

# Uncertain Supply Chain Management

homepage: [www.GrowingScience.com/uscm](http://www.GrowingScience.com/uscm)

## The integration of supplier and customer: The role of trust as a mediator on supply chain performance in small retail stores

J.E. Sutanto<sup>a\*</sup>, Eric Harianto<sup>a</sup>, Denpharanto Agung Krisprimandoyo<sup>a</sup> and Nilay Balkan<sup>b</sup>

<sup>a</sup>Department of Magister Management, Universitas Ciputra Surabaya, Indonesia

<sup>b</sup>Universitas Glasgow, Skotlandia, United Kingdom, United Kingdom

### ABSTRACT

#### Article history:

Received October 20, 2023

Received in revised format

December 27, 2023

Accepted February 7 2024

Available online

February 7 2024

#### Keywords:

Small Retail Stores

Sustainable growth

SMSMEs

Supply Chain Performance

Retail Industry

This study aims to investigate the integration of suppliers and customers with the role of trust (TR) as a mediator on supply chain performance in small retail stores. The sampling technique uses purposive sampling to represent the total sample used, 170 outlets or respondents and data analysis using programs with SmarPLS. The finding of this study stated that the effect of supplier integration (SI) on customer integration (CI) and the effect of CI in addition to TR and on SCP are all stated to have a positive and significant effect. However, Customer Integration has a negative and not significant effect on supply chain performance (SCP) through TR. Novelty of this study is the implementation of supply chain integration for development in the retail business sector, especially in Indonesia. Then, this study shows integration as a communication aspect of collaboration between companies. Implication of this study is useful for franchise management and small retail shop owners in mutually beneficial collaboration in developing Micro, Small and Medium Enterprises (SMSMEs) so that their businesses can develop, survive and be sustainable growth in the future.

© 2024 by the authors; licensee Growing Science, Canada.

### 1. Introduction

The retail industry is a strategic industry for the development economy of Indonesia, where competition of retail industry is increasingly competitive, because the activists must put in a lot of effort. This does not mean that the retail industry will become extinct. However, the development of the digital world and all the conveniences it provides are slowly pressing the existence of their shops. This challenge looks very tough for him because several retail industries include: 7 Eleven, Debenhams, H&M, who really hope that they don't decide to close their stores. Many small retail stores in Indonesia experience difficulties in managing their businesses and suffer failure that led to bankruptcy due to the highly competitive market, especially against big retail stores, weak management and low capital, traditional approach system. The role of the franchise is support of small retail stores belonging to small entrepreneur to build and develop their business, i.e. Indomaret and Alfamart, are useful to address the problems. Those franchisers provide training, management assistance, supply chain management and store applications that are integrated networks with small retail stores. It will lead to the ability to survive and sustainable growth of their business in the long run. This issue is relevant with sustainable development goals number 10 --- reduce inequality within the country. This is also in line with Indonesia government programs in efforts to equalize income distribution and reduce the gap between poor and rich citizens. Several obstacles and, simultaneously become integrated challenges in supply chain management. At the same time, the intended integration includes internal and external companies or between companies from upstream to downstream (Alkhatib, 2017; He et al., 2014; Huo et al., 2012; Nguyen et al., 2020). Supply chain integration refers to an organization strategically collaborating with supply chain partners (internal & external) to the organization, so that an effective and efficient flow of product, information and finances will be achieved,

\* Corresponding author

E-mail address [je.sutanto@ciputra.ac.id](mailto:je.sutanto@ciputra.ac.id) (J.E. Sutanto)

ISSN 2291-6830 (Online) - ISSN 2291-6822 (Print)

© 2024 by the authors; licensee Growing Science, Canada.

doi: 10.5267/j.uscm.2024.2.008

thereby providing added value to the customers. (Phan et al., 2020; Cahyaningratia & Naylah, 2023). According to Stevens and Jhonson (2016; Tewua et al., 2023), supplier integration is how two parties share information that allows companies to influence costs, quantities and delivery times, and production to streamline product flow and shift to collaborative relationships. There are several supply chain management indicators, roles, and performance of key objective / is to create a company's competitive advantage (Sundram, et al. 2020; Asnordin et al., 2021). The essential objectives of the role of supply chain performance include: (1) to produce competitive performance; (2) to be more active in responding to consumer needs and requests (3) the delivery process goods within a certain amount and a specific time can be achieved and (4) establish good cooperation with suppliers (Nguyen et al., 2021). There are research findings related to factors that affect the performance of supply chain (Sundaram et al., 2020; Abdullah et al., 2014; Jamaludina, 2021). Problems that often arise in mini-market outlets, especially the problem of product supply, they often experience that products need to be delivered on time, which results in consumers immediately moving to other mini-markets and the usual ones where consumers have purchased before. Thus, Companies must innovate to ensure companies can survive in competition (Zainurossalamia & Hidayati, 2020; Gandhi et al., 2017. In addition, the company is evaluating of supplier integration in order to increase productivity, so that it is hoped that cooperation between the two parties will run sustainably. (Lai, et al. 2014; Zhao et al., 2021). SCP has the possibility that it is influenced by several other factors, such as with formal and informal partners, because in its implementation, it always involves the company (Sundram et al., 2016), and in general, it is widely used by strategic companies in making decisions according to customer desires (Kumar et al., 2019; Lotfi et al., 2013). Furthermore, it can be implemented for companies, where the framework for companies is specific criteria when needed and service oriented to consumers (Ramakrishna et al., 2023; Normala et al., 2023. Chavez, et al. (2015), state notion of customer integration forms a collaborative activity such as communicating with several consumers because, with customers, it may support SCP (Cao et al., 2014; Dominguez et al., 2014) and the supply chain helps the distribution process so that it affects the company's performance or the supply chain performance (Bagher, 2018; Patel, 2017; Hejatz, 2022). Therefore, every organization must maintain mutual trust both internally and externally because with the collaboration between companies, applying the supply chain concept is an alternative solution that is very efficient and effective (Sari, 2015; Nagashima et al., 2015).

This study's novelty is to compare previous studies' results by developing the trust variable as a mediating variable. Based on the presentation above, conceptually, this research is not only a Huang et al., (2014) novelty; besides to test the effect of integration of supplier and customer on SCP in small retail stores, and trust as a mediator.

## 2. Literature Review

Efforts to improve organizational performance indicators are urgently needed based on globalization regulations to encourage between supply chain integration and companies (Adnania et al., 2023; Hugos, 2011). Therefore, in efforts to increase competitiveness between companies globally, a strategy is needed on how to be able to collaborate with several companies. If there is a collaboration with the integrated supply chain, A sound communication system will impact the adaptation of market changes for short or long-term periods (Seebacher & Winkler, 2015; Xiao et al., 2020). According to Hotlan/ (2021), stated that several companies have strong customer integration that can improve company performance.

### 2.1 Supply Chain Performance (SCP)

SCP results from the supply chain's capability to meet final needs effectively and efficiently according to the wishes of consumers. (Hong et al., 2019; Teller et al., 2017). The development of SCP has a specific goal towards customer needs so that, in the end, it will impact on the company's performance sustainably (Sundram et al., 2020; Nguyen et al., 2020). SCP consists of several indicators, including organizational, operational, financial, and corporate performance. In principle, all organizations depend highly on other people, which requires strong human capital (Marak & Pillai, 2019; More & Basu, 2013; Mathis & Cavinato, 2010). The results of supply chain performance analysis are increasingly complex because there are various entities involved and influencing each other, such as suppliers, manufacturers, distributors, wholesalers, up to the end customer (Deshpande, 2012). The supply chain system works in principle to increase value: research and development, marketing innovation, financial systems, and production management (Qrunfleh & Tarafdar, 2014). At the same time, one model is used to measure overall performance by considering costs, product quality, responsiveness, including consumer retention (Shahbaz et al., 2018; Barber et al., 2017). Therefore, the development process is an innovation that is very much needed to increase the company's operational performance. Meanwhile, to measure financial performance, the financial department especially needs to make new policies related to relevant and accurate indicators. (Attia, & Eldin 2018; Shahbaz et al., 2018). The results of a study related to supply performance have cooperated and are responsible for product delivery to consumers (Zainurossalamia & Hidayati, 2020). Collaboration or cooperation from all parts of the supplier is needed to improve SCP. Therefore, supply chain organizations focus on increasing productivity, which has an impact on improving SCP (Basu et al., 2017). Supply chain finance, including trade credit, supplier-managed inventory, payment terms, inventory financing, and financial performance (Chrisna & Kristinae, 2021; Shaik, 2021; Wuttke et al., 2013; Zhang et al., 2018). Meanwhile, production systems are related to changes from input to output (Boutayeb, 2017) and a system for inventory management and information systems (Wu et al., 2014). Supply chain performance indicators were adopted and adapted from research (Yanya & Mahamat, 2020; Saragih et al., 2020; Hoang, et al., 2022; Shetty, 2019) and consisted of four indicators, namely speed, reliability, cost, and assets (Kumar & Kushwaha, 2018).

## 2.2 Supplier Integration (SI)

SI is helpful for the quality and reliability of products that are distributed. Internally the company also implements a supply chain where the products produced range from raw materials to finished goods (Song et al., 2019). Whereas if the raw materials owned by the company are quality raw materials, then it will help the results of product quality are also of high quality, which has an impact on increasing productivity. (He et al., 2014). Steven & Johnson (2016), SI is a form of collaboration with the company's internal and external parties to provide services and supply goods to create a good relationship. Zhao et al. (2013) argue that. It combines internal and external partners, so it becomes an inter-organizational strategy, practice, and process that establishes a collaborative process. While Zhang et al., (2018), supplier integration has become a necessity for organizations in companies so that there is overall integration between divisions or departments starting from upstream to downstream, including vendors, delivery processes, manufacturing or producers and users (Wong et al., 2011). The research result shows that integrating potentially trustworthy suppliers improves company performance (Alfalla et al., 2013; Huo, 2014' Al-Nazer, 2022; Fuentes et al., 2016).

## 2.3 Customer Integration (CI)

Zhao, et al (2013), it is said that customer integration is the cooperation of producers with external partners to organize strategies, practices, and processes between organizations, so that collaboration is formed, or synchronized process with customers. or customer data storage is varied and irregular (Hongyun, 2021; Irfan, 2019; Hotlan, 2021). Therefore, when customer integration is carried out there must be clear activity boundaries outside a company (Wajdi et al., 2023). A company's supply chain targets include everything including market development strategy, and existence of internal organizational collaboration processes, for the purpose of meeting customer needs (Chen & Paulraj, 2020). Chavez, et al. (2015), customer integration has the characteristic of always carrying out collaborative activities, one example of intensively contacting customers. Find information and get accurate customer data; it can be done through purchase transactions or be said to be customer integration. Meanwhile, consumer preferences for a product and consumer purchasing power in purchasing frequently used products, as purchasing decisions (Lotfi et al., 2013). Lau, et al. (2010) need the company to get a good response from customers if the company actively collaborates with its customers, and this step is simple and efficient to achieve the target of sales volume. Zhao, et al. (2013), CI is the collaboration between internal and external partners, and in every innovation related to collaboration, they always make changes (strategy, implementation, and policies) so that the systems that are built with the involvement of consumers are constantly updated. Evaluation of research on supply chain performance, it is necessary to formulate clear indicators, whether feedback from consumers, procedures for providing periodic information, sensitivity to consumer complaints, and responses to consumer needs (Chen et al., 2017; Prathiba, 2020).

## 2.4 Trust (TR)

One of the essential factors in dealing with consumer orientation is trust because trust will reduce the uncertainty in developing supply chain management. Trust is essential for collaboration by building communication to help deal with problems and find solutions. (Zhang et al., 2018). According to Almeida, et al. (2017) always prioritize starting from upstream to downstream, and all parties involved must have the same opportunity to benefit (Delbufalo, 2012). Bachmann & Zaheer (2016), explain that trust can be built when the parties concerned do not know each other through transactions or interactions. Trust is used as a benchmark for assessing the relationship between a person and another person in a transaction with expectations in an environment with much uncertainty (Bunduchi, 2013). Xiao, et al. (2010), that trust is the desire for a business partner who is expected to be reliable in cooperative relationships in building a business. Bowersox (2013), trust can eliminate uncertainty and risk, thus having an impact on increasing cooperation. As the level of trust increases, members learn that cooperation produces more results than working alone.

## 2.5 Research Hypothesis

The next stage is to analyze of hypotheses are used in this study:

- H<sub>1</sub>:** *There is a direct effect of supplier integration on customer integration.*
- H<sub>2</sub>:** *There is a direct effect of customer integration on supply chain performance.*
- H<sub>3</sub>:** *There is a direct effect of customer integration on trust.*
- H<sub>4</sub>:** *There is a direct effect of trust on supply chain performance.*
- H<sub>5</sub>:** *There is an indirect effect of customer integration on supply chain performance through trust.*

## 3. Research Method

### 3.1 Population and Sample

A sample is a representative of a population that has the same traits and characteristics that describe and can represent the entire population studied. The calculated value obtained from this sample is called statistics. This researcher approaches the

calculation to determine the number of samples using a formula of at least 5 - 10 times of indicators number (Hair et al., 2017). This study has 17 indicators, and the number of samples required is 170 respondents. The samples size in this study was 170 respondents, consisting of retail locations taken from several cities or regencies, including Malang city, Jember city, in Madiun regencies, in Surabaya city, in Sidoarjo regencies, and Kediri regencies (Table 1).

**Table 1**  
Data of Retail Stores

Location (County Town)	Start Operational (Year)		
	3-5	6-10	more than 10
Malang	8	11	6
Jember	4	14	3
Madiun	3	16	6
Surabaya	16	22	6
Sidoarjo	8	18	4
Kediri	8	11	6
Total	47	92	31
Percentage (%)	28	54	18

Note: Data processed in 2023

### 3.2 Validity and Reliability Instrument

A measurement instrument is declared valid if it can measure something correctly with what is to be measured; in other words, all indicators must be declared valid. The reliability test in a study is used as something that is a benchmark for the consistency of the results of instrument measurements in continuous use with symptoms and the use of the same measuring instrument, and the test results must be declared reliable. The validity test aims to find out whether the test instrument used in this study, namely the questionnaire, is said to be valid. Valid means that the instrument can measure what should be measured (Surucu & Maslakei, 2020). If the correlation coefficient is less than 0.05, then the instrument can be said to be valid. To test the validity of this research, it will be carried out with the help of programs SPSS version 25. The reliability test is used several times and can provide consistent results to examine the same object with the same technique, even at different times (Surucu & Maslakei, 2020). An instrument used in research can be declared reliable if Cronbach's alpha > 0.60, apart from that its must also be compared between Cronbach's alpha value versus Cronbach's alpha item if deleted and then Cronbach's alpha item if deleted < Cronbach's alpha, then it is declared reliable. This data processing will be carried out using SPSS version 25.

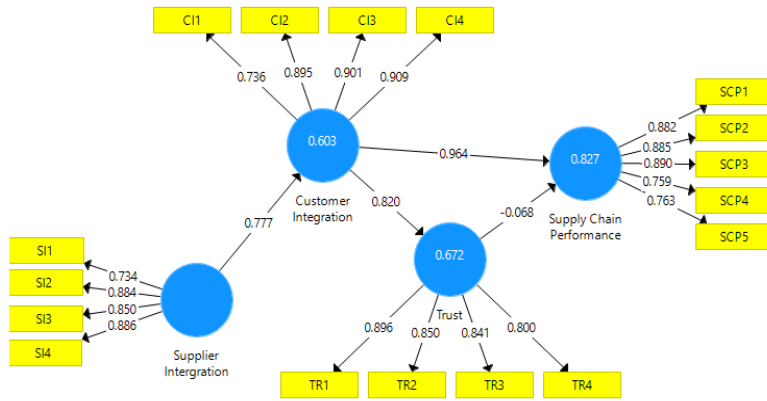
### 3.2 SEM-PLS

For this research, that SEM-PLS, as an approach to analyze data using Smart PLS software. The first reason is to use the Smart PLS program because this research is more about predicting and explaining latent variables rather than testing a theory and the number of samples in the research is relatively small. Second, the data criteria do not have to be normally distributed. Third, the formation of latent variables in this research can be partially reflective or formative or can be both reflective and formative. Meanwhile, PLS is an alternative analysis method with variance-based SEM and to develop theories (Garson, 2016; Shiau et al., 2019). Ali, et al. (2018) and Henseler (2017), two models must be analysed in PLS (outer & inner models). Garson (2016), which determines how latent variables are connected to each indicator, and testing on the outer model, which includes: convergent validity, as a reference, the loading value in the study uses 0.5 to 0.6 which is assumed to be within sufficient limits (Avkiran & Riegle, 2018). If the number of indicators per variable is between 4 to 5. (Hair et al., 2017; Henseler et al., 2017). Discriminant validity measures the indicators of each variable based on cross loading with latent variables, and if the initial measurement results are better (Ali et al., 2018; Rasoolimanesh & Ali, 2018; Hair et al., 2017). Composite reliability values for each indicator for measuring a construct can be seen in the latent variable coefficients (Hair et al., 2017; Henseler, 2017). The evaluation of the inner model is carried out after the evaluation of outer model, where the inner model describes the effects of the independent and dependent latent variables. At this point, there are two main evaluations: First, to see whether the independent latent variables affect the latent dependent variables and path analysis coefficients. The bootstrap process results of T statistic > 1.96 and p value < 0.00, to be declared significant (Kock, 2018). Second, if the R square > 0.7., it indicates that there is a strong correlation (Rasoolimanesh & Ali, 2018). Then, Q-Square predicts the value produced by the model and its value < 0.00, it indicates that the model has better predictions.

## 4. Results and Discussion

### 4.1 Outer Model

To evaluate the outer model in PLS analysis, the objective is assessing validity and reliability of the model. Following estimation output of PLS algorithm model is the outer model (Fig. 1).



**Fig. 1.** Diagrams Outer Model

4.1.1 Convergent Validity

According to Rasoolimanesh and Ali (2018), convergent validity measurement uses an outer loading value with an outer loading limit > 0.7 for theoretical test, whereas 0.5 - 0.7 for exploration research, in Table 2.

**Table 2**  
Outer Loading and AVE

Variables	Indicators	Outer Loading	AVE	Remarks
SI	SI1	0.734	0.707	good convergent and valid construc
	SI2	0.884		
	SI3	0.850		
	SI4	0.886		
CI	CI1	0.736	0.746	good convergent and valid construc
	CI2	0.895		
	CI3	0.901		
	CI4	0.909		
TR	TR1	0.896	0.718	good convergent and valid construc
	TR2	0.850		
	TR3	0.841		
	TR4	0.800		
SCP	SCP1	0.882	0.702	good convergent and valid construc
	SCP2	0.882		
	SCP3	0.882		
	SCP4	0.882		
	SCP5	0.882		

Sources: Data processing (2023)

Based on Table 2, that is to evaluate convergent validity, then value of outer loading results for all indicators in each variable, all its > 0.7, while AVE > 0.5. and construct validity are declared fulfilled. Concluded, the results are declared a good convergent and valid construct.

4.1.2 Discriminant Validity

The next stage is evaluation of discriminant validity by assessing Fornell Larcker, in Table 3.

**Table 3**  
Fornell Larcker

Variables	Customer Integration (CI)	Supplier Integration (SI)	Supply Chain Performan (SCP)	Trust (TR)
SI	0.863			
CI	0.777	0.841		
TR	0.909	0.654	0.838	
SCP	0.820	0.741	0.723	0.847

Sources: Data processing (2023)

The evaluation results for discriminant reliability shows Tabel 3, the Fornell Larcker criteria and items measuring association compared to other constructs.

4.1.1 Composite Reliability

For reliability testing in PLS, we can use two methods (Hair et al., 2014). First, Cronbach alpha > 0.60. Second, composite reliability > 0.7, it is high reliability, in Table 4.

**Table 4**  
Composite Reliability

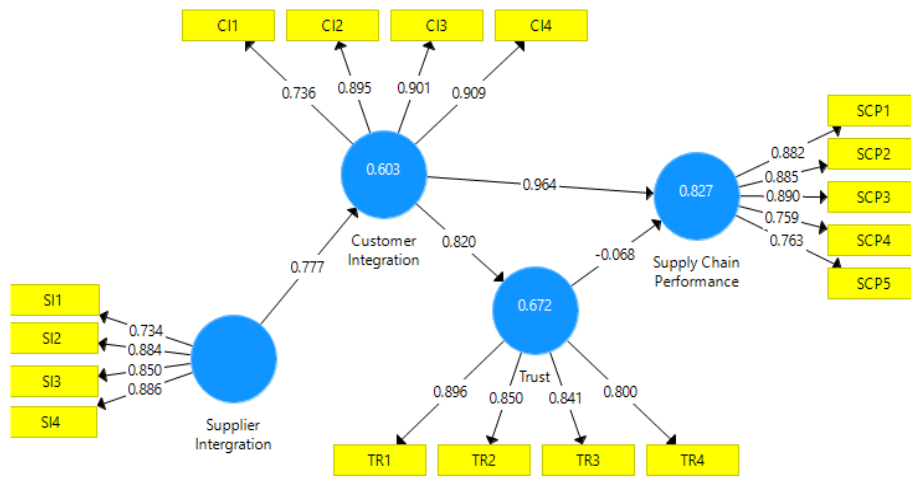
Variables	Composite Reliability	Cronbach's Alpha
CI	0.921	0.884
SI	0.906	0.860
SCP	0.921	0.896
TR	0.910	0.873

Sources: Data processing (2023)

According to Table 4, the value of composite reliability for all research variables > 0.70. The results show that all the variables studied have high reliability values, because the composite reliability value > 0.70, so it can be said that the reliability is quite high.

4.2 Inner Model

Furthermore, after the outer model is feasible, then evaluate the inner model to test the significance of the independent latent variable by resampling with bootstrapping, the result is as follows (Fig. 2):



**Fig. 2.** Diagrams Inner Model

4.2.1 Indicator Reliability

Assessment for R square through Smart-PLS prediction for the path, and output data using Smart-PLS obtained R square as follows (Table 5).

**Table 5**  
R<sup>2</sup> and Q<sup>2</sup>.

Variables	R Square
CI	0.603
SCP	0.827
TR	0.672

Note: Data processing (2023)

Assessing the goodness of fit of a model other than using R-square and predicting the relevance of Q<sup>2</sup> to the structural model. If the Q<sup>2</sup> > 0, it means that the model has a relevance predication, if Q<sup>2</sup> ≤ 0 it does not have a relevance predicate. Predicted relevance value results are:

$$Q^2 = 1 - \{(1 - 0.603^2) \times (1 - 0.827^2) \times (1 - 0.672^2)\} = 1 - \{0.11\} = 0.89.$$

The results of the calculation above can be explained, which is equal to 0.89 or 89%. Then, it is stated that the model has a predictive relevance value.

#### 4.2.2 Direct Effect

After going through outer model analysis, then evaluate the direct effect. The direct effect of significance of study hypothesis in Table 6.

**Table 6**  
Direct Effect

	Original Sample	T Statistics	P Values	Remarks
SI → CI	0.777	20.234	0.000	Positive & significant
CI → SCP	0.909	19.419	0.000	Positive & significant
CI → TR	0.282	40.084	0.000	Positive & significant
TR → SCP	0.505	1.156	0.256	Positive & not significant

Furthermore, from Table 6, the results of hypothesis testing are explained in detail as follows:

**H<sub>1</sub>**: The first hypothesis is that the path between SI and CI obtained the Original Sample (O) = 0.777, while T-Statistics = 20.234 and p-value = 0.000. Therefore, based on these results, the T-Statistics = 20,234 > 1.96 and p-value = 0.000 < 0.05, so it can be concluded that there is a significant direct effect between SI variable and CI. The significant effect between SI on CI has a positive direction, this means if SI is getting better, the effect on CI will also be getting better.

**H<sub>2</sub>**: The second hypothesis, that the effect CI on SCP obtained the Original Sample (O) = 0.909, while T-Statistics = 19.419 and p-value = 0.000. Therefore, based on these results, T-Statistics = 19.419 > 1.96 and p-value = 0.000 < 0.05, so it can be concluded that there is a significant direct effect between CI on SCP. The significant effect of CI on SCP is positive and significant, which means that both variables also show a good correlation.

**H<sub>3</sub>**: After that, the third hypothesis, the effect CI on TR obtained the Original Sample (O) = 0.282, while the T-Statistics = 40.084 and p-value = 0.000. Therefore, based on these results, the T-Statistics = 40.084 > 1.96 and p-value = 0.000 < 0.05, so it can be concluded that there is a significant direct effect between CI variables on TR. The significant effect between CI on TR has a positive direction, which means that if CI is getting better, the effect on TR will also be getting better.

**H<sub>4</sub>**: Next, the fourth hypothesis, that effect TR on SCP obtained by Original Sample (O) = 0.505, while T-Statistics = 1.156 and p-value = 0.256. Therefore, based on these results, the value of T-Statistics = 1.156 < 1.96 and p-value = 0.256 > 0.05, so it can be concluded that there is a direct effect that is not significant between the variable Trust (TR) on SCP. The not significant effect between TR on SCP (it has a positive & not significant).

#### 4.2.3 Indirect Effect

The results of the analysis or output of the indirect effect on the PLS analysis are shown in Table 7.

**Table 7**  
Indirect Effect

	Original Sample	T Statistics	P Values	Remarks
CI → TR → SCP	- 0.056	1.129	0.259	Negative & not significant

**H<sub>5</sub>**: Indirect influence on the research model between CI on SCP through TR mediation, the Original Sample (O) = - 0.056, T-Statistics = 1.129, and p-value = 0.259. Based on Table 11, that is T-Statistics = 1.129 < 1.96 and p-value = 0.259 > 0.05; it is concluded that there is an indirect effect that is not significant between the CI variable and SCP through mediation TR

## 5. Conclusions and Suggestions

### 5.1 Conclusions

While the results of the discussion above can be concluded, among others: First hypothesis, is a significant effect between the variables of SI on CI. The significant effect between SI on CI has a positive direction, or the first hypothesis results stated to have a positive and significant effect. Then for the second hypothesis, it is stated that there is a significant effect of CI on SCP, which is positive and significant, which means that the two variables also show a good correlation. After that, the third hypothesis found that there was a significant effect between customer Integration on TR is a positive direction, meaning that the better the CI variable, the better the effect on Trust. Next, the fourth hypothesis, there is a finding that Trust in SCP has a positive and not significant effect, which means that if the Trust variable is getting worse, it will affect SCP, which is also getting worse. Finally, the fifth hypothesis results that there is a negative and not significant indirect effect between the CI and SCP variables through TR mediation. The results of this research are useful for franchise management and small retail

shop owners in mutually beneficial collaboration in developing Micro, Small and Medium Enterprises (SMSMEs) so that their businesses can develop, survive and be sustainable growth in the future.

## 5.2 Suggestions

First, given the role of the retail aspect, the retailer is responsible for analyzing customer needs and collaborating with other supply chain teams. Then as a supplier, you need to carry out its role so that the production process will be smooth. Some of the supplier's duties are (a) supervising supply availability; (b) ensuring the quality of the raw materials to be delivered, so as a party that requires the role of a supplier, it is essential for the customer. Second, needed periodically of course, related to the retailer is responsible for analyzing the system on customer wants and needs and working with other teams of the supply chain.

## Acknowledgments

This research is the result of collaboration between authors and each of them as lecturers at Universitas Ciputra, Surabaya, Indonesia and Glasgow University, Scotland, United Kingdom. Therefore, we as authors would like to thank for Editors and Publisher of the Journal Uncertain Supply Chain Management.

## References

- Abdullah, N. A. H. N., & Yaakub, S. (2014). Reverse logistics: Pressure for adoption and the impact on firm's performance. *International Journal of Business and Society*, 15(1), 151- 170
- Adnania, L., Jusuf, E., Alamsyahc, K., & Jamaludina, M. (2023). The role of innovation and information sharing in supply chain management and business performance of halal products in tourism destinations. *Uncertain Supply Chain Management*, 11(1), 195–202. DOI: 10.5267/j.uscm.2022.10.007
- Ali, F., Rasoolimanesh, S.M., Sarstedt, M., Ringle, C.M., & Ryu, K. (2018). An assessment of the use of partial least squares structural equation modeling (PLS-SEM) in hospitality research. *International Journal of Contemporary Hospitality Management*, 30(1), 514-538. <https://doi.org/10.1108/IJCHM-10-2016-0568>
- Alfalla-Luque, R., Medina-Lopez, C., & Schrage, H. (2013). A study of supply chain integration in the aeronautics sector. *Production Planning & Control*, 24(8/9), 769-784. <https://doi.org/10.1080/09537287.2012.666868>
- Alkhatib, S., F. (2017). Strategic logistics outsourcing: Upstream-downstream supply chain comparison. *Journal of Global Operations and Strategic Sourcing*, 10(3), 309-333. <https://doi.org/10.1108/JGOSS-08-2016-0024>
- Almeida, M.M.K., Marins, F.A.S., Salgado, A.M.P., Santos, F.C.A., & Silva, S.L. (2017). The importance of trust and collaboration between companies to mitigate the bullwhip effect in supply chain management. *Maringa*, 39(2), 201-210
- Al-Nazer, N. (2022). A study on the relationship between supply chain integration and firm performance. *Uncertain Supply Chain Management*, 10(2), 295-302. <http://dx.doi.org/10.5267/j.uscm.2022.2.00>
- Asnordin, N. A., Sundram, V. P. K., & Noranee, S. (2021). The influence of supply chain integration towards supply chain performance in manufacturing firms. *International Journal of Academic Research in Accounting Finance and Management Sciences*, 11(1), 350-362. DOI:10.6007/IJARAFMS/v11-i1/8851
- Attia, A., & Essam Eldin, I. (2018). Organizational learning, knowledge management capability and supply chain management practices in the Saudi food industry. *Journal of Knowledge Management*, 22(6), 1217-1242.
- Avkiran, N. K., & Ringle, C. M. (2018). *Partial least squares structural equation modelling: Recent advances in banking and finance*. Springer
- Bachmann, R., & A. Zaheer, A. (2016). *Handbook of Trust Research*. USA: Edward Elgar Publishing, Incorporated
- Bagher, A., N. (2018). The effect of supply chain capabilities on the performance of food companies. *Journal of Financial Marketing*, 2(4), 1-9. <https://doi.org/10.35841/finance-marketing.2.4.1-9>
- Barber, K. D., Garza-Reyes, J. A., Kumar, V., & Abdi, M. R. (2017). The effect of supply chain management practices on supply chain and manufacturing firms' performance. *Journal of Manufacturing Technology Management*, 28, 577 - 609. <https://doi.org/10.1108/JMTM-11-2016-0154>
- Basu, G., Jeyasingam, J., Habib, M., Letchmana, U., & Ravindran, R. (2017). The impact of supply chain management practices on the performance of Private Universities in Malaysia. *International Journal of Supply Chain Management*, 6(3), 22-35.
- Boutayeb, F. (2017). Estimating the returns to education in Algeria. *Asian Journal of Economic Modelling*, 5(2), 147-153.
- Bunduchi, R. (2013). Trust, partner selection and innovation outcome in collaborative new product development. *Production Planning & Control*, 24(2/3), 145-57.
- Bowersox, D.J. (2013). *Supply chain logistics management*. 4<sup>th</sup> ed. New York: McGraw Hill Higher Education, New York, NY.
- Cahyaningratratria, & Naylahb, M.(20123). The effect of supply chain operational capabilities in consolidating organizational compatibility of supply chain process integration and business performance. *Uncertain Supply Chain Management*, 11(1), 95 – 102. DOI: 10.5267/j.uscm.2022.11.006
- Cao, Q., Baker, J., & Schniederjans, D. (2014). Bullwhip effect reduction and improved business performance through guanxi: An empirical study. *International Journal Production Economics*, 158(C), 217 - 230



- Chavez, R., Yu, W., Gimenez, C., Fynes, B., & Wiengarten, F. (2015). Customer integration and operational performance: The mediating role of information quality. *Decision Support System, 80*, 83 – 95
- Chen, I.J., Paulraj, A. (2020). Towards of theory of supply chain management: the construct and measurement. *Journal of Operations Management, 22*, 119 -150.
- Chen, L., Peng, J., Liu, Z., & Zhao, R. (2017). Pricing and Effort Decisions for a Supply Chain with Uncertain Information. *International Journal of Production Research, 55*, 264-284. <https://doi.org/10.1080/00207543.2016.1204475>
- Christa, U., & Kristinae, V. (2021). The effect of product innovation on business performance during the COVID-19 pandemic. *Uncertain Supply Chain Management, 9*(1), 151-158
- Delbufalo, E. (2012). Outcomes of inter-organizational trust in supply chain relationships: A systematic literature review and a meta-analysis of the empirical evidence. *Supply Chain Management, 17*(4), 377-402.
- Deshpande, A.R. (2012). Supply chain management dimensions, supply chain performance and organizational performance: An integrated framework. *International Journal of Business and Management, 7*(8),1-19
- Dominguez, R., Cannella, S., Framinan, J. (2014). On bullwhip-limiting strategies in divergent supply chain network. *Computers & Industrial Engineering, 73*(1), 85 -95
- Fuentes, J.M., Diaz, M.S., & Vega, P.G. (2016). Improving supply chain responsiveness through advanced manufacturing technology. The mediating role of internal and external integration. *Production Planning & Control, 27*(9), 686 – 697. DOI: 10.1080/09537287.2016.1166277
- Gandhi, A. V., Shaikh, A., & Sheorey, P. A. (2017). Impact of supply chain management practices on firm performance. *International Journal of Retail & Distribution Management, 45*, 366-384. <https://doi.org/10.1108/IJRDM-06-2015-0076>
- Garson, G. D. (2016). *Partial least squares regression and structural equation models*. Asheboro: Statistical Associates
- Hair, J. F., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management & Data Systems, 117*(3), 442–458 <https://doi.org/10.1108/IMDS-04-2016-0130>
- Hair, J., Hult, G., Ringle, C., & Sarstedt, M. (2014). *A Primer on partial least squares structural equation modeling (PLS-SEM)*. America: SAGE Publication, Inc.
- He, Y, Lai, K.K., Sun, H., Chen, Y. (2014). The impact of supplier integration on customer integration and new product performance: The mediating role of manufacturing flexibility under trust theory. *International Journal of Production Economics, 147*, 260-270
- Hejatzai, M.T. (2022) The association between organizational performance and supply chain management practice. *Uncertain Supply Chain Management, 10*(4), 1218-1232. <https://doi.:10.5267/j.uscm.2022.8.006>
- Henseler, J. (2017). Bridging design and behavioral research with variance-based structural equation modeling. *Journal of Advertising, 46*(1), 178-192. <https://doi.org/10.1080/00913367.2017.1281780>
- Hoang, T.L., Nguyen, Q.N., Phung, P.V., & Hien, T.D. (2022). The association among collaboration, risk, and supply chain performance. *Uncertain Supply Chain Management, 10*(4), 1211 – 1218. DOI: 10.5267/j.uscm.2022.8.007
- Hong, J., Zheng, R., Deng, H., & Zhou, Y. (2019). Green supply chain collaborative innovation, absorptive capacity, and innovation performance: Evidence from China. *Journal of Cleaner Production, 241*, 118377. <https://doi.org/10.1016/J.JCLEPRO.2019.118377>
- Hongyun, T. (2021). Interfirm value co-creation and firm performance Nexus In Ghanaian SMES, supply chain integration: Mediating roles stakeholder pressure and innovation capability. *Sustainability, 13*, 2351. <https://doi.org/10.3390/su13042351>
- Hotlan, S. (2021). Supply chain integration, flexibility, enables resilience, and innovation to improve business performance In Covid-19 Era. *Sustainability, 13*, 4669. <https://doi.org/10.3390/su13094669><https://www.mdpi.com/journal/sustainability>
- Huang, M.C., Yen, G.F., & Liu, T.C. (2014). Re-examining supply chain integration and the supplier's performance relationship under uncertainty. *Supply Chain Management: An International Journal, 19*(1), 64 –78
- Hugos, M., H. (2011). *Essentials of supply chain management*, 3<sup>rd</sup> Ed, 332, John Wiley & Sons.
- Huo, B., Qi, Y., Wang, Z., & Zhao, X. (2014). The impact of supply chain integration on firm performance: The moderating role of competitive strategy. *Supply Chain Management: An International Journal, 19*(4), 369-384. DOI:10.1108/SCM-03-2013-0096.
- Huo, B. (2012). The impact of supply chain integration on company performance: on organizational capability perspective. *Supply Chain Management: An International Journal, 17*(6), 596-610
- Irfan, M. (2019). Agility through process enabling and supply flexibility supply chain integration. *Asia Pacific Journal of Marketing and Logistics 32*(2), 519 – 547. <https://doi.org/10.1108/apjml-03-2019-0122>
- Kock, N. (2018). Should bootstrap be used in PLS-SEM? Toward stable P-Value calculation methods. *Journal of Applied Structural Equation Modelling, 1*(2), 1-12. [https://doi.org/10.47263/JASEM.2\(1\)02](https://doi.org/10.47263/JASEM.2(1)02)
- Kumar, V., Rajan, B., Gupta, S., & Pazza, I., D. (2019). Customer engagement in service. *Journal of Academy of Marketing Science, 47*, 138 – 160
- Kumar, A., & Kushwaha, G. (2018). Supply Chain Management Practices and Operational Performance of Fair Price Shops in India: An Empirical Study. *Log Forum, 14*(1), 85 - 99. <https://doi.org/10.17270/J.LOG.2018.237>
- Lai, K., Wong, C. W., & Lam, J. S. L. (2014). Sharing environmental management information with supply chain partners and the performance contingencies on environmental munificence. *International Journal of Production Economics, 164*, 445–453

- Lau, A.K., Yam, R. & Tang, E.P. (2010). Supply chain integration and product modularity: An empirical study of product performance for selected Hong Kong manufacturing industries. *International Journal of Operations & Production Management*, 30(1), 20-56
- Lotfi, Z., Sahran, S., & Mukhtar, M. (2013). A product quality-supply chain integration framework. *Journal of Applied Sciences*, 13, 36-48.
- Marak, Z.R., & Pillai, D. (2019). Factors, Outcome, and the Solutions of supply chain finance: Review and the future directions. *Journal of Risk and Financial Management*, 12(3), 1-23.
- Mathis, J., & Cavinato, J. (2010). Financing the global supply chain: Growing need for management action. *Thunderbird-International-Business-Review*, 52(6), 467-474. DOI: 10.1002/tie.20373
- More, D., & Basu, P. (2013). Challenges of supply chain finance: A detailed study and a hierarchical model based on the experiences of an Indian firm. *Business Process Management Journal*, 19(4), 624-647. <https://doi.org/10.1108/BPMJ-09-2012-0093>
- Nagashima, M., Wehrle, F. T., Kerbache, L., & Lassagne, M. (2015). Impacts of adaptive collaboration on demand forecasting accuracy of different product categories throughout the product life cycle. *Supply Chain Management*, 20(4), 415-433
- Nguyen, X., Doan, T. & Hoang, V. (2020). The impact of global supply chain management on performance: Evidence from Textile and garment industry. *Uncertain Supply Chain Management*, 8(1), 17-26.
- Nguyen, A., Lamouri, S., Pellerin, R., Tamayo, S., & Lekens, B. (2022). Data analytics in pharmaceutical supply chains: state of the art, opportunities, and challenges. *International Journal of Production Research*, 60(22), 6888-6907. <https://doi.org/10.1080/00207543.2021.1950937>
- Normal, I.N., Setini, M., & Putra, I.G.C. (2023). Assessing the influence of supply chain collaboration value innovation, market demand, and competitive advantage on improving the performance of ceramic SMEs. *Uncertain Supply Chain Management*, 11(2), 777-786. DOI: 10.5267/j.uscm.2023.1.002
- Patel, H.H. (2017). Behavioural aspects of supply chain management: Strategy, commitment, integration, and firm performance :A Conceptual framework. *International Journal of Supply Chain Management*, 4(4), 370-375. <https://doi.org/10.22034/2017.4.07>
- Phan, T., Doan, X. and Nguyen, T. (2020). The impact of supply chain practices on performance through supply chain integration in textile and garment industry of Vietnam. *Uncertain Supply Chain Management*, 8(1), 175-186.
- Prathiba, S. (2020). Can supply chain management practices influence customer satisfaction and loyalty? *Journal of Supply Chain Management Systems*, 9(1), 1 – 13.
- Qrunfleh, S., & Tarafdar, M. (2014). Supply chain information systems strategy: impacts on supply chain performance and firm performance. *International Journal of Production Economics*, 147, 340 - 350. <https://doi.org/10.1016/j.ijpe.2012.09.018>
- Ramakrishna, Y., Alzoubi, H., M., & Indiran, L.(2023). An empirical investigation of effect of sustainable and smart supply practices on improving the supply chain organizational performance in SMEs in India. *Uncertain Supply Chain Management*, 11(3), 991 – 1000. DOI: 10.5267/j.uscm.2023.5.001
- Rasoolimanesh, S.M. & Ali, F. (2018). Guest editorial. *Journal of Hospitality and Tourism Technology*, 9(3), 238-248. <https://doi.org/10.1108/JHTT-10-2018-142>
- Saragih, J., Tarigan, A., Pratama, I., Wardati, J., & Silalahi, E. F. (2020). The impact of total quality management, supply chain management practices and operations capability on firm performance. *Polish Journal of Management Studies*, 21, 384-397. <https://doi.org/10.17512/pjms.2020.21.2.27>
- Sari, K. (2015). Investigating the value of reducing errors in inventory information from a supply chain perspective. *Kybemetes*, 44(2), 176 – 185
- Seebacher, G., & Winkler, H. (2015). A capability approach to evaluate supply chain flexibility. *International Journal of Production Economic*, 167, 177 – 186. <https://doi.org/10.1016/j.ijpe.2015.05.035>
- Shetty, V. K. (2019). Impact of supply chain management practices on performance of companies. *Journal of Supply Chain Management Systems*, 8(3), 48 – 57
- Shiau, W. L., Sarstedt, M., & Hair, J. F. (2019). Editorial: Internet research using partial least squares structural equation modelling (PLS-Sem). *Internet Research*, 29(3), 398-406. <https://doi.org/10.1108/IntR-10-2018-0447>
- Shaikh, E., Krishnan, D., Ahmed, F., Mishra, V., & Dagar, V. (2021). Exchange rate, stock price and trade volume in US-China trade war during COVID-19: An empirical study. *Estudios de Economia Aplicada*, 39(8), 1-25, <https://doi.org/10.25115/EEA.V39I8.5327>
- Shahbaz, M.S., Rasi, R.Z., Zulfakar, M.H., Bin, M.D.F., Abbas, Z., & Mubarak, M.F. (2018.) A novel metric of measuring performance for supply chain risk management: Drawbacks and qualities of good performance. *Journal of Fundamental and Applied Sciences*, 10(3S), 967-988.
- Song, G., Song, S. & Sun, L. (2019). Supply chain integration in omni- channel retailing:: A logistics perspective. *The International Journal of Logistics Management*, 50(1), 101 – 121
- Sundram, V.P.K., Chhetri, P. & Bahrin, A.S. (2020). The consequences of information technology, information sharing and /supply chain integration, towards supply chain performance and firm performance. *Journal of International Logistics and Trade*, 18(1), 15 - 31.
- Sundram, V.P.K., Chandran, V.G.R. & Bhatti, M.A. (2016). Supply chain practices and performance: the indirect effects of supply chain integration. *Benchmarking: An International Journal*, 23(6), 1445-1471.

- Surucu, L & Maslakci, A. (2020). Validity and reliability in quantitative research. *Business & Management Studies: An International Journal*, 8(3), 2694 - 2726. <https://doi.org/10.15295/bmij.v8i3.154>
- Steven, G. C. & Johnson, M. (2016). Integrating the supply chain ... 25 years on. *International Journal of Physical Distribution and Logistics Management*, 46(1), 19-42.
- Teller, C., Kotzab, H., Grant, D. B., & Holweg, C. (2016). The Importance of Key Supplier Relationship Management in Supply Chains. *International Journal of Retail & Distribution Management*, 44, 109-123. <https://doi.org/10.1108/IJRDM-05-2015-0072>
- Tewua, M.L.D., Suwarno, Lisdionoc, P., Friskad, R., & Pramonoe, A.J. (2023). Enterprise risk management and supply chain management: The mediating role of competitive advantage and decision making in improving firms' performance. *Uncertain Supply Chain Management*. 12, 1-10. DOI: 10.5267/j.uscm.2023.11.021.
- Wajdi, M.,F., Barata, F., A., Syamil,A., Prasetyani, D., Tunjungsari,H., K., Himmatu, I., Aliyyah,I., H., Fatmawati, E., & Aseri, A., F. (2023). Exploring the role of supplier integration, customer integration on operational performance by mediating the SMEs supply chain flexibility, *Uncertain Supply Chain Management*, 11(4), 1851–1858. DOI: 10.5267/j.uscm.2023.6.006
- Wong, C., Y., Boon-Itt, S., & Wong, C., W. (2011). The contingency effects of environmental uncertainty on the relationship between supply chain integration and operational performance. *Journal of Operations Management*, 29(6), 604-615
- Wuttke, D. A. (2013). Focusing The financial flow of supply chains: an empirical investigation of financial supply chain management. *International Journal Of Production Economics*, 145(2), 773- 789. Doi: 10.1016/J.Ijpe.2013.05.013.
- Xiao, Q. Z., Chen, L., Xie, M., & Wang, C. (2020). Optimal contract design in sustainable supply chain: interactive impacts of fairness concern and overconfidence. *Journal of the Operational Research Society*, 2, 1-20. <https://doi.org/10.1080/01605682.2020.1727784>
- Xiao, Y., Zheng, X., Pan, W., & Xie, X. (2010). Trust, relationship commitment and cooperative performance: supply chain management. *Chinese Management Studies*, 4(3), 231-243.
- Yanya, M., & Mahamat, N. (2020). The Impact of supply chain management practices on competitive advantages: Moderation role of total quality management. *Polish Journal of Management Studies*, 21, 419- 431. <https://doi.org/10.17512/pjms.2020.21.1.31>
- Zainurossalamia, S., & Hidayat, T. (2020). Supply chain agility, supplier synergy, cooperative norms, and competitive advantage: Mediating role of supplier performance. *International Journal of Supply Chain Management*, 9(4), 301-309.
- Zhang, M., Lettice, F., Chan, H.K. & Nguyen, H.T. (2018). Supplier integration and firm performance: the moderating effects of internal integration and trust. *Production Planning & Control*, 29(10), 802-813
- Zhao, X., Wang, P., & Pal, R. (2021). The effects of agro-food supply chain integration on product quality and financial performance: Evidence from Chinese agro-food processing business. *International Journal of Production Economics*, 231, 107832. <https://doi.org/10.1016/j.ijpe.2020.107832>
- Zhao, L., Huo, B., Sun, L., & Zhao, X. (2013). The impact of supply chain risk on supply chain integration and company performance: a global investigation. *Supply Chain Management: An International Journal*, 18(2),115-131.



© 2024 by the authors; licensee Growing Science, Canada. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).