

The Role of Supply Chain Management on Operational Performance and Competitive Advantage as Intervening Variables at Tofu Factory in Malang Raya

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Abstract

This study aims to determine the role of supply chain management on operational performance and competitive advantage as an intervening variable in a tofu factory in Malang Raya. The population in this study consists of 14 companies spread across Malang Raya with a total of 91 respondents. This research is quantitative research using the WarpPLS 7.0 application. The data analysis technique used is using hypothesis testing and Sobel test. The results test indicate that supply chain management has a positive effect on operational performance by mediating competitive advantage (full mediation). While supply chain management has a negative effect on operational performance if it is not through the competitive advantage variable.

Keywords: *supply chain management, competitive advantage, operational performance*

Abstrak

Penelitian ini bertujuan untuk mengetahui peran supply chain management terhadap kinerja operasional dan keunggulan bersaing sebagai variabel intervening pada pabrik tahu di Malang Raya. Populasi dalam penelitian ini terdiri dari 14 perusahaan yang tersebar di Malang Raya dengan jumlah responden 91 orang. Penelitian ini merupakan penelitian kuantitatif dengan menggunakan aplikasi WarpPLS 7.0. Teknik analisis data yang digunakan adalah pengujian hipotesis dan uji Sobel. Hasil pengujian menunjukkan bahwa supply chain management berpengaruh positif terhadap kinerja operasional dengan memediasi keunggulan bersaing (full mediation). Sedangkan manajemen rantai pasok berpengaruh negatif terhadap kinerja operasional jika tidak melalui variabel keunggulan bersaing.

Kata kunci: *manajemen rantai pasokan, keunggulan kompetitif, kinerja operasional*

INTRODUCTION

The Indonesian manufacturing industry is an ever-present category in the Indonesian economy, as manufacturing is very popular among Indonesian consumers. The problems faced by the manufacturing industry are multi-dimensional, one of which is the problem of business units. Operational problems that are often faced by the manufacturing industry include various business departments, as well as external problems such as suppliers, buyers or consumers. Some experts reveal that even the most commonly used company performance indicators in empirical research are financial performance, operational performance, and market-based performance (Jahanshahi, 2012). Operational performance is the implementation of management activities, including selection, design, updating,

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operation and supervision of production systems. Advantage is a profit strategy for companies to work together to create a more effective competitive advantage in their market. The strategy should be aimed at achieving a sustainable competitive advantage (Novianti, 2019). Roz, (2021) reveals the innovative capabilities of the resulting products, which makes them superior to competitors. Heizer & Render, (2014) define supply chain management as the integration of all company activities from the procurement of raw materials to their transformation into semi-finished products and final products, and then delivery to customers. With the coordination of the entire supply chain, companies must have a common goal, and make suppliers the company's strategic partners to meet the ever-changing market.

Malang City is one of the cities located in East Java. The industrial development of Malang City can be said to be advanced. That's because many immigrants come to Malang to study. Therefore, many small and medium enterprises (SMEs) need to fulfill many needs to meet their needs. According to Google Maps, there are 14 tofu factories in Malang Raya. This is in line with the needs of many restaurants for the production process. This tofu factory in Malang requires raw materials in the form of soybeans. The raw materials are obtained from the city of Malang only. The products produced in the processing are in the form of raw tofu or semi-finished tofu. Several tofu factories in the city of Malang are currently experiencing instability between high demand for raw material supplies and declining supply of raw materials from suppliers. This happens because of high competition in having raw materials, in addition to unstable raw material prices. This is because the suppliers who work together are only in Malang City and are reluctant to look for suppliers from other cities. In addition to these conditions, delays in the delivery of raw materials often occur, so that processors have to wait until they are available or even look to other suppliers. As a result of this phenomenon, the company's operational performance is disrupted and the competitive advantage created will affect every company. The data on the delay in the delivery of soybean raw materials is presented in the following table:

Table 1. Delay in Delivery of Soybean Raw Materials on September - December 2020

No.	Tofu Factory	Sept.		Oct.		Nov.		Des.		Total	
		A	B	A	B	A	B	A	B	A	B
1.	Pak suwoto	3	4	2	5	3	4	4	4	12	17
2.	Arief AG	4	5	3	6	4	3	4	6	15	21
3.	Kendalsari	4	5	4	6	4	4	4	6	16	21
4.	KLB	3	6	2	3	4	9	4	3	13	21
5.	ABC	2	3	2	3	3	6	3	6	10	18
6.	Abah Mul	4	7	3	5	4	5	3	6	16	23
7.	Pak Nursalim	3	4	4	5	5	7	4	5	16	21
8.	Bu IS	3	5	4	6	4	5	5	6	16	22
9.	P.Wira'i	4	4	3	5	4	5	4	3	15	17
10.	Nyes Batu	3	4	3	6	4	5	5	4	15	19
11.	SWT	4	6	3	4	3	4	4	5	14	19
12.	3 saudara	5	7	3	4	4	5	3	7	15	23
13.	Pak Rivadi	3	5	4	6	3	3	4	5	14	19
14.	S. supriyadi	3	4	3	3	4	5	3	3	13	15

Based on the data in Table 1, it can be seen that every UKM of the Tofu Factory in Malang Raya has experienced delays in sending suppliers. This situation occurs due to unplanned ordering and poor communication of soybean raw materials. Delay in raw materials will slow down the production process, thereby risking lower productivity and lower operational performance. In addition to these risks, the profit from each production will be reduced. This is a lot of complaints by small-scale tofu producers who have to compete with big competitors to get these raw materials. Based on the data in the table above, it can be seen that each SME Tofu Factory in Malang Raya has experienced delays in delivery from suppliers. This condition occurs due to unscheduled ordering of soybean raw materials and communication gaps. Delay in raw materials will slow down the production process, thereby risking lower productivity and lower operational performance. In addition to these risks, the profit from each production will be reduced. This is a lot of complaints by small-scale tofu producers who have to compete with big competitors to get these raw materials. Based on the explanation of the above phenomena and the importance of an industry in implementing good supply chain management, researchers are interested in conducting research on "the role of supply chain management on the operational performance of the Malang Raya Tofu Factory".

LITERATURE REVIEW

Heizer & Render, (2014) define that supply chain management is the way all activities of a company from the process of procuring raw materials to turning them into finished goods, until they are sent to consumers. The existence of a total supply chain of an organization must have a goal that is almost the same, namely to provide a good product and end with satisfied consumers. Performance is the success of a company hierarchy in the form of strategic targets that have been targeted with the expected capabilities (Mulyadi, 2007). Some experts define the size of the company's activities often traversed in research is financial performance, operating performance and market-based performance (Jahanshahi, 2012). Miguel & Brito, (2011) defines that to get a competitive advantage that can be done in a way that is focused on suppressing the operating costs of a manufacture to the point of minimal costs but is able to meet consumer needs which can be done by implementing supply chains.

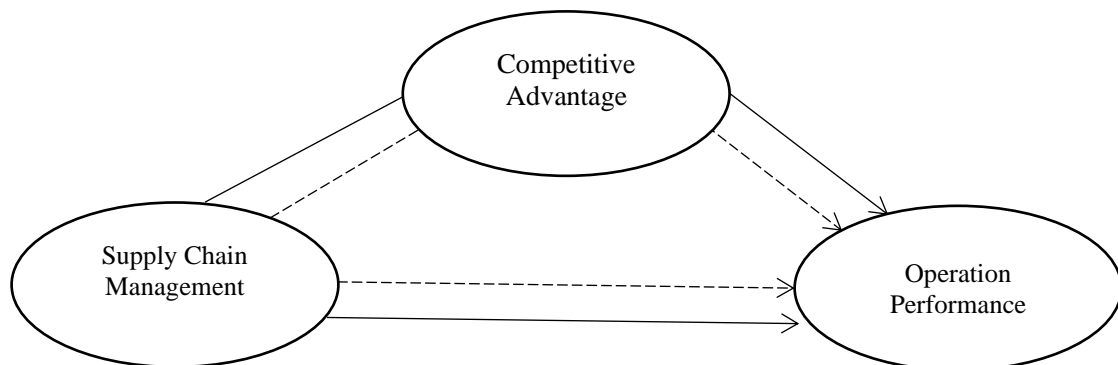


Figure 1. The Conceptual Framework

Based on the explanation in the theoretical study and previous research, the hypotheses were obtained:

H1: The effect of supply chain management on competitive advantage.

H2: The effect of competitive advantage on operating performance.

H3: Effect of supply chain management on operating performance.

H4: The effect of supply chain management on operating performance through competitive advantage.

RESEARCH METHODS

The type of research carried out is using quantitative methods that explain research on predetermined hypotheses. The data source used is primary data. The population in this study were 14 tofu factory companies spread across Malang Raya with a total of 91 respondents. The data collection technique used a questionnaire distribution technique to every employee at a tofu factory in Malang Raya. Data analysis techniques that will be used include hypothesis testing and Sobel test. Integrating material and service procurement activities, conversion into semi-finished goods and final products, and delivery to customers (Heizer & Render, 2014). The supply chain management variable has indicators in the form of Strategic Supplier Partnership, Customer Relationship, Information Sharing. Where a company can create a position that can be managed over its own competitors. Ilmiyati & Munawaroh, (2016) The competitive advantage variable itself has several indicators in the form of price/cost, quality, delivery frontability and product innovation. Operational performance can be measured by market share, new product introduction, product/service quality, marketing effectiveness, and customer satisfaction (Jihadi et al., 2020) The operational performance variable itself has indicators in the form of operational performance, efficiency and time.

RESULTS AND DISCUSSION

According to Ghozali, (2013) the values that can be used are the fit model indicators that have been met, namely APC (Average Path Coefficient) and ARS (Average R-Squared) significant ($p < 0.05$) while the AVIF (Average Variance Inflation Factor) value < 5 and the value of Full Cilinearity VIF (Variance Inflation Factor) is below 3. The following are the results of data analysis using WarpPLS 7.0:

Table 2. Model Fit Results

Indicator Model Fit	Value
Average Path Coefisient (APC)	0.476
Average R-Squared (ARS)	0.424
Average Variance Inflation Factor (AVIF)	1.500
Variance Inflation Factor (VIF)	1.919

Source: Data processed in 2021

From the table above, the values obtained are in accordance with the provisions that have been set. This means that the value that appears is valid. According to Ghozali, (2013) the hypothesis will be accepted if $p < 0.05$. The path coefficient value can be calculated to get the direction of the correlation indicator relationship. The research model can be tested using its determination value (R^2). The value of R^2 is between the values of zero to one. If it is zero then it cannot explain the variation there is a dependent variable, while if it is worth one then the independent variable explains one hundred percent of the variation on the dependent variation. The results of the significance test can be achieved through the table below:

Table 3. Hypotesis Test Result

No	Exogen Variable	Endogen Variable	Direct Coef	R ²	P Value	Sig.
1.	Supply chain Management	Competitive Advantage	0.61	0.37	0.01	Sig.
2.	Competitive Advantage	Operation Performance	0.70	0.48	0.01	Sig.
3.	Supply chain Management	Operation Performance	0.12	-0.063	0.12	Sig.

Source: Data processed in 2021

Based on table 3 above, information is obtained about the results of each hypothesis testing that has been proposed that supply chain management on competitive advantage has a significant positive effect, with a P value of 0.01 and an R2 value of 0.37. This means that Competitive Advantage will increase if Supply Chain Management is implemented very well. Thus, it can be concluded that the first hypothesis is accepted. Competitive advantage on operational performance has an insignificant positive effect. This is proven by the P value of 0.06 and the R2 value of 0.05. This can be interpreted that operational performance does not increase if the quality of the competitive advantage that is determined is very poor. It can be interpreted that the second hypothesis is accepted. Supply chain management on operational performance has a positive and insignificant effect. This is in accordance with the P value of 0.16 and the R2 value of 0.05. This means that Operational Performance will not improve if supply chain management is still very poor. While the third hypothesis, rejected.

Sobel test is used to determine whether the influence of the intervening variable also affects the relationship between the independent and dependent variables. The Sobel test is intended to test the indirect effect of the service quality variable (X) on customer satisfaction (Y) through customer value (Z). Calculation of the Sab value in the Sobel test is as follows:

$$\begin{aligned}
 Sab &= \sqrt{b^2sa^2 + a^2sb^2 + sa^2sb^2} \\
 &= \sqrt{(0.70)^2(0.088)^2 + (0.61)^2(0.086)^2 + (0.088)^2(0.086)^2} \\
 &= \sqrt{(0.00392) + (0.0027) + (0.000059)} \\
 &= \sqrt{0.006679} \\
 &= 0.082
 \end{aligned}$$

Next is to calculate the value of t, as follows:

$$\begin{aligned}
 t &= \frac{ab}{Sab} \\
 t &= \frac{(0.61)(0.70)}{0.082} \\
 t &= \frac{0.427}{0.082} \\
 t &= 5.21
 \end{aligned}$$

Table 4. Sobel Test Result

	Test Statistic	Std. Error	P - Value	Supported
Supply chain Management - Competitive Advantage - Operation Performance	5.25	0.81	0.000	Full Mediation

Source: Primary data processed in 2021

Based on calculations through the calculation for the sobel test, a statistical test value of 5.25 has been obtained. while the value of the standard error is 0.81 and the p-value is $0.000 < 0.05$. This means that there is an indirect effect between the Supply Chain Management variable on Operational Performance through the mediating variable, namely Competitive Advantage. Thus it can be said that the fourth hypothesis is accepted, which states that supply chain management affects operational performance through competitive advantage as an intervening variable.

In the first hypothesis, an analysis of Supply Chain Management on Competitive Advantage has been carried out with significant positive results. This means that the values listed are positive numbers. This is in line with the research conducted by (Vencataya *et al.*, 2016), the result of this research is that supply chain management has an effect on competitive advantage (Sukati *et al.*, 2012; Widyanesti & Masyithah, 2018). This is in accordance with the results obtained is a positive effect. The second hypothesis has been analyzed between competitive advantage on operational performance with the results having a significant positive effect. This means that the values that have been listed previously show a positive number. This is in line with research conducted by (Boon-itt & Pongpanarat, 2011; Camisón & López, 2010)The results of this study are supply chain management has an effect on competitive advantage and company performance. This is in accordance with the results studied are positive. According to (Kathuria *et al.*, 2010) the results of this study are supply chain management has an effect on company performance through competitive advantage.

The third hypothesis has been analyzed between supply chain management on operational performance with the results having a significant negative effect. This means that the previously listed values are negative numbers. This is in line with research conducted by (Latuconsina & Sariwating, 2020), revealing that the results that have been implemented, supply chain management has a negative effect on the company's operational performance. The fourth hypothesis has been analyzed between competitive advantage on operational performance with the results having a significant positive effect. This means that the values that have been listed previously show a positive number. This is in line with the research conducted by (Yuen & Van Thai, 2017), the result of this research is that supply chain management has an effect on company performance through competitive advantage. This is in accordance with the results obtained is a positive effect. Jumady & Hasbiyadi, (2016) the results of this study are supply chain management has an effect on competitive advantage and company performance. This is in accordance with the results studied are positive.

CONCLUSIONS

Based on the results of hypothesis testing and Sobel test in the previous analysis, it indicates that supply chain management is rated positively against competitive advantage. Competitive advantage has a positive effect on operational performance. Supply chain management has a negative effect on operational performance. Operational management has a positive effect on operational performance through (mediated) competitive advantage variables.

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