

# Supply Chain Agility, Supplier Synergy, Cooperative Norms and Competitive Advantage: Mediating Role of Supplier Performance

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**Abstract**—The prime focus of the present research is to examine the impact of cooperative norms, supplier synergy and supply chain agility on supplier performance and competitive advantage are examined. Furthermore, the mediating relationship of supplier performance among supplier synergy, supply chain agility, cooperative norms and competitive advantage is examined as well. The data is collected from the employees of the footwear industry in Indonesia. The sampling technique used was convenience sampling. Among the questionnaire distributed, 345 were usable to have a response rate of 55.64%. For the analysis of the collected data, PLS-SEM was used because it is sensitive for multivariate data. The findings of the study revealed that cooperative norms, supplier synergy and supply chain agility have a significant direct impact on supplier performance and competitive advantage. Moreover, supplier performance also mediates between supplier synergy, supply chain agility, cooperative norms and competitive advantage. The findings of the study are helpful for the academicians and practitioners of the supply chain.

**Keywords:** *Supply chain performance, Supply chain Agility, Supplier Synergy, Competitive advantage, Indonesia.*

## 1. Introduction

The organizations which respond to the changes in the market and needs of the customers quickly are successful in the present global era. According to researchers, the failure or success of the supply chain is determined by the consumer or end-user. The organizations which provide the right product, at the right time, at the right place are successful in the market but also gain a competitive advantage as well. In present global competition, organizations are bound to find multiple ways, so the demands of the customers can be met [1]. Optimization of basic activities is the motive of organizations nowadays in order to enhance the response rate to the demand of the customer. As the demands of customers are more sophisticated, therefore the supply chains need to be more responsive and constantly changing to the market according to the environment of the business. It is therefore important for researchers as well as managers to find the better antecedents of competitive advantage through supply chain [2].

Organizations in current era try to find ways by which they can excel in the present competitive world. Therefore, these organization must look ahead of their immediate and close environment. They should also relook at their role in the supply chain in which they are operating. As the organizations will enhance their purchasing capability, they will pay more attention to their suppliers. The performance of suppliers has, therefore, gained the importance of researchers, practitioners and managers. In a number of past studies, antecedents of the supply chain are examined. These antecedents include communication strategies, supplier-supplier relationships, supplier selection and internal production [3]. The common thing in all these researches is that the impact of supplier performance has an influence on the overall performance of business [4].

The organizations which aim to enhance the performance of the supplier should focus on the relationship of buyer and supplier. Performance of the supplier is measured by the way the required products are successfully provided by the supplier to the organization. It also includes value-added services like technical support, cost, responsiveness, delivery and quality provided to customers. Few researchers also identified some other factors which contribute to supplier performance, including information sharing, synergy and trust [5]. Few scholars mentioned that trust of the supplier is important to establish long term relationship with the supplier. Thus, the importance and relevance of trust of the supplier as a possible factor to improve the performance of supplier are important to investigate [6].

Supplier synergy is a very critical component which enables partners of the supply chain by which they can work with each other with the aim to achieve a single common goal as well as objective. For instance, acquiring or sharing common resources by which the partners can achieve a combined goal. As a result, supplier performance is enhanced, and the efficiency of the organization is improved as well [30]. Additionally, supplier synergy depends mainly upon sharing of information. Sharing relevant information among members of the supply chain develop trust among them,

and these partners start relying on each other for operations. Therefore, supplier synergy plays important in

In the present era, the market is regularly changing. In this regular changing environment, supply chain agility is the major source of creating a competitive advantage over the other firms in the market. On the other hand, supply chain agility also creates long term sustainability for the organization. It is important for organizations to check the business environment regularly. They need to alter their strategies according to the needs of the customers. For this

Indonesian footwear industry is one of the important industries around for the country. This industry is the major exporter of the products and contributes to the GDP of the country as well. The growth in this sector is positive for the last five years. More than 16 million people are employed in this sector, and it contributes 18% of the GDP of Indonesia. The rate of growth expected is around 5% for the next three years. In this situation, the organizations involved in this sector should develop strategies to enhance their competitive advantage [10]. Thus, the objective of this paper is to examine the impact of supply chain agility, supplier synergy and cooperative norms on competitive advantage. Additionally, the study also examined the mediating role of supply chain performance as well.

## 2. Literature Review

### Competitive Advantage

Researchers have defined competitive advantage as the organizational capability in order to create a defending position against its competitors. On the other hand, it is also argued that the distinctive competitiveness of the organization creates a competitive advantage which creates a point of difference for the organization. Therefore, organizations gain an edge over competitors in the global market. Moreover, competitive advantage is the result of important decisions of management [11].

Choice of the market is in which organizations have to compete involved in competitive advantage. Moreover, organizations have to defend their market share as well using the performance of products and price. In the current market position, competition is termed as war of movement, which depends upon quick action after responding to the needs of the market. Competitive advantage is created because of good competencies of organization which help then in providing value to the customers in minimum cost, create a point of difference, which result in profitability performance and market share [12]. In order to attain sustainable competitive advantage, barriers often make imitation hard because of regular investment with the purpose to create an advantage through the long-run process. Researchers mentioned that organizations need to minimize their cost in order to develop a competitive advantage within their industry.

improving the performance of the supplier and develop competitive advantage [7].

reason, they must constantly work on their disruption of supply chain [8]. Basically, supply chain agility is the ability of the organization to work closely and effectively with the customers and suppliers according to the changing needs of the environment. In the same context, organizations must focus on their flexibility so adapt according to the needs of the environment to develop competitive advantage [9].

The other way is to produce some unique good for their customers [13].

It's been agreed by most of the practitioners that the organizations can gain a competitive advantage on the basis of quality and cost. Additionally, it's been suggested by the researchers that speedy delivery, dependability, quality and cost are the main priorities which create a competitive advantage for manufacturing firms [14]. Time in which product is provided to the customer is the important source of competitive advantage as well. In past literature, time to market, dependability of delivery, quality and cost/ price are identified as important capabilities to gain a competitive advantage.

The ability of the organization regarding the capability to have a defensible position against the competitor is a competitive advantage. Basically, on the basis of important decisions of management, organizations are able to create a point of differentiation from others competing in the market. Past empirical studies have mentioned flexibility, delivery, quality and cost as a critical element of competitive advantage. In recent literature, competition on the basis of time is also treated as competitive importance. Researchers pointed out time as an important element to gain a competitive advantage [15].

### Supplier Performance: Competitive advantage

One of the most critical yardsticks to examine the success of supplier is through its performance. Researchers defined supplier performance as the way products are supplied by the suppliers to the buyer as mentioned in operational outcomes, i.e. technical support, cost, responsiveness, delivery and quality. Researchers posit that effort of the organization to link and collaborate between the activities of supply chain massively impacts the performance of the supply chain. The reseller satisfaction is also the important predictor of supplier performance. Therefore, the organizations should look forward to developing as well as maintain good performing suppliers so they can develop long term sustainability and competitive advantage [16]. Researchers further mentioned that for achieving the performance goals, organizations must focus on the performance of its supplier. The supplier who is performing well will remain in close relationship with the manufacturer because the

competitive advantage of the business is mainly dependent upon the performance of the supplier [17].

Therefore: It's been Hypothesized that:

***H1: Supplier performance significantly impacts the competitive advantage of the organization.***

### **Supplier Synergy: Supply Chain Performance and Competitive advantage**

Supplier synergy is also an important aspect which needs to be clear understanding. Supplier synergy is defined as the complementarity and coordination of the same activities performed by more than one organization or individuals in the relationship of the business to gain good outcome [7]. As mentioned by the researchers that organizational ability to produce and deliver quality products is positively effected and enhanced by the synergy of suppliers. This highlights the importance that organizations gain a competitive advantage because of close coordination among the supplier parties. With the help of supplier synergy, organizations can minimize the regular occurring of the technical problems as well [18]. Collaboration on the basis of synergy also leads to sharing of tactical and strategic knowledge among partners which have the ultimate impact on competitive advantage. In one study conducted by [18], organizations gain great benefits because of synergy, i.e. operational flexibility and products with better quality. Therefore, unnecessary duplication is reduced by synergy, which impacts the inefficacy of the organization. Therefore, supplier synergy is very important for the organization s to gain a competitive advantage [6].

Researchers have mentioned that the suppliers who are involved in the collaborative and synergetic relationship, have viewed synergy as a source to improve their overall performance and gain competitive advantage. Therefore, the organizations working closely with the synergy of the suppliers are able to enhance their performance and achieve their goals and objectives. Additionally, [19] mentioned that suppliers' performance is expected to improve if there exist synergy among the suppliers. The procurement cost of the organization is reduced along improvement in collaboration and coordination because of proper synergy within organizational supply chain [20]. On the basis of the above literature, its evident that there exists a relationship among the synergy of the suppliers, supplier's performance and competitive advantage. Therefore, it's been hypothesized that:

***H2: Supplier synergy has a significant impact on supplier performance.***

***H3: Supplier synergy has a significant impact on competitive advantage.***

***H4: Supplier performance significantly mediates between supplier synergy and competitive advantage.***

### **Cooperative Norms: Supply Chain Performance and Competitive advantage**

Researchers have defined cooperative norms as the expectations and beliefs regarding two or more parties. Stewardship behaviour is most of the times prescribed by these norms, which plays an important role in order to maximize the relationship's well-being. Scholars argued that organizations could easily deal with the situation of inevitable uncertainties which can be faced because of exchanging through enforcing expectations, promises and obligations [21].

The basis of relational ties among partners is established through cooperative norms. These ties are established among two or more partners when they perceive transactions through shared value and repeat dealing. Therefore, relational ties are considered important among the exchange partners and are perceived as an important part of cooperative norms. In other words, corporate norms reinforce and reflect the expectations which two or more parties will work with each other to achieve as the common goals on the basis of partnership whereas they also avoid potentially self-defeating and opportunistic behaviour. Therefore, organizations are able to minimize the hazards that are associated with combined investments, associated uncertainties and measurement requirements [22].

Relational ties among the supplier and buyer create the basis of networks at the level of the supply chain. They are a major part of structural capital. Network ties are mainly dependent upon the internal resources which are held by the actors which are connected. Scholars argued that among network ties, there could be three different types of the first one is the asset which involves resources like organizational skills, technology, equipment and money; the second one is information which mainly depends upon the details regarding the organizations which are connected; and the last is the status in which recognition, power and legitimacy are involved [24].

Researchers pointed out that operational as well as informational linkages are impacted by the cooperative norms, which, as a result, impacts the supplier performance. The important remaining issue to assess the direct impact of norms on performance. Researchers mentioned that exchange of capital could be facilitated norms which eventually impacts the creation of intellectual capital which is new. The same way, it is mentioned that there exists a direct link between performance and relational capital. On the other hand, past studies also verified the same relationship. Moreover, scholars empirically pointed out that there exist a positive and direct impact of norms on the performance of the organization. Moreover, there is a direct impact of cooperative norms on competitive advantage as well [23]. On the basis of the above discussion, it's been hypothesized that

*H5: Cooperative norms have a significant impact on supplier performance.*

*H6: Cooperative norms have a significant impact on competitive advantage.*

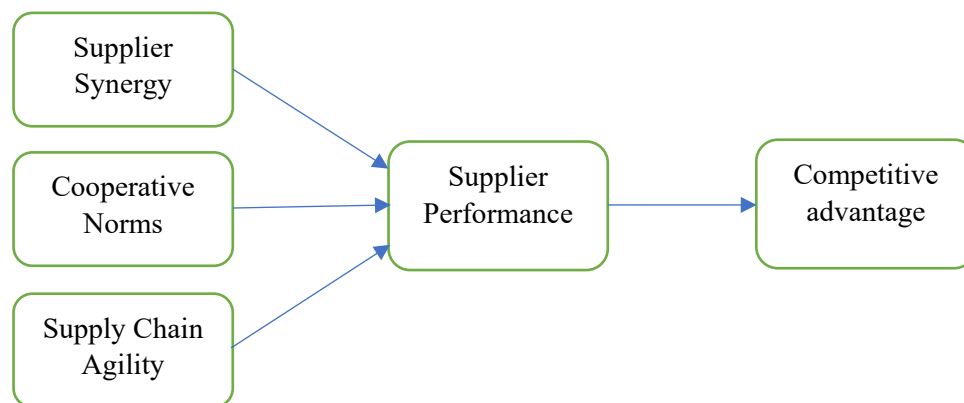
*H7: Supplier performance mediates between cooperative norms and competitive advantage.*

### Supply Chain Agility: Supply Chain performance and Competitive Advantage

In the supply chain management and production management, the concept of supply chain agility is gaining attention because of its importance in managerial aspects. In the context of manufacturing, the idea of agility has gained more attention and a source to gain a competitive advantage. Scholars pointed out that agility provides a chance to bring a new paradigm in the manufacturing industry, a necessity to improve manufacturing performance [25].

Fisher (1997) was the first person who introduced the concept of agility in the context of the supply chain. Supply chain agility was basically considered as the ability of the business, which enables it to respond according to the changes in the business environment [28].

### Theoretical framework



**Figure 1:** Research Framework

### 3. Methodology

The research conducted in the present study is descriptive research. The main purpose of this study is to describe the research. In the present study, the researcher has used quantitative method for a certain period of time. Therefore it is a cross-sectional design. Measuring the data is the aim of the present study, which is done through the analysis of the data. For the present study, data is collected from the employees of the footwear industry. For data collection, the survey was conducted in the form of questionnaires. The questionnaires were distributed personally to the respondents. The sampling technique for the present study was used was convenience sampling. The reason to choose convenience sampling was to reach

Whereas, agility has the characteristics of responsiveness, speed and flexibility, which impacts the mindset, information systems, processes and organizational structure. Therefore, undersupply chain agility, more than one firms are aligned with suppliers and customers. There are few studies that have examined supply chain agility on flexibility and integration between them. Later, [26] Conducted a study in which they pointed out that supply chain agility of the organization plays a critical role to achieve competitive advantage. Moreover, supply chain agility also impacts the organization as well as the supplier's performance. The same results were posed by [27], who revealed positive as the significant relationship among these variables.

Therefore; on the basis of the above discussion, the following hypothesis is developed:

*H8: Supply chain agility have a significant relationship with supply chain performance*

*H9: Supply chain agility have a significant relationship with Competitive advantage*

*H10: Supply chain performance mediates significantly between Supply chain agility and competitive advantage.*

Following framework is developed from the literature survey

the respondents, and convenience sampling makes this task easy. The sample size was determined from the population of the study based upon [29] table. The response rate of the questionnaires received was 55.64%. In order to analyze the data collected from the customer, PLS-SEM was used. The reason to choose PLS-SEM was that it's not based on a number of assumptions and is a very powerful tool [35].

### 4. Results

As mentioned above, for the present study, PLS-SEM (Partial Least Squares Structural Equation Modelling approach) was used through PLS 3. In order to evaluate the mediation impact between supply chain agility,

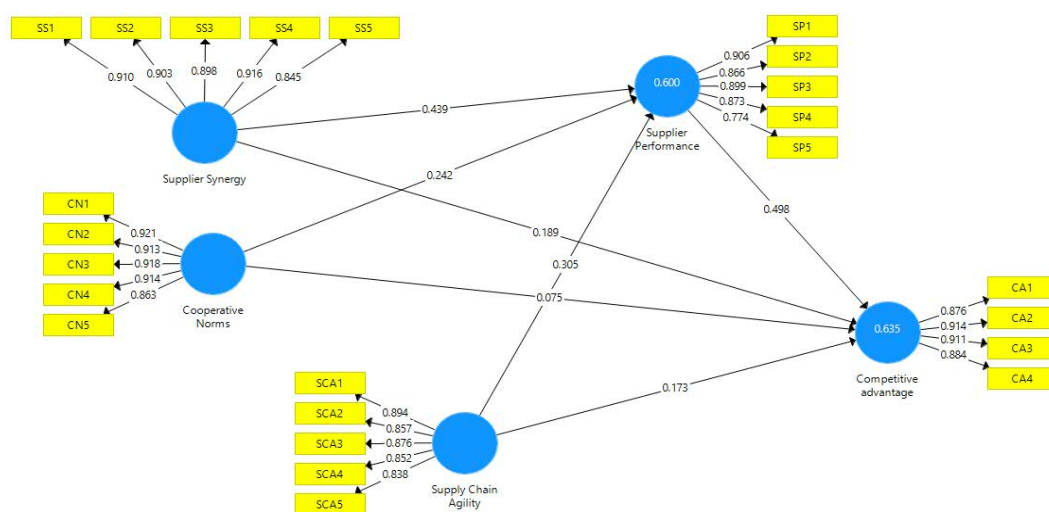
cooperative norms, supply synergy and competitive advantage were used in the footwear industry of Indonesia. PLS was used in the present study because it is sensitive to multivariate data. Moreover, for the estimation purpose, bootstrapping analysis of 500 samples (Sub-Samples) was used [31].

There are two steps for analysis through PLS. in the first step, reliability as well as constructs validity was

measured through measurement model. The factor loading was also assessed in the present study. The values of factor loading mentioned in Table 1 and Figure 2, are more than 0.70 which is well in the criteria of approval [32]. Moreover, it is also important to measure the inter construct reliability through convergent validity. The values of factor loading are shows that data is reliable.

**Table 1.** Outer Loading

	CA	CN	SCA	SP	SS
CA1	<b>0.876</b>				
CA2	<b>0.914</b>				
CA3	<b>0.911</b>				
CA4	<b>0.884</b>				
CN1		<b>0.921</b>			
CN2		<b>0.913</b>			
CN3		<b>0.918</b>			
CN4		<b>0.914</b>			
CN5		<b>0.863</b>			
SCA1			<b>0.894</b>		
SCA2			<b>0.857</b>		
SCA3			<b>0.876</b>		
SCA4			<b>0.852</b>		
SCA5			<b>0.838</b>		
SP1				<b>0.906</b>	
SP2				<b>0.866</b>	
SP3				<b>0.899</b>	
SP4				<b>0.873</b>	
SP5				<b>0.774</b>	
SS1					<b>0.910</b>
SS2					<b>0.903</b>
SS3					<b>0.898</b>
SS4					<b>0.916</b>
SS5					<b>0.845</b>



**Figure 2.** Measurement Model

To measure the construct validity, composite reliability and Cronbach's Alpha ( $\alpha$ ) are calculated. The value of both tests should be more than 0.7 as per acceptable criteria. According to [32], the value of Alpha must be above 0.7, so the convergent validity can be asserted. Moreover, the value of AVE should also be above 0.5 as

per the standards mentioned by [32]. As per the values of AVE are well above 0.7 mentioned in table 2, showing construct validity at a good level [33]. The values of CR and Cronbach Alpha is also according to the mentioned standard, i.e. 0.90, which is well above 0.70.

**Table 2.** Validity and Reliability

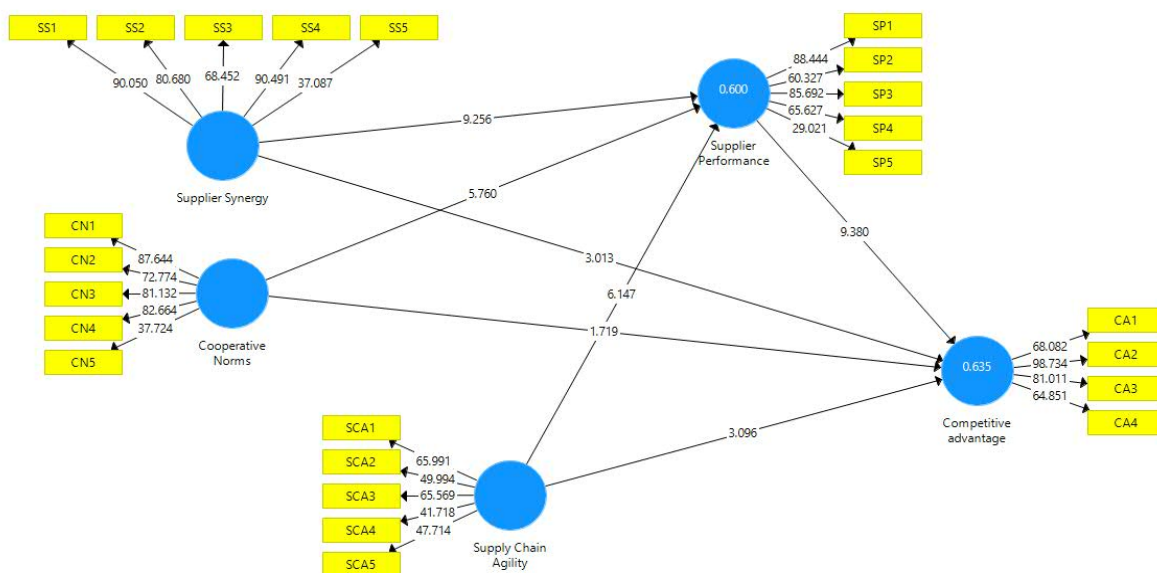
	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
CA	0.918	0.919	0.942	0.803
CN	0.945	0.947	0.958	0.821
SCA	0.915	0.916	0.936	0.746
SP	0.915	0.918	0.937	0.748
SS	0.938	0.941	0.952	0.801

Confirmation of discriminant validity is the next phase [34]. It is important to measure the discriminant validity in order to make sure that the constructs used in this study are not the same. In other words, no construct of this study

is going to measure the thing that is same [32]. Discriminant validity is shown in table 3 below. All these results show that the data is reliable and can be used for the next step to test the hypothesis.

**Table 3.** Discriminant Validity

	CA	CN	SCA	SP	SS
CA	0.896				
CN	0.461	0.906			
SCA	0.573	0.307	0.864		
SP	0.765	0.514	0.582	0.865	
SS	0.637	0.408	0.462	0.679	0.895



**Figure 3.** Structural Model

Now the next phase is to test the hypothesis. Table 4 showing the direct relationships of the study. To check the direct results, P-Value and t-Value is used. For a hypothesis to be accepted, t-value should be more than 1.96. Whereas, the p-value should be less than 0.05. Table

4 showing Cooperative Norms significantly impacts the supplier's performance, and competitive advantage as t-value and p-value are in given standard. All other relationships are also within acceptable criteria. Therefore, all direct hypothesis is accepted.

**Table 4.** Total Direct Effect

	(O)	(M)	(STDEV)	( O/STDEV )	P Values	Results
CN -> CA	0.195	0.193	0.047	4.197	<b>0.000</b>	<b>H6 Supported</b>
CN -> SP	0.242	0.242	0.046	5.287	<b>0.000</b>	<b>H5 Supported</b>
SCA -> CA	0.325	0.330	0.067	4.817	<b>0.000</b>	<b>H9 Supported</b>
SCA -> SP	0.305	0.309	0.054	5.665	<b>0.000</b>	<b>H8 Supported</b>
SP -> CA	0.498	0.494	0.052	9.646	<b>0.000</b>	<b>H1 Supported</b>
SS -> CA	0.408	0.404	0.062	6.630	<b>0.000</b>	<b>H3 Supported</b>
SS -> SP	0.439	0.436	0.049	9.032	<b>0.000</b>	<b>H2 Supported</b>

Table 5 showing the mediation results proposed in the study. Again P-value and t-value are used to assess the results. Both these values are in acceptance criteria, i.e. t-

value >1.96 and P-Value<0.05. Therefore, all indirect (mediation relationships) are accepted. Results are mentioned in table 5 below.

**Table 5.** Indirect Impact

	(O)	(M)	(STDEV)	( O/STDEV )	P Values	Results
CN -> SP -> CA	0.120	0.119	0.024	4.937	<b>0.000</b>	<b>H7 Supported</b>
SCA -> SP -> CA	0.152	0.152	0.030	5.024	<b>0.000</b>	<b>H10 Supported</b>
SS -> SP -> CA	0.219	0.216	0.035	6.298	<b>0.000</b>	<b>H4 Supported</b>

The value of R Square shows the impact of Independent variables on the dependent variable. Table 5 shows IV's of

the present study impacts competitive advantage by 64% and supplier performance by 60%.

**Table 6.** R Square

	R Square
CA	0.635
SP	0.600

## 5. Conclusion

This research was conducted by the researcher to examine the impact of supply chain agility, supply chain synergy and cooperative norms on supplier performance and competitive advantage. This is the time of tough competition in which it is very important for the organization to gain competitive advantage. Without cooperating with other partners, it is not possible for organizations to survive in the industry and to gain competitive advantage.

The initial objective of the present study was to examine the direct impact of supply chain agility, supply chain synergy and cooperative norms on supplier performance and competitive advantage as well. The results of the study mention that supplier performance of the organization can have a direct positive impact by the supply chain agility, cooperative norms and supplier synergy. Thus, it is a tool to enhance the performance of the organization. On the other hand, these predictors have a direct relationship with competitive advantage according to the findings of the study. It means that organizations should invest and use these as strategies to gain

competitive advantage. All of these results are supporting the results of the previous studies as well. In addition, the findings of the study also support the mediation role of supplier performance among supply chain agility, supply chain synergy and cooperative norms and competitive advantage.

All of these results showing that the footwear industry should focus on its supplier performance to gain a competitive advantage. This is the only way to retain customers and enhance their profitability and performance. In order to do it, Indonesian footwear industry should focus on predictors, namely supply chain agility, supply chain synergy and cooperative norms. The findings of the study contribute to filling the gap of limited supply chain studies footwear industry. Moreover, this study is helpful for practitioners and managers of the supply chain to develop a strategy to gain a competitive advantage. By gaining the competitive advantage, these organizations can enhance their performance, revenue and retain customers for the longer period of time.

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