive advantage and firm performance.

A company can create competitive advantage if it combines and expands resources and capabilities efficiently. Competitive advantage is a company's ability to deal with competition over market share, and it relates to whether the company is ahead of or behind the companies it is competing with (Ploenhad *et al.*, 2019; Yunus & Michalisin, 2016). In terms of how it improves a company's performance, competitive advantage is measured by the extent to which that company can achieve production targets, and its goals in terms of human resources, marketing, and finance (Abeysekara *et al.*, 2019).

Competitive advantage is divided into three types, namely: (1) company policies in providing products and services at the lowest prices to the market; (2) differentiation of company services and products; and (3) being able to meet targets and be responsive to the needs of market segments and customers (Potjanajaruwit, 2018). In these ways, the company will be able to deal with market competition, create new products, increase its productivity and sales, and improve its performance.

There are several studies examining GSCM and firm performance (Ahmed *et al*., 2019; Samad *et al*., 2021), but there are gaps in the research on the relationship between them (Abu Seman *et al*., 2019). Previous research on how GSCM affects firm performance shows that there is an increasing need for companies to implement GSCM more broadly (Bu *et al*., 2020; Chu *et al*., 2017). Inconsistent results were found by Younis *et al*. (2016) and Zhu *et al*. (2007) who showed that the implementation of GSCM does not have a significant effect on firm performance because, as Jiang et al. (2020) mention, when implementing GSCM, there are additional costs to the company for purchasing environmentally friendly materials in the production process. GSCM has a significant effect on competitive advantage (Masoumik *et al*., 2014; Nanath & Pillai, 2017), with pressure from the market on companies to always increase their competitive advantage and improve their firm performance. There is a significant and positive relationship between competitive advantage and firm performance because a company with competitive advantage has two basic characteristics, namely being able to increase profits and firm performance, and competing companies will not be able to imitate the company's strategy (Chen *et al*., 2017; Ferreira & Coelho, 2017). Therefore, there is a growing need for GSCM, competitive advantage, and good firm performance in companies in Indonesia. This study aims to provide empirical evidence of how the implementation of GSCM practices improve firms' performance through competitive advantage. This research contributes by helping companies to determine the right environmental strategy.

This study will examine the relationship between GSCM, competitive advantage and firm performance in terms of direct and indirect effects. Competitive advantage is used to examine the mediating effect between GSCM and firm performance. Porter's strategy in implementing competitive advantage in addition to improving market performance is also able to improve firm performance (Anwar *et al*., 2018). GSCM is a "green" concept applied to the supply chain to make it more integrated which ultimately results in a competitive advantage (Martusa, 2013). The combined pressure from government and other stakeholders can encourage companies to comply with and implement GSCM in order to improve firm performance (Ahmed *et al*., 2019). GSCM tends not to be able to improve firm performance, so companies need to expand their focus on customer satisfaction (Laari *et al*., 2016). This study will address the following issues: (1) whether GSCM and competitive advantage have a positive effect on firm performance; (2) whether GSCM has a positive effect on competitive advantage; and (3) whether competitive advantage is able to mediate the relationship between GSCM and firm performance.

This research's contribution to companies is to encourage them to pay more attention to the environmental impact of the supply chain and market competition by understanding the importance of GSCM and competitive advantage to the improvement of firm performance. GSCM is the application of "green" practices when purchasing materials from suppliers, processing them, and then distributing them to consumers. Meanwhile, competitive advantage is the application of a superior company's competitive strategy in order to be able to compete and, through this, make sure competitors are unable to imitate company's product. With the help of this research, companies in Indonesia will realize the importance of protecting the environment to meet the demands of the company's internal and external actors.

2. LITERATURE REVIEW AND HYPOTHESES

Although there have been many previous studies on GSCM and firm performance, the results of research on how the effect of GSCM on firm performance is still unclear. There are studies on the influence of GSCM on firm performance, where the application of GSCM practices will create more economic and social benefits for the company (Habib *et al*., 2021; Wang *et al*., 2020). However, this is different from other research (Jia & Wang, 2019; Namagembe *et al*., 2019; Novitasari & Agustia, 2021) which shows that GSCM has no effect on firm performance and that companies engaged in GSCM practices need motivation in reputation, growth revenue, and effectiveness. In light of these contradictory results, this study will conduct further empirical testing on the relationship between GSCM and firm performance mediated by competitive advantage. The application of GSCM practices can increase competitive advantage, so that it can place the company more profitably in a tight competitive position. Sustainable GSCM practices will create competitive advantage and improve firm performance in the long term. In creating a competitive advantage, the company must have efficient resources and capabilities (Novitasari *et al*., 2021).

The existence of pressure from stakeholders and institutions is the main driver of companies in implementing GSCM, namely implementing environmentally friendly strategies to maintain competitive advantage and improve firm performance (Vanalle *et al*., 2017). In business practice, customers crave health-promoting solutions in dealing with air pollution (Ha *et al*., 2021). Companies that adopt GSCM are able to reduce pollution and suppress environmental problems in their supply chains, from upstream to downstream (Govindan *et al*., 2014). In adopting GSCM, companies can not only gain competitive advantage, but also open new market opportunities and they can lobby the government for legal protection for their firm performance (Mitra & Datta, 2014).

In the application of GSCM, there will be an increase in investor interest for companies with the 6R concept (remanufacturing, redesign, recover, recycle, reuse, and reduce) as an evolving and sustainable production process (Tundys & Wiśniewski, 2021; Vanalle & Santos, 2014).

The relevance of the "green" concept is particularly appropriate for corporate learning and human resource practices, as they help to reduce barriers to adopting GSCM (Teixeira *et al*., 2016). Suppliers are important partners in the company's supply chain because suppliers are the main factor in supporting the organization's environmental initiatives and contributing to an improving environmental performance (Yu *et al*., 2014).

Porter & Linde (1995) argue that attention to environmental matters must be embraced by businesses which seek to increase resources and competitive advantage. Competitive advantage is a company's strategy to obtain long-term benefits which cannot be overtaken by its competitors through product replication or imitation strategies (Ge *et al*., 2018). Competitive advantage in the long term must be able to develop, renew and increase the company's product portfolio by adjusting to customer desires, increasingly sophisticated technological changes, and increasingly fierce competition (Ohvanainen & Hietikko, 2012). The purpose of competitive advantage is to be able to create and maintain competitiveness to increase company profits (Sinaga *et al*., 2019). To realize a competitive advantage, the company must combine resources and capabilities efficiently.

Firm performance is a means of achieving the company's conceptualized multidimensional goals; these multidimensional goals include increasing profits, and there are also three indicators, namely production, finance, and marketing (Schmidt *et al*., 2017; Tuan *et al*., 2016). Firm performance describes the company's success in carrying out and completing work with maximum profit (Golicic & Smith, 2013). Firm performance is basically a picture of the company in terms of whether it meets economic goals, such as a target market share and an increased level of sales (Lirn *et al*., 2014). In the operational practice of GSCM, companies must be fast and flexible to ensure the flow of products to consumers (Khan & Wisner, 2019). Firm performance is able to provide information to stakeholders regarding the condition of the company as it competes for market share.

GSCM is a corporate strategy regarding the sustainability of resources and the ability to achieve a competitive advantage, in terms of market share, competitors, and firm performance (Liu *et al*., 2012). GSCM has a significant effect on competitive advantage (Khaksar *et al*., 2016), and this demonstrates that the existence of supply chain management that focuses on environmental impacts can increase industrial activities and so increase competitive advantage. By implementing environmental management, companies will be able to strengthen competitiveness and so create a competitive advantage (Arman & Iman, 2017). There needs to be cooperation with suppliers in supply chain management whereby they comply with environmental regulations when companies buy materials from them, then in processing of materials into ready-to-sell products, followed by the distribution of the products to the consumers; together, this can build a competitive advantage in the global market. Thus, the researchers propose the following hypothesis:

Hypothesis 1: *Green supply chain management has a positive effect on competitive advantage*

Competitive advantage is a company's ability to create investments that are above average (Mee-Ngoen *et al*., 2020). The company's strategy in terms of gaining competitive advantage that competitors cannot imitate is a means of reducing costs that are too large and this will be able to improve firm performance (Rauf *et al*., 2019). In a differentiation strategy, companies must create unique and different products that cannot be imitated by competitors, and this will form a competitive advantage for the company and will reduce the company's costs (Khan *et al*., 2019). This cost reduction will be able to increase profitability or firm performance (Porter, 1985). Competitive advantage will mean the company has product characteristics that cannot be duplicated by competitors. Thus, the researchers propose the following hypothesis:

Hypothesis 2: *Competitive advantage has a positive effect on firm performance*

GSCM will help companies to manage and cooperate with suppliers and create products that reach the consumers in an environmentally friendly way, and this will help companies to reduce costs so that they will be able to improve firm performance (Bu *et al*., 2020; Orenstein & Tang, 2021). GSCM has a significant effect on firm performance (Jassim *et al*., 2020), and this indicates that, with the existence of GSCM, sustainable business goals can be achieved that can improve firm performance. The application of GSCM contributes to reducing environmental impacts such as pollution, waste, airborne emissions, and the use of toxic materials (Habib *et al*., 2020). In its processes, GSCM involves the company's capacity and ability to carry out its operational activities (Bag *et al*., 2020). Green practices incorporated into supply chain management is a philosophy that is beneficial for companies in terms of firm performance in generating maximum profit. Thus, the researchers propose the following hypothesis:

Hypothesis 3: *Green supply chain management has a positive effect on firm performance*

Previous research has shown that GSCM in a company can affect firm performance. However, in examining the effect of GSCM on firm performance, it is necessary to consider the mediating variable. In this case, firstly, GSCM affects competitive advantage and secondly, competitive advantage affects firm performance. Competitive advantage is added as a mediating variable because the company has a need to increase its competitive advantage so that the company can compete for market share (Wu *et al*., 2017). "Green" practices used by companies in supply chain management will create a competitive advantage that can improve firm performance (Lee *et al*., 2015). With a competitive advantage, the company will benefit, including from reducing costs by preventing pollution, stakeholder monitoring of products that cannot be replicated by competitors, and synergistic long-term development (Pålsson & Kovács, 2014)., This will greatly assist the company in improving its performance. Thus, the researchers propose the following hypothesis:

Hypothesis 4: *Competitive advantage mediates the relationship between green supply chain management and firm performance*

This research focuses on the exploration of competitive advantage, GSCM and firm performance. The purpose of this study is to examine the direct and indirect relationships between competitive advantage, GSCM and firm performance. The conceptual framework of this research is as follows:

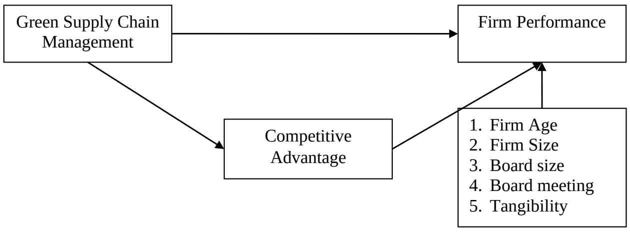

Figure 1 Conceptual Framework

3. RESEARCH METHODOLOGY

3.1 *Research Design*

The main objective of this study is to examine competitive advantage as a mediating variable in the effect of GSCM on firm performance. In addition, there are several control variables added in this study, namely firm age, board size, board meeting and tangibility. These variables were recommended by previous studies because they can affect firm performance (Eluyela *et al*., 2018; Mallinguh *et al.*, 2020; Mubeen *et al*., 2020; Pucheta-Martínez & Gallego-Álvarez, 2020; Vu *et al.*, 2019), but the use of these variables is still limited in research on competitive advantage (Jeong & Chung, 2022; Lu *et al*., 2021; Nkundabanyanga *et al*., 2018; Nyuur *et al.*, 2019; Whitler & Puto, 2020). This is quantitative research and uses secondary data. The population used in this study comprises companies registered with the PROPER program between 2012 and 2018. The data sample was selected using purposive sampling. The data in this study were taken from the Indonesia Stock Exchange and OSIRIS software. Thus, the sample amounts to 516 companies. Testing the variables used STATA to test the direct relationship and the Sobel calculator (www.quantspsy.org) to test the indirect relationship. The tests in this study were descriptive statistical tests, correlation tests, regression tests and mediation tests. There are two regression equations used in this study, namely:

$$CA = \propto_2 + \beta_8 GSCM + e \quad (1)$$

$$Firm\ Performance = \propto_2 + \beta_1 GSCM + \beta_2 CA + \beta_3 FirmAge + \beta_4 FirmSize + \beta_5 BoardSize + \beta_6 BoardMeeting + \beta_7 Tangibility + e \quad (2)$$

3.2 *Definitions of Operational Variables*

3.2.1 Firm Performance

Firm performance is a stakeholder means of managing a company to increase resources, products that cannot be imitated and cannot be marketed (King & Zeithaml, 2001). Firm performance will be beneficial for the company because it can increase profits, competitive advantage, and meet targets for market share, while increasing sales and customer satisfaction. According to (Vithessonthi & Racela, 2016), the firm performance ratio used is as follows:

$$ROA = \frac{EBIT}{TA} \quad (3)$$

where
EBIT : Earning Before Interest and Tax
TA : Total Assets

3.2.2 Green Supply Chain Management

GSCM is "green" philosophy combined with supply chain management which takes into account the environmental impact starting from the selection and purchase of materials from suppliers, through the product design stage, until the product is ready to be sold to consumers (Srivastava, 2007). GSCM is measured using five indicators. The measure of GSCM is obtained from analysis of the company's annual report using indicators which are measured using ratios. Following on from previous research (Sharma et al., 2017; Tseng & Chiu, 2013), the indicators used in this analysis are as follows: (1) the possession of ISO 9000 or ISO 14000 certificates; (2) green distribution and marketing practices; (3) reverse logistics, packaging comes from recycling; (4) close relationship with suppliers to determine purchasing criteria and material quality from them; and (5) product quality that meets customer needs. Following previous research (Novitasari & Agustia, 2021), each indicator item disclosed in the annual report is given a score of "1" meaning that there is disclosure regarding that indicator items in the annual report, and a score of "0" is given when there are no indicator items disclosed in the annual report.

$$GSCM = \frac{Total\ Items\ Disclosed}{Total\ Indicators} \quad (4)$$

3.2.3 Competitive Advantage

Competitive advantage is a company's means of creating product differentiation so that competitors cannot duplicate, and, in this way, it is able to reduce costs so as to improve firm performance (Tan & Sousa, 2015). Competitive advantage is derived from asset turnover (Dehning & Stratopoulos, 2002). The more products sales there are, the higher a company's competitive advantage will be. The competitive advantage of a company manifests itself in the characteristics and resources that measure performance that is superior to other companies in the same industry or that gains a bigger market share, involving top management that makes substantial increases and asset utilization possible (Porter, 1998). Asset utilization can be measured by asset turnover (Curtis *et al.*, 2015):

$$ATO = \frac{Sales}{NOA\ (t) - NOA(t-1)} \quad (5)$$

where
NOA : Net Operating Asset

3.2.4 Control Variables

In this study, the control variables used are firm age, firm size, board size, board meeting and tangibility. Firm age can be measured by the natural logarithm of the number of years since the company was founded (Ellouze & Mnasri, 2020). Firm size can be measured by the natural logarithm of total assets (Zhang *et al.*, 2016). Board size can be measured by the number of commissioners the company has (Hardika *et al.*, 2018). Board meetings can be measured by the number of meetings held by the company in the current year (Hanh *et al.*, 2018). Finally, tangibility can be measured by the ratio of net fixed assets to total assets (Vithessonthi & Tongurai, 2015).

4. EMPIRICAL RESULTS AND DISCUSSION

4.1 Descriptive Statistics and Correlations

Table 1 presents the descriptive statistics. As it indicates, the minimum and maximum for firm performance are -0.260 and 0.872, respectively, while for GSCM it is 0.000 and 1,000, and for competitive advantage it is -266,469 and 620,363.

Table 2 presents the results of the Pearson correlation test. The correlation between GSCM and competitive advantage is positive with a significance level of 5%. The correlation between competitive advantage and firm performance is positive with a significance of 1%. And the correlation between GSCM and firm performance is positive.

Table 1 Descriptive statistics

	Mean	Median	Std	Minimum	Maximum
FirmPerformance	0.108	0.088	0.127	-0.260	0.872
GSCM	0.535	0.600	0.200	0.000	1.000
CA	22.542	12.183	68.604	-266.469	620.363
FirmAge	3.546	3.638	0.545	0.000	4.762
FirmSize	12.991	14.581	4.211	4.151	18.335
BoardSize	8.411	5.000	16.057	2.000	11.000
BoardMeeting	14.052	10.000	17.711	0.000	200.000
Tangibility	0.419	0.421	0.192	0.008	0.843

Note: This table presents descriptive statistics for the dependent, independent and control variables. The sample consists of PROPER companies listed on the Indonesia Stock Exchange (IDX) between 2010 and 2018.

Table 2 Pearson correlations

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)	FirmPerformance	1.000							
(2)	GSCM	0.037	1.000						
		(0.404)							
(3)	CA	0.135^{***}	0.088^{**}	1.000					
		(0.002)	(0.046)						
(4)	FirmAge	0.108^{**}	0.058	0.103^{**}	1.000				
		(0.014)	(0.188)	(0.019)					
(5)	FirmSize	0.305^{***}	-0.003	-0.110^{**}	0.091^{**}	1.000			
		(0.000)	(0.948)	(0.012)	(0.039)				
(6)	BoardSize	0.107^{**}	0.040	-0.021	0.013	0.037	1.000		
		(0.015)	(0.369)	(0.632)	(0.764)	(0.396)			

Table 2 Pearson correlations (Con't)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(7)	BoardMeeting	0.140***	0.139***	-0.015	0.044	0.036	0.833***	1.000	
		(0.001)	(0.002)	(0.733)	(0.316)	(0.409)	(0.000)		
(8)	Tangibility	-0.137***	0.057	0.015	0.141***	-0.075*	-0.066	-0.079*	1.000
		(0.002)	(0.194)	(0.729)	(0.001)	(0.090)	(0.132)	(0.073)	

4.2 Model 1

Model 1 uses a simple linear regression to examine the effect of GSCM on competitive advantage which is shown in **Table 3 and Table 5**. The results of the t test show that the t value for the GSCM variable's effect on competitive advantage is 2.00 with a significance value of 0.046. (sig < 5%), which indicates that GSCM has a positive effect on competitive advantage, therefore ***Hypothesis 1*** is accepted.

4.3 Model 2

Model 2 uses multiple linear regression to test the effects of GSCM, competitive advantage, firm age, firm size, board size, board meeting, and tangibility on firm performance. The results are presented in **Table 3**. The t value of competitive advantage's effect on firm performance is 3.94 with a significance value of 0.000 (sig. < 1%), which indicates that competitive advantage has a positive effect on firm performance, therefore ***Hypothesis 2*** is accepted. The t value of GSCM's effect on firm performance is 0.18 with a significance value of 0.858 (sig. > 10%), which indicates that GSCM has no effect on firm performance, therefore ***Hypothesis 3*** is rejected. The control variable firm age has a t value of 1.76 with a significance value of 0.078 (sig. < 10%), meaning firm age has a positive effect on firm performance. Firm size has a t value of 7.33 with a significance value of 0.000 (sig. < 5%), meaning firm size has a positive effect on firm performance. The board size has a t value of -0.37 with a significance value of 0.712 (sig. > 10%), meaning that the board size has no effect on firm performance. The board meeting has a t value of 1.87 with a significance value of 0.062 (sig. < 10%), meaning that the board meeting has an effect on firm performance. Finally, tangibility has a t value of -2.84 with a significance value of 0.005 (sig. <1%), meaning that tangibility has a negative effect on firm performance.

Table 3 Regression results for firm performance and competitive advantage

	(1) CA	(2) FirmPerformance
GSCM	30.070**	0.005
	(2.00)	(0.18)
CA		0.000***
		(3.94)
FirmAge		0.017*
		(1.76)
FirmSize		0.009***
		(7.33)
BoardSize		-0.000
		(-0.37)
BoardMeeting		0.001*
		(1.87)
Tangibility		-0.078***
		(-2.84)
_cons	6.446	-0.062
	(0.75)	(-1.57)
r2	0.008	0.156
r2_a	0.006	0.144
N	516	516

4.4 Mediation Effect

The results of the mediation test using Sobel are shown in **Table 4** and **Table 5**; the indirect relationship indicates a t value of 1.811 with a significance value of 0.070 (sig. < 10%), which indicates that competitive advantage mediates the relationship between GSCM and firm performance, therefore, ***Hypothesis 4*** is accepted.

Table 4 Results of mediation test

	Input	Test statistic	Std. Error	P-value
a	30.07	1.8115747	0.00597965	0.07005194*
b	0.0003			
Sa	15.043			
Sb	0.00007			

Table 5 Summary of hypotheses testing

	HYPOTHESIS	REGRESSION COEFFICIENT	T VALUE	P VALUE	NOTE
H1	GSCM->CA	30.07	2.00	0.046**	Significantly Positive
H2	CA->FP	0.0003	3.94	0.000***	Significantly Positive
H3	GSCM->FP	0.0047	0.18	0.858	Not Significant
H4	GSCM->CA->FP	0.009021	1.811	0.07*	Significantly Positive

5. DISCUSSION

The results in this study indicate that, in terms of direct relationships, in PROPER companies in Indonesia: (1) GSCM has a positive effect on competitive advantage; (2) competitive advantage has a positive effect on firm performance; and (3) GSCM has no effect on firm performance. In addition, there is an indirect relationship between GSCM and firm performance through competitive advantage. The application of GSCM practices and the creation of a competitive advantage will have a significant effect on firm performance.

The results regarding the first hypothesis reveal that GSCM has a positive effect on competitive advantage. This indicates that companies that implement GSCM will have a greater competitive advantage. Supply chain management that implements "green" dimensions, with attention to environmental impacts, is encouraged to use the 3R approach—reuse, reduce and recycle—so this can help companies to reduce direct material costs and total product costs. This will lead to the company creating products more efficiently which, in turn, will increase its competitive advantage. For companies in Indonesia to be able to increase their competitive advantage, it is necessary to implement GSCM. The authors’ findings are in line with previous research by Tan et al. (2016).

The results regarding the second hypothesis reveal that competitive advantage has a positive effect on firm performance. This provides evidence that competitive advantage will be able to enhance firm performance. These results are consistent with previous research by Rauf et al. (2019). Currently, companies in Indonesia operate in a fairly intense, competitive arena. Companies that create products that cannot be replicated will be able to strengthen their competitive advantage, and this will improve firm performance.

The results regarding the third hypothesis reveal that GSCM has no effect on firm performance. This shows that, in the application of GSCM, there are cost constraints related to environmental sustainability. Incurring the high costs of GSCM practices is an effort that companies continue to make to improve firm performance. These findings are in line with previous research by Ahmed *et al*. (2020) and Novitasari & Agustia (2021).

The results regarding the fourth hypothesis provide evidence that competitive advantage is able to mediate the relationship between GSCM and firm performance. Environmental problems that occur can encourage companies to apply "green" dimensions to their supply chain management ranging from the selection and purchase of materials from suppliers to the processing of finished products and distribution of those products to consumers. Therefore, by implementing GSCM, they can also increase competitive advantage, because it can reduce operational costs and create non-replicable products that lead to increased sales. So, this will be able to improve firm performance. It is important for companies in Indonesia to implement GSCM so that they can increase their competitive advantage and firm performance. This is in line with previous research (Abednico, 2016; Jiang *et al*., 2020; Munsung & Stephens, 2020). In other words, if GSCM is applied by companies in Indonesia, it will encourage robust competitiveness and create a competitive advantage. This will be able to increase sales and thus increase profits and firm performance.

6. CONCLUSION

The researchers conclude that green supply chain management (GCSM) can increase competitive advantage. If a company reduces its environmental impact by implementing the "green" dimension in its supply chain management, it will be able to strengthen its competitiveness. By creating competitive advantage in this way, the company will be able to expand its market share, maximize its achievement of sales targets, and increase its profits and improve its performance. Given the many competitors operating very similar businesses, a competitive advantage is needed in order to create products that cannot be imitated, and this will have an impact on the level of sales and improve firm performance.

The implication of this research is that environmental problems are increasing and there is pressure from stakeholders to overcome these problems. Therefore, GSCM can be applied to reduce the environmental impact of supply chain management and so improve competitiveness and performance. This study can also support the Indonesian government's efforts to reduce the risk of environmental impacts through the implementation of GSCM by companies.

This research makes a further contribution to addressing environmental impacts in Indonesia. The application of GSCM is very important for companies—whether it be in terms of selecting raw materials from suppliers, creating brands, running manufacturing processes, or carrying out distribution until the product reaches the customer's hands—so that they do not have a bad impact on the environment. This is in line with previous research (Tseng *et al*., 2019) which shows that the practice of GSCM has been consistently developed. In particular, this study provides evidence that the creation of competitive advantage stems from companies implementing GSCM in their activities, as this will be able to improve their performance. The theoretical contribution made this research is to add to the literature on the direct relationship between GSCM and firm performance and the indirect relationship between GSCM and firm performance through competitive advantage. The practice of GSCM will drive competitive advantage to improve firm performance.

The limitations of this research are that it only uses companies listed with the PROPER program and only those implementing GSCM, while examining only competitive advantage and firm performance. Future studies need to consider other variables such as environmental performance and other green practices such as green suppliers, green shipping and so on.

REFERENCES

Abednico, M. (2016). Supply Chain Cooperation as a Green Supply Chain Management Implementation Strategy to Achieve Competitive Advantages in Natural Disaster Prone Regions. *Competitiveness Review: An International Business Journal* 28(5), 564 – 583.

Abeysekara, N., Wang, H., & Kuruppuarachchi, D. (2019). Effect of supply-chain resilience on firm performance and competitive advantage: A study of the Sri Lankan apparel industry. *Business Process Management Journal*, 25(7), 1673–1695. https://doi.org/10.1108/BPMJ-09-2018-0241

Abu Seman, N. A., Govindan, K., Mardani, A., Zakuan, N., Saman, M. Z. M., Hooker, R. E., & Ozkul, S. (2019). The Mediating Effect of Green Innovation on The Relationship between Green Supply Chain Management and Environmental Performance. *Journal of Cleaner Production*, 229, 115–127. https://doi.org/10.1016/j.jclepro.2019.03.211

Ahmed, W., Najmi, A., Arif, M., & Younus, M. (2019). Exploring firm performance by institutional pressures driven green supply chain management practices. *Smart and Sustainable Built Environment*, 8(5), 415–437.

Ahmed, W., Najmi, A., & Khan, F. (2019). Examining The Impact of Institutional Pressures and Green Supply Chain Management Practices on Firm Performance. *Management of Environmental Quality: An International Journal*.

Ahmed, W., Najmi, A., & Khan, F. (2020). Examining The Impact of Institutional Pressures and Green Supply Chain Management Practices on Firm Performance. *Management of Environmental Quality: An International Journal*, 31(5), 1261–1283.

Anwar, M., Khan, S. Z., & Shah, S. Z. A. (2018). Big Data Capabilities and Firm's Performance: A Mediating Role of Competitive Advantage. *Journal of Information and Knowledge Management*, 17(4).

Arman, M., & Iman, A. (2017). The Impact of Green Supply Chain Management on Firm Competitiveness. *International Journal of Supply Chain Management*, 6(4), 215–223. https://doi.org/10.1142/S0219649220400262

Bag, S., Gupta, S., Kumar, S., & Sivarajah, U. (2020). Role of technological dimensions of green supply chain management practices on firm performance. *Journal of Enterprise Information Managem*ent. https://doi.org/10.1108/JEIM-10-2019-0324

Bu, X., Dang, W. V. T., Wang, J., & Liu, Q. (2020). Environmental Orientation, Green Supply Chain Management, and Firm Performance: Empirical Evidence from Chinese Small and Medium-Sized Enterprises. *International Journal of Environmental Research and Public Health*, 17(4).

Chen, S., Wu, S., Mao, C., & Li, B. (2017). Strategic Adjustment Capacity, Sustained Competitive Advantage, and Firm Performance: An Evolutionary Perspective on Bird Flocking and Firm Competition. *Mathematical Problems in Engineering*, 2017. https://doi.org/10.1155/2017/3807912

Chu, S. H., Yang, H., Lee, M., & Park, S. (2017). The Impact of Institutional Pressures on Green Supply Chain Management and Firm Performance: Top Management Roles and Social Capital. *Sustainability*, 9, 1–21.

Curtis, A., Lewis-Western, M. F., & Toynbee, S. (2015). Historical cost measurement and the use of DuPont analysis by market participants. *Review of Accounting Studies*, 20(3), 1210–1245. https://doi.org/10.1007/s11142-015-9334-y

Dehning, B., & Stratopoulos, T. (2002). DuPont analysis of an IT-enabled competitive advantage. *International Journal of Accounting Information Systems* 3(3), 165–176. https://doi.org/10.1016/S1467-0895(02)00032-5

Ellouze, D., & Mnasri, K. (2020). Business group diversification, financial constraints and firm performance: the case of Tunisian group affiliated firms. *Journal of Management and Governance*, 24(1), 273–301. https://doi.org/10.1007/s10997-019-09454-4

Eluyela, D. F., Akintimehin, O. O., Okere, W., Ozordi, E., Osuma, G. O., Ilogho, S. O., & Oladipo, O. A. (2018). Board meeting frequency and firm performance: examining the nexus in Nigerian deposit money banks. *Heliyon*, 4, 1–14. https://doi.org/10.1016/j.heliyon.2018.e00850

Ferreira, J., & Coelho, A. (2017). Dynamic capabilities, managerial and marketing capabilities and their impact on the competitive advantage and firm performance. *International Journal of Entrepreneurship and Small Business*, 30(4), 629–652. https://doi.org/10.1504/IJESB.2017.082925

Ge, B., Yang, Y., Jiang, D., Gao, Y., Du, X., & Zhou, T. (2018). An Empirical Study on Green Innovation Strategy and Sustainable Competitive Advantages: Path and Boundary. *Sustainability*, 10(10), 1–18.

Golicic, S. L., & Smith, C. D. (2013). A meta-analysis of environmentally sustainable supply chain management practices and firm performance. *Journal of Supply Chain Management*, 49(2), 78–95. https://doi.org/10.1111/jscm.12006

Govindan, K., Kaliyan, M., Kannan, D., & Haq, A. N. (2014). Barriers analysis for green supply chain management implementation in Indian industries using analytic hierarchy process. *International Journal of Production Economics*, 147(PART B), 555–568. https://doi.org/10.1016/j.ijpe.2013.08.018

Greenpeace. (2020). Tantangan Kita Bersama di Tahun 2020. Retrieved April 12, 2020. https://www.greenpeace.org/indonesia/cerita/4544/tantangan-kita-bersama-di-tahun-2020/

Ha, B. C., Lim, S. Y., & Lee, C. (2021). Impact of organizations' internal green supply chainmanagement on consumers' purchasing behavior for personal care products. *Operations and Supply Chain Management*, 14(4), 338–350.

Habib, A. M., Bao, Y., Nabi, N., Dulal, M., Asha, A. A., & Islam, M. (2021). Impact of Strategic Orientations on the Implementation of Green Supply Chain Management Practices and Sustainable Firm Performance. *Sustainability*, 1–21.

Habib, M. A., Bao, Y., & Ilmudeen, A. (2020). The impact of green entrepreneurial orientation, market orientation and green supply chain management practices on sustainable firm performance. *Cogent Business and Management*, 7(1). https://doi.org/10.1080/23311975.2020.1743616

Handayani, R., Wahyudi, S., & Suharnomo, S. (2017). The Effects of Corporate Social Responsibility on Manufacturing Industry Performance: The mediating Role of Social Collaboration and Green Innovation. *Business: Theory and Practice*, 18, 152–159. https://doi.org/10.3846/btp.2017.016

Hanh, L. T. M., Ting, I. W. K., Kweh, Q. L., & Hoanh, L. T. H. (2018). Board meeting frequency and financial performance: A case of listed firms in Vietnam. *International Journal of Business and Society*, 19(2), 464–472.

Hardika, A. L., Manurung, D. T. H., & Mulyati, Y. (2018). Corporate governance mechanism, company size financial performance and sustainability reporting. *International Journal of Engineering and Technology* (UAE), 7(4.34SpecialIssue 34), 201–203. https://doi.org/10.14419/ijet.v7i4.34.23888

Jassim, S., Al-Mubarak, M., & Hamdan, A. (2020). The Impact of Green Supply Chain Management on Firm's Performance. *Journal of Information and Knowledge Management*, 19(1), 1–16.

Jeong, S. W., & Chung, J.-E. (2022). Enhancing competitive advantage and financial performance of consumer-goods SMEs in export markets: how do social capital and marketing innovation matter? *Asia Pacific Journal of Marketing and Logistics*. https://doi.org/10.1108/apjml-05-2021-0301

Jia, X., & Wang, M. (2019). The Impact of Green Supply Chain Management Practices on Competitive Advantages and Firm Performance. In *Environmental Sustainability in Asian Logistics and Supply Chains* (pp. 121–134). Springer Singapore. http://dx.doi.org/10.1007/978-981-13-0451-4_7

Jiang, S., Zhaojun, H., & Baofeng, H. (2020). Patterns of IT Use: The Impact on Green Supply Chain Management and Firm Performance. *Industrial Management and Data Systems*, 120(5), 825–843.

Khaksar, E., Abbasnejad, T., Esmaeili, A., & Tamošaitienė, J. (2016). The Effect of Green Supply Chain Management Practices on Environmental Performance and Competitive Advantage: A Case Study of The Cement Industry. *Technological and Economic Development of Economy*, 22(2), 293–308.

Khan, H., & Wisner, J. D. (2019). Supply chain integration, learning, and agility: Effects on performance. *Operations and Supply Chain Management*, 12(1), 14–23. https://doi.org/10.31387/oscm0360218

Khan, S. Z., Yang, Q., & Waheed, A. (2019). Investment in intangible resources and capabilities spurs sustainable competitive advantage and firm performance. *Corporate Social Responsibility and Environmental Management*, 26(2), 285–295. https://doi.org/10.1002/csr.1678

Kim, M. G., Woo, C., Rho, J. J., & Chung, Y. (2016). Environmental capabilities of suppliers for green supply chain management in construction projects: A Case Study in Korea. *Sustainability*, 8(1), 1–17. https://doi.org/10.3390/su8010082

King, A. W., & Zeithaml, C. P. (2001). Competencies and the causal ambiguity paradox. *Strategic Management Journal*, 22(1), 75–99. https://doi.org/10.2307/3094255

Kirchoff, J. F., Tate, W. L., & Mollenkopf, D. A. (2016). The Impact of Strategic Organizational Orientations on Green Supply Chain Management and Firm Performance. *International Journal of Physical Distribution and Logistics Management*, 46(3), 269–292.

Laari, S., Töyli, J., Solakivi, T., & Ojala, L. (2016). Firm performance and customer-driven green supply chain management. *Journal of Cleaner Production*, 112, 1960–1970. https://doi.org/10.1016/j.jclepro.2015.06.150

Lee, V. H., Ooi, K. B., Chong, A. Y. L., & Lin, B. (2015). A structural analysis of greening the supplier, environmental performance and competitive advantage. *Production Planning and Control*, 26(2), 116–130. https://doi.org/10.1080/09537287.2013.859324

Lirn, T. C., Lin, H. W., & Shang, K. C. (2014). Green Shipping Management Capability and Firm Performance in The Container Shipping Industry. *Maritime Policy and Management*, 41(2), 159–175.

Liu, L., Tang, M., & Xue, F. (2012). The Impact of Manufacturing Firm's Green Supply Chain Management on Competitive Advantage. *Advanced Materials Research*, 472–475, 3349–3354.

Lu, Y., Li, G., Luo, Z., Anwar, M., & Zhang, Y. (2021). Does Intellectual Capital Spur Sustainable Competitive Advantage and Sustainable Growth?: A Study of Chinese and Pakistani Firms. *SAGE Open*, 11(1), 1–18. https://doi.org/10.1177/2158244021996702

Mallinguh, E., Wasike, C., & Zoltan, Z. (2020). The business sector, firm age, and performance: The mediating role of foreign ownership and financial leverage. *International Journal of Financial Studies*, 8(4), 1–16.

Martusa, M. R. (2013). Green Supply Chain Management: Strategy to Gain Competitive Advantage. *Journal of Energy Technologies and Policy*, 3(11), 334–341.

Masoumik, S. M., Abdul-Rashid, S. H., & Olugu, E. U. (2014). Gaining competitive advantage through strategic green supply chain management: From a literature review towards a conceptual model. *International Journal of Supply Chain Management*, 3(3), 49–58.

Mee-Ngoen, B., Sirariyakul, T., Limphothong, S., Tomcharoen, N., & Jermsittiparsert, K. (2020). Innovativeness as antecedents to firm performance: The mediating role of competitive advantage and supply chain flexibility of manufacturing firms. *International Journal of Supply Chain Management*, 9(2), 385–392.

Mitra, S., & Datta, P. P. (2014). Adoption of green supply chain management practices and their impact on performance: An exploratory study of Indian manufacturing firms. *International Journal of Production Research*, 52(7), 2085–2107. https://doi.org/10.1080/00207543.2013.849014

Mubeen, R., Han, D., Abbas, J., & Hussain, I. (2020). The effects of market competition, capital structure, and CEO duality on firm performance: A mediation analysis by incorporating the GMM model technique. *Sustainability*, 12(8). https://doi.org/10.3390/SU12083480

Munsung, R., & Stephens, A. R. (2020). Innovation-Orientated Technology Assimilation Strategy and Korean SMES' Enhacing Innovation Capability, Competitive Advantage and Firm Performance. *International Journal of Innovation Management*, 1–27. https://doi.org/10.1142/S1363919620500814

Namagembe, S., Ryan, S., & Sridharan, R. (2019). Green supply chain practice adoption and firm performance: Manufacturing SMEs in Uganda. *Management of Environmental Quality: An International Journal*, 30(1), 5–35.

Nanath, K., & Pillai, R. R. (2017). The Influence of Green IS Practices on Competitive Advantage: Mediation Role of Green Innovation Performance. *Information Systems Management*, 34(1), 3–19. https://doi.org/10.1080/10580530.2017.1254436

Nkundabanyanga, S. K., Muhwezi, M., & Tauringana, V. (2018). Management accounting practices, governing boards and competitive advantage of Ugandan secondary schools. *International Journal of Educational Management*, 32(6), 958–974.

Novitasari, M., & Agustia, D. (2021). Green Supply Chain Management and Firm Performance: The Mediating Effect of Green Innovation. *Journal of Industrial Engineering and Management*, 14(2), 391–403. https://doi.org/http://dx.doi.org/10.3926/jiem.3384

Novitasari, M., Alshebami, A. S., & Sudrajat, M. A. (2021). The Role of Green Supply Chain Management in Predicting Indonesian Firms' Performance: Competitive Advantage and Board Size Influence. *Indonesian Journal of Sustainability Accounting and Management*, 5(1). https://doi.org/https://doi.org/10.32456/ijsam.v5i1.246

Nyuur, R. B., Ofori, D. F., & Amponsah, M. M. (2019). Corporate social responsibility and competitive advantage: A developing country perspective. *Thunderbird International Business Review*, 61(4), 551–564.

Ohvanainen, J., & Hietikko, E. (2012). Building competitive advantage through platform-based product family thinking: Case powerpacks. *Journal of Industrial Engineering and Management*, 5(1), 180–197. https://doi.org/10.3926/jiem.438

Orenstein, P., & Tang, H. (2021). Identifying the relation between a supply chain network's structure and its overall financial performance. *Operations and Supply Chain Management*, 14(4), 399–409. https://doi.org/10.31387/oscm0470311

Pålsson, H., & Kovács, G. (2014). Reducing transportation emissions: A reaction to stakeholder pressure or a strategy to increase competitive advantage. *International Journal of Physical Distribution and Logistics Management*, 44(4), 283–304. https://doi.org/10.1108/IJPDLM-09-2012-0293

Ploenhad, J., Laoprawatchai, P., Thongrawd, C., & Jermsittiparsert, K. (2019). Mediating role of competitive advantage on the relationship of supply chain management and organizational performance on the food industry of Thailand. *International Journal of Supply Chain Management*, 8(4), 216–226.

Porter, M. A. (1998). The Competitive Advantage of Nation. Free Press.

Porter, Michael E., & van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. *Journal of Economic Perspective*, 9(4), 97–118.

Porter, Michael Eugene. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. Free press, New York, NY.

Potjanajaruwit, P. (2018). Competitive advantage effects on firm performance: a case study of startups in Thailand. *Journal of International Studies*, 11(3), 104–111. https://doi.org/10.14254/2071-8330.2018/11-3/9

Pucheta-Martínez, M. C., & Gallego-Álvarez, I. (2020). Do board characteristics drive firm performance? An international perspective. In Review of Managerial Science (Vol. 14, Issue 6). Springer Berlin Heidelberg. https://doi.org/10.1007/s11846-019-00330-x

Rauf, A., Kadir, A. R., & Kamariah, N. (2019). The Role of Firm's Unique Resource in Developing Sustainable Competitive Advantage from Strategy Inimitability and its Effect on Firm Performance of Mining Companies in Indonesia. *Journal of Physics: Conference Series*, 1341(9). https://doi.org/10.1088/1742-6596/1341/9/092022

Samad, S., Nilashi, M., Almulihi, A., Alrizq, M., Alghamdi, A., Mohd, S., Ahmadi, H., & Azhar, S. N. F. S. (2021). Green Supply Chain Management Practices and Impact on Firm Performance: The Moderating Effect of Collaborative Capability. *Technology in Society*, 67, 1–11. https://doi.org/10.1016/j.techsoc.2021.101766

Schmidt, C. G., Foerstl, K., & Schaltenbrand, B. (2017). The Supply Chain Position Paradox: Green Practices and Firm Performance. *Journal of Supply Chain Management*, 53(1), 3–25. https://doi.org/10.1111/jscm.12113

Sharma, V. K., Chandna, P., & Bhardwaj, A. (2017). Green supply chain management related performance indicators in agro industry: A review. *Journal of Cleaner Production*, 141, 1194–1208. https://doi.org/10.1016/j.jclepro.2016.09.103

Sinaga, O., Riantani, S., Hendayana, Y., Saudi, M. H. M., & Zainudin, Z. (2019). Impact of supply chain integration on competitive advantage. *International Journal of Supply Chain Management*, 8(2), 86–94.

Srivastava, S. K. (2007). Green supply-chain management: A state-of- the-art literature review. *International Journal of Management Reviews*, 9(1), 53–80. https://doi.org/10.1111/j.1468-2370.2007.00202.x

Tan, C. L., Zailani, S. H. M., Tan, S. C., & Shaharudin, M. R. (2016). The impact of green supply chain management practices on firm competitiveness. *International Journal of Business Innovation and Research*, 11(4), 539–558. https://doi.org/10.1504/IJBIR.2016.079507

Tan, Q., & Sousa, C. M. P. (2015). Leveraging marketing capabilities into competitive advantage and export performance. *International Marketing Review*, 32(1), 78–102. https://doi.org/10.1108/IMR-12-2013-0279

Teixeira, A. A., Jabbour, C. J. C., De Sousa Jabbour, A. B. L., Latan, H., & De Oliveira, J. H. C. (2016). Green Training and Green Supply Chain Management: Evidence from Brazilian Firms. *Journal of Cleaner Production*, 116, 170–176. http://dx.doi.org/10.1016/j.jclepro.2015.12.061

Tseng, M., Islam, S., Karia, N., & Ahmad, F. (2019). A Literature Review on Green Supply Chain Management: Trends and Future Challenges. *Resources, Conservation & Recycling*, 141, 145–162. https://doi.org/10.1016/j.resconrec.2018.10.009

Tseng, M. L., & Chiu, A. S. F. (2013). Evaluating Firm’s Green Supply Chain Management in Linguistic Preferences. *Journal of Cleaner Productio*n, 40, 22–31. https://doi.org/10.1016/j.jclepro.2010.08.007

Tuan, N., Nhan, N., Giang, P., & Ngoc, N. (2016). The effects of innovation on firm performance of supporting industries in Hanoi – Vietnam. *Journal of Industrial Engineering and Management*, 9(2), 413–431. https://doi.org/10.3926/jiem.1564

Tundys, B., & Wiśniewski, T. (2021). Green supply chain management evaluation for organic products: Theoretical and empirical point of view. *Operations and Supply Chain Management*, 14(1), 73–82. https://doi.org/10.31387/oscm0440287

Vanalle, R. M., Ganga, G. M. D., Godinho Filho, M., & Lucato, W. C. (2017). Green supply chain management: An investigation of pressures, practices, and performance within the Brazilian automotive supply chain. *Journal of Cleaner Produ*ction, 151, 250–259. https://doi.org/10.1016/j.jclepro.2017.03.066

Vanalle, R. M., & Santos, L. B. (2014). Green supply chain management in Brazilian automotive sector. *Management of Environmental Quality: An International Journal*, 25(5), 523–541. https://doi.org/10.1108/MEQ-06-2013-0066

Vithessonthi, C., & Racela, O. C. (2016). Short- and long-run effects of internationalization and R&D intensity on firm performance. *Journal of Multinational Financial Management*, 34, 28–45. https://doi.org/10.1016/j.mulfin.2015.12.001

Vithessonthi, C., & Tongurai, J. (2015). The effect of leverage on performance: Domestically-oriented versus internationally-oriented firms. *Research in International Business and Finance*, 34, 265–280. https://doi.org/10.1016/j.ribaf.2015.02.016

Vu, T.-H., Nguyen, V.-D., Ho, M.-T., & Vuong, Q.-H. (2019). Determinants of vietnamese listed firm performance: Competition, wage, CEO, firm size, age, and international trade. *Journal of Risk and Financial Management*, 12(2), 1–19. https://doi.org/10.3390/jrfm12020062

Wang, C., Zhang, Q., & Zhang, W. (2020). Corporate social responsibility, green supply chain management and firm performance: The moderating role of big-data analytics capability. *Research in Transportation Business & Management*, 1–10.

Whitler, K. A., & Puto, C. P. (2020). The influence of the board of directors on outside-in strategy. *Industrial Marketing Management*, 90(July), 143–154. https://doi.org/10.1016/j.indmarman.2020.07.007

Wu, K. J., Tseng, M. L., Chiu, A. S. F., & Lim, M. K. (2017). Achieving competitive advantage through supply chain agility under uncertainty: A novel multi-criteria decision-making structure. *International Journal of Production Economics*, 190, 96–107. https://doi.org/10.1016/j.ijpe.2016.08.027

Younis, H., Sundarakani, B., & Vel, P. (2016). The Impact of Implementing Green Supply Chain Management Practices on Corporate Performance. *Competitiveness Review*, 26(3), 216–245.

Yu, W., Chavez, R., Feng, M., & Wiengarten, F. (2014). Integrated green supply chain management and operational performance. *Supply Chain Management*, 19(July 2013), 683–696. https://doi.org/10.1108/SCM-07-2013-0225

Yunus, E. N., & Michalisin, M. D. (2016). Sustained competitive advantage through green supply chain management practices: a natural-resource-based view approach. *International Journal of Services and Operations Management*, 25(2), 135. https://doi.org/10.1504/ijsom.2016.10000169

Zhang, M., Lijun, M., Zhang, B., & Yi, Z. (2016). Pyramidal structure, political intervention, and firms’ tax burden: Evidence from China’s local SOEs. *Journal of Corporate Finance*, 36, 15–25. https://doi.org/10.1016/j.jcorpfin.2015.10.004

Zhu, Q., Sarkis, J., & Lai, K. hung. (2007). Green Supply Chain Management: Pressures, Practices and Performance Within the Chinese Automobile Industry. *Journal of Cleaner Produc*tion, 15, 1041–1052.

Maya Novitasari is a doctoral student in the accounting study program, Faculty of Economics and Business, Universitas Airlangga, Indonesia. She is a lecturer in Accounting, Faculty of Economics and Business, University PGRI Madiun, Indonesia. She completed her master's degree in accounting at the Faculty of Economics and Business, UPN "Veteran" Jawa Timur, Indonesia, in 2014. Her current research interests are management accounting, sustainability accounting and sharia accounting.

Dian Agustia is a professor at the Faculty of Economics and Business, Universitas Airlangga, Indonesia. She is also a dean at the Faculty of Economics and Business, Universitas Airlangga, Indonesia. She completed his doctoral accounting program in 2005 and her accounting master's degree in 1995 at the Faculty of Economics and Business, Universitas Airlangga, Indonesia. Her current research interests are management accounting, sustainability accounting and corporate governance.