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Effect of Supply Chain Management on Competitive Advantage and Organizational Performance. Studies on the Batik Industry in Yogyakarta City

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ABSTRACT
This study aims to determine the effect of supply chain management on competitive advantage and organizational performance, as well as to analyze the mediating effect of competitive advantage on the effect of supply chain management on organizational performance. This research was conducted on the batik industry in Yogyakarta City, Indonesia with a population of 56 small medium enterprises. The data collection method uses a questionnaire distributed to the owner or manager of the batik industry which has been registered in the Database Directory of the Yogyakarta Provincial and City Industry and Trade Services. The analytical tool in this research is Structural Equating Modeling (SEM) using SmartPLS3. The results indicate that supply chain management has a significant positive effect on competitive advantage and company performance with the respective path coefficient values of 0.156 and 0, 423 and t values of 2.998 and 2.790. Competitive advantage has a significant positive effect on organizational performance with a path coefficient of 0.865 and a t value of 18.524. In this study, competitive advantage is able to mediate the effect of supply chain management on quasi-mediating organizational performance.

Keywords: *Supply chain management, Competitive advantage, Organizational performance, Small and medium enterprises, Batik industry, Yogyakarta city.*

1. INTRODUCTION

Supply chain management (SCM) is not purely a new concept that was born and gained popularity in the 1980s. The history of the creation of supply chain management begins with two fragmented company business practices (purchasing and distribution), then evolved into the concept of logistics, and became perfect with the birth of the concept of supply chain management. In fact, since Oliver and Weber (1983) launched their first article on supply chain management, researchers are still at odds over the appropriate definition to explain and measure the complexity of existing phenomena [6], [11]. Even though, definition is an important thing to provide an in-depth understanding of the context being discussed.

The lack of a generally agreed definition has caused significant confusion among those interested in the topic. This unclear definition will make it difficult for companies to develop their strategies to be innovative [4]. Moreover, the selection of a SCM strategy has been transformed as one of the competitive strategies of a company that will be very helpful in determining the company in facing competition [2].

In implementing a good SCM strategy, various parties must be aware of the important role they have in running the wheels of the organization. It aims to create cheap, quality, and fast products [19]. Relationships between suppliers, customers, distributors and the company itself must be managed and maintained properly. The reason is, one of the causes of the decline in product quality and company competitiveness is the occurrence of errors in supply chain system practices. Therefore, this study wants to analyze how the relationship between SCM practices on competitive advantage (CA) and organizational performance (OP).

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Literature and research objects related to SCM have been carried out in developed countries and large-scale manufacturing companies [3], [16]. On the contrary, the facts regarding developing countries and small and medium industries face more real challenges related to the complexity of implementing SCM [1]. These gaps can be an opportunity for academics to ante up research in SCM studies. Therefore, this study will focus on the implementation of SCM practices in developing countries and small and medium industries. We hope it can provide theoretical and practical benefits as a contribution of thought to the world of education and reference material for the government or private sector in making managerial decisions.

2. LITERATURE REVIEW

The Relationship Between SCM of The Organizational Performance

SCM is defined as a series of integrated activities, starting from the procurement of materials and services, which then turn them into semi-finished or finished goods, and distribute them to consumers [10]. Means, goods are produced in the right quantity, at the right time and place with the aim of achieving the minimum costs (ordering costs, storage costs, raw material costs, transportation costs, etc.) of all company business operations processes. Li et al. [15] explained that there are five indicators of SCM, namely: strategic supplier partnerships, customer relationships, information sharing, information quality levels, and postponement.

Ploenhad et al. [18] explained that there is a significant and positive influence between SCM and OP. Related to this, Nurdianti et al. [17] also explained that the implementation of SCM in SMEs was able to improve OP. This is in line with Suharto [21] and Wolf [22] who stated that by implementing good SCM practices, companies could provide opportunities to improve their performance, both from financial and operational performance. Based on all the research above, this study develops the following hypotheses:

H1: SCM positively affects the organizational performance

The Relationship Between SCM of The Competitive Advantage

Companies that have CA always have the ability to understand changes in market structure and can choose effective marketing strategies. CA is defined by Li et al. [15] as the ability of an organization to be able to determine the position of its competitors. According to Barney [5], this capability can be achieved if the company can carry out good SCM practices.

Previous studies [18] explained that there is a significant and positive influence between SCM on CA. In connection with this, Suharto [21] also identified that implementing a SCM system that is able to establish relationships with suppliers and consumers will have an impact on increasing a good CA in the company. Based on all the research above, this study develops the following hypotheses:

H2: SCM positively affects the competitive advantage.

The Relationship Between Competitive Advantage of the Organizational Performance

Research conducted by Nurdianti et al. [17] shows that the company's CA will be able to improve company performance as well. CA develops from the value a company can create for its customers or buyers using the dimensions of price, quality, dependability of delivery, time to market, and product innovation [15]. Concerning that, Ploenhad et al. [18] conducted a study on the food industry in Thailand by collecting data from 560 top-level executives or production managers who looked at SCM practices. From the analysis of their study, it was found that CA can be the reason for company performance that directs the business towards high performance. Based on all the research above, this study develops the following hypotheses:

H3: Competitive advantage positively affects the organizational performance

The Relationship Between the Information System of the Supply Chain Relationship With The Logistic Service Quality As Mediation

Effectiveness and efficiency are the expected results of good and appropriate SCM practices. These things can create a CA for the company which leads to increased company performance. The study conducted by Li et al [15] provides empirical evidence that SCM practices do not have a direct influence on SCM performance but are mediated by competitive advantages in cost, quality, flexibility, and responsiveness. The results of a similar analysis were also produced by the research of Ploenhad et al. [18] which shows that SCM practices can improve performance by gaining a competitive advantage. Based on all the research above, this study develops the following hypotheses:

H4: Competitive advantage has mediated the relationship between SCM practices and organizational performance.

3. METHODS

Respondents in this study were leaders or owners or managers of the Yogyakarta batik industry line which is registered in Yogyakarta Special Region Industry and Trade Office. The type of data used is primary data that is collected at a certain point in time in answering the questions or statements in the research questionnaire.

Besides, the primary data survey was conducted using a self-administered survey method with closed questions or filled indirectly by the relevant respondents.

The questionnaire consisted of sections containing questions about the demographic characteristics of the respondent, company, and statement items measured using a 5-point Likert scale [1 = strongly disagree; 5 = totally agree]. To ensure the quality of the data obtained, this validity test was carried out using convergent validity methods (loading factor between 0.6-0.7) and discriminant validity (AVE> 0.5). The reliability test was carried out based on the Cronbach Alfa value $\geqslant$ 0.6.

Hypothesis testing is done by using the bootstrap resampling method with a minimum number of bootstraps of 500, a confidence level of 95% and (α) 5%. Then, the results will be compared with t-table value (1.96) and t-statistics values. The characteristics of the accepted hypothesis if the t-statistic> t-table or by comparing the p-value with the α value used. Hypothesis testing is done by using SmartPLS software.

4. RESULT & DISCUSSION

Convergent Validity Test Results

The convergent validity test was estimated using the SmartPLS 3.0 program which can be seen from the loading factor value for each construct indicator. The high loading factor value indicates that each construct indicator converges at one point. The rule of thumb that is usually used to assess convergent validity is that the loading factor value must be more than 0.6 to be accepted.

Table 1. *Loading Factor*

Item	***Loading Factor***	
CA1	**0.876**	Valid
CA 2	**0.806**	Valid
CA 3	**0.906**	Valid
CA 4	**0.937**	Valid
CA 5	**0.855**	Valid
CA 6	**0.869**	Valid
CA 7	**0.849**	Valid
CA 8	**0.848**	Valid
CA 9	**0.807**	Valid
CA 10	**0.951**	Valid
CA 11	**0.912**	Valid
OP1	**0.726**	Valid
OP 2	**0.815**	Valid
OP 3	**0.809**	Valid
OP 4	**0.902**	Valid
OP 5	**0.965**	Valid
OP 6	**0.898**	Valid
OP 7	**0.827**	Valid
OP 8	**0.920**	Valid
OP 9	**0.731**	Valid
OP 10	**0.950**	Valid
SCM1	**0.790**	Valid
SCM 2	**0.736**	Valid
SCM 3	**0.782**	Valid
SCM 4	**0.766**	Valid
SCM 5	**0.845**	Valid
SCM 6	**0.801**	Valid
SCM 7	**0.861**	Valid
SCM 8	**0.876**	Valid
SCM 9	**0.814**	Valid
SCM 10	**0.855**	Valid
SCM 11	**0.801**	Valid
SCM 12	**0.805**	Valid
SCM 13	**0.811**	Valid
SCM 14	**0.801**	Valid
SCM 15	**0.705**	Valid
SCM 16	**0.770**	Valid
SCM 17	**0.792**	Valid

The results of processing using SmartPLS can be seen in Table 4.1. CA Variables have all 11 valid indicators because they have a loading factor value above 0.6. The OP Variable has 10 valid indicators because it has a loading factor value above 0.6. SCM Variables have 17 indicators, all of which are valid because they have a loading factor value above 0.6.

Discriminant Validity Test Results

The evaluation of discriminant validity aims to determine the validity level of a construct by comparing the discriminant validity value with the AVE and also by looking at the cross-loading value. In this study, researchers used a method of comparing the discriminant validity value with the AVE, if a construct has a discriminant validity value greater than AVE, it can be stated that the construct is valid. The recommended AVE value is greater than 0.5 [9].

Table 2. Comparison of Discriminant Validity Values with AVE

Variabel	*Cronbach Alpha*	*Composite Reability*	*AVE*
CA	0,965	0,968	0,643
OP	0,969	0,973	0,767
SCM	0,959	0,965	0,736

From the table above, it can be seen that the convergent validity value of each construct has a greater value than AVE, so it can be concluded that each construct used is valid and as per the indicators the researcher uses.

Reliability Test Results

The results of the reliability test can be done by looking at the results of the analysis on the calculation of Cronbach Alpha, Composite Reliability, and AVE which can be said to be reliable or trustworthy if the values are more than 0.7, 0.6, and 0.5 [9]. The following is a table

that explains the results of calculations from Cronbach Alpha, Composite Reliability, and AVE.

Table 3. Cronbach Alpha, Composite Reliability, and AVE

Variabel	*Cronbach Alpha*	*Composite Reability*	*AVE*
CA	0,965	0,968	0,643
OP	0,969	0,973	0,767
SCM	0,959	0,965	0,736

In the table above, it can be concluded that all constructs meet the criteria reliably and are valid according to the specified criteria so that they can be used to continue the research.

Hypothesis Test Results

In SmartPLS, statistical hypothesis testing of each hypothesized relationship can be analyzed by using a simulation technique with the bootstrap method of the sample. This aims to minimize the problem of research data abnormalities. The basis used in hypothesis testing is the value contained in the output for inner weight, on the Path Coefficient menu which can be seen in Table 4.9 below:

Table 4. *R-Square*

Variabel	*Original Sample*	*Sample Mean*	*Standard Deviation*	*t-statistic*
SCM>OP	0.156	0.159	0.052	2.998
SCM -> CA	0.423	0.433	0.151	2.790
CA -> OP	0.865	0.863	0.047	18.524

From the bootstrapping test above, the results show that the SCM and OP variables show a t-statistic value that is greater (2.998) than the predetermined t-table value. Therefore, it can be concluded that Hypothesis 1 which states that supply chain management has a positive and significant effect on organizational performance is acceptable.

Furthermore, the t-statistic value of SCM and CA shows a result of 2.790. This indicates that the t-statistic value is greater than the t-table. Therefore, it can be concluded that the better the implementation of supply chain management is carried out, the more competitive advantage is obtained. So the conclusion is hypothesis 2 can be accepted.

The results of testing the third hypothesis show that CA has a positive and significant effect on performance with the t-statistics value of 18.046. Based on the test results, it was found that the CA variable has a positive and significant effect on OP. Therefore, it can be concluded that the higher the company has a CA over its competitors, the higher the OP. So the conclusion is hypothesis 3 can be accepted.

Hypothesis 4 was tested with different test methods between a partial and full mediation model. To see whether competitive advantage gives the effect of perfect mediation (full mediation) or partial mediation, it can be seen the influence of predictors (SCM) on criterion (OP) while still including the influence of mediation (CA).

Table 4.5. *Total Effect*

Variabel	*P-Values*
SCM>OP	0
SCM -> CA	0.008
CA -> OP	0

From the results of the total effects analysis using SmartPLS, it was found that the relationship between SCM and OP was still significant with a p-value of 0.008 (<0.05). Thus, it can be concluded that in this hypothesis there is mediation, even though it is only quasi-mediating. Fully mediating occurs when the total effects find the relationship between SCM and OP to be insignificant [8].

Discussion

This study aims to prove the relationship between SCM and OP and CA. The results of this study are consistent with previous studies such as Li et al. [15], Rahmasari [20], Suharto [21], Wolf [22], Nurdianti et al. [17], and Ploenhad et al. [18]. The results of their analyzes also state that SCM has a significant relationship to OP and CA. They also stated that an increase in CA could also have an impact on improving OP. Furthermore, in their research, they prove that SCM practices influence in maintaining and adding to company value as OP has an impact on increasing CA.

From this research, we can see that the greatest value lies in the indicators of customer relationships, market orientation, and time to reach the market. This indicates that the batik industry players in Yogyakarta City have been able to follow customer needs and maintain good relationships with stakeholders along the value chain. However, on the other hand, there are strategic supplier partnerships, financial performance, and prices are indicators that have the lowest score so that special attention is needed for business people, government, and academics.

5. CONCLUSION

This study presents empirical research by proving the effect of SCM on CA and OP in the Batik Industry in Yogyakarta City. Thus, these results contribute to the SCM literature. This is because the object of the research is in developing countries and refers to small and medium industries. From the findings, SCM practice is still constrained by problems with strategic supplier

performance and financial performance related to the price obtained. This provides support for the opinion of Abdallah et al. [1] which states that developing countries face more real challenges due to the complexity of implementing SCM. This is because the relationships between each of the sub-systems involved are generally still fragmented, making it difficult to compete in the free market [3].

The limitations that occur in this study only involve research subjects in the number of 56 out of a total of 73 Batik Industries in Yogyakarta City which are listed in the Directory of the Department of Industry and Trade of Yogyakarta Special Province. So that it has not reached the population of all listed industries. Cause, there was no latest information regarding the list of batik industries in Yogyakarta City which is obtained from the Directory of the Department of Industry and Trade of Yogyakarta Special Province. Therefore, it is better if further research will carried out to take samples from the latest data to maximize research results. Future research can also take the areas which mentioned by the Indonesian Ministry of Industry [14] as the main areas for national industrial development, such as Central Java and East Java. In addition, further research can explore more topics around SCM which are currently in development stage, such as Sustainable SCM [23], Green SCM [7], and Halal SCM [12], [13].

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