



The effect of supply chain strategy toward competitive advantage, and company performance: case of small-medium industries in West Sulawesi Province of Indonesia

El efecto de la estrategia de la cadena de suministro hacia la ventaja competitiva y el desempeño de la empresa: caso de pequeñas y medianas industrias en la provincia de Sulawesi Occidental de Indonesia

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ABSTRACT:

This study aimed to investigate the effect of supply chain strategy on competitive advantage and company performance. This study conducted at in three areas i.e.: Mamuju Regency, Majene Regency, and Polman Regency. The number of samples was 210 business units. Then, descriptive statistic and Structural Equation Modeling (SEM) used as a method of analysis. The results showed that the variable of supply chain strategy has a significant effect on competitive advantage as well as company performance. Then, competitive advantage has a significant influence on company performance. In addition, the supply chain strategy can improve company performance through competitive advantage variables.

Keywords: supply chain strategy, competitive advantage, company performance, small and medium industries

RESUMEN:

Este estudio tuvo como objetivo investigar el efecto de la estrategia de la cadena de suministro en la ventaja competitiva y el rendimiento de la empresa. Este estudio se realizó en tres áreas, es decir: Mamuju Regency, Majene Regency y Polman Regency. El número de muestras fue de 210 unidades de negocio. Luego, se utilizó la estadística descriptiva y el modelo de ecuaciones estructurales (SEM) como método de análisis. Los resultados mostraron que la variable de la estrategia de la cadena de suministro tiene un efecto significativo en la ventaja competitiva, así como en el rendimiento de la empresa. Entonces, la ventaja competitiva tiene una influencia significativa en el desempeño de la compañía. Además, la estrategia de la cadena de suministro puede mejorar el rendimiento de la empresa a través de variables de ventaja competitiva.

Palabras clave: estrategia de cadena de suministro, ventaja competitiva, desempeño de la empresa, pequeñas y medianas industrias

1. Introduction

The small-medium industry is one of the components in the national industry that has an important role in increasing national economic growth, absorption of labor, distribution of development outcome and poverty reduction. The main problems faced in its development are competitiveness and relatively low business performance. Furthermore, in developing the competitiveness and business performance of the small-medium industry, it is necessary to integrate programs and activities from the upstream to downstream sectors. The facts show that there are various problems faced by the small-medium industry such as limited business schemes, low bargaining position, low human resource capacity, and limited business cooperation. Therefore, to enhance the role of the Small-medium industry sector, business performance must be improved consistently and sustainable through the support of stakeholders both government and non-government (Pono et al., 2018; Munizu et al., 2019). Regarding performance improvement efforts in the organization, Wheelen & Hunger (2012) said that companies can achieve optimal performance if they have the right planning and strategy in running their business.

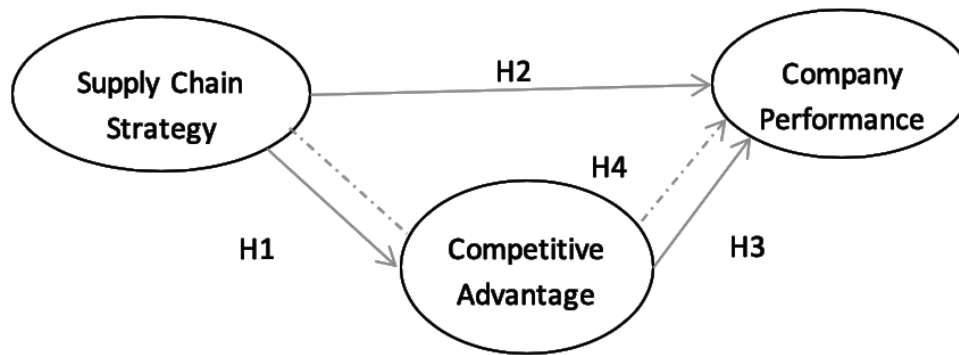
According to Jain et al. (2010) that the concept of a supply chain is a group of members (companies or individuals) that are interrelated with one another and participate to add value to the input, changing those inputs into the final product or service demanded by the end-consumer. The best way to improve the competitiveness and performance of Small-medium industry is through the supply chain management approach. Implementation of supply chain management is able to overcome various uncertainties and variations in business, such as demand uncertainty, fluctuations in raw material prices, delivery delays, and seasonal demand (Kumar et al., 2013).

An effective supply chain management provides a great strategic opportunity to create a competitive advantage (Heizer & Render, 2010). Competitive advantage can be achieved by every company if they have assets and resources that are valuable, scarce, and difficult to imitate (Barney, 1991). Implementation of supply chain management provides many benefits for businesses, but due to the level of complexity of the food industry, supply chain management is not always successfully applied. That is because there are various factors that affect supply chain management in food sector small medium-sized enterprises (SMEs) such as raw material supply flows, strength in purchasing raw materials, and work equipment (Malik et al., 2014).

Studies on supply chain management and competitiveness have been carried out in previous studies, such as Barata (2016), which studied the effect of collaborative supply chains on the operational performance. Where, collaborative supply chains consisting of information quality, sharing information, alignment of incentives and joint decision-making significantly influence operational performance. Then, Nugroho et al. (2017) found that in order to optimize the performance of supply chain management, managers of Tempe chips SMEs are required to pay attention to the smooth flow of raw material supply for the smoothness of business. Increased supply flows can be overcome through a good cooperation with suppliers and join with cooperatives. An effective supply chain must be integrated between supply and demand through coordination efforts in the supply chain system (Cohen & Roussel, 2005; Chopra & Miendl, 2007).

Furthermore, Heriyanto (2017) found that the supply chain system of SMEs in Palembang is still conventional, and the partnership system is very close. In addition, Munizu et al. (2019) found that supply chain integration influences competitiveness. A company's competitiveness can be measured through indicators of cost, quality, flexibility, and speed of product delivery. Product innovation is an important factor of the company's competitive advantage in both manufacturing and service companies (Damien & Sohal, 2002; Prayogo & Sohal, 2003; Kenneth et al. 2008). Based on the phenomena and empirical studies above, It is needed to analyze the effect of supply chain strategy elements that influence competitive advantage and its impact on the performance of Small Medium Industry in West Sulawesi Province of Indonesia. Based on the results of theoretical studies and literature reviews, the conceptual model of research can be presented in the figure 1.

Figure 1
Conceptual Model



Based on the conceptual model, the research hypothesis can be formulated as follows:

H1: Variable of supply chain strategy influences the competitive advantage of small-medium industries

H2: Variable of supply chain strategy influences the company performance of small-medium industries

H3: Variable of competitive advantage influences the company performance of small-medium industries

H4: Variable of supply chain strategy influences company performance indirectly through competitive advantage variable.

2. Methodology

This study was conducted in Mamuju, Majene and Polewali Mandar, West Sulawesi Province in 2019. These three locations are small and medium industrial centers and represent the industrial and trade cities in West Sulawesi. The total population is 1.355 business units, while the number of samples is determined using the Slovin formula, at an error level of 10%, so that a minimum sample size of 100 business units is obtained. The sampling technique uses purposive sampling in accordance with specific objectives and criteria (Hair et al, 2006; Sugiyono, 2010, Solimun, 2011). Therefore, a sample of 210 business units was obtained, which included 50 business units in Majene regency, 100 business units in Polman regency, and 60 business units in Mamuju regency. The respondents consisted of managers and business owners. Data were collected using observation, questionnaires, interviews and documentation techniques. Supply chain strategy variables are measured through sharing information, internal integration, external integration, agility, alignment, and adaptability factors. Then, the variable of competitive advantage is measured through factors of cost, quality, flexibility, and product innovation.

Furthermore, the variables of company performance are measured through profit growth, sales growth, and market share growth. To facilitate the filling out of the questionnaire instrument, respondents' answers were measured using by a Likert scale (score 1-5). Moreover, this study uses descriptive statistic and structural equation modeling as a method of analysis.

3. Results

3.1. Statistic Descriptive Analysis

Table 1 summarizes the characteristics of the sample studied. The respondent's profile contains respondent information based on gender, age, level of education, location of the company, and length (years) of business.

Table 1
Descriptive of Respondents Profile

No.	Descriptive	Number of Sample	Percentage (%)
I.	Sex:		
	a. Male	148	70.48

	b. Female	62	29.52
II.	Age:		
	a. 25 - 35 years	34	16.19
	b. 36 - 45 years	102	48.57
	c. 46 - 60 years	58	27.62
	d. > 60 years	16	7.62
III.	Education Level :		
	a. High school	136	64.76
	b. Diploma (DIII)	25	11.90
	c. Bachelor (S1)	49	23.33
IV.	Location:		
	a. Mamuju Regency	60	28.57
	b. Majene Regency	50	23.81
	c. Polman Regency	100	47.62
V.	Length of Business:		
	a. < 5 years	28	13.33
	b. 5 - 10 years	60	28.57
	c. 11 - 20 years	80	38.10
	d. > 20 years	42	20.00

It can be revealed that from 210 research respondents, men are very dominant with a total of 148 people (70.48%) with ages between 36-45 years as many as 102 people (48.57%) of the overall respondents. The education level of most respondents is high school graduates with a total of 136 people (64.76%) with a business of between 11-20 years as many as 80 people (38.10%). Then, based on the location of the company, it can be seen that the highest number is located in Polman Regency, with 100 business units (47.62%), then the rest are in Mamuju Regency with 60 business units (28.57%), and Majene Regency with 50 business units (23.81%) from total respondent.

Furthermore, the results of descriptive analysis also present an overview of the implementation of each research variable based on the average value. The complete description of the research variables can be seen in the table 2.

Table 2
Descriptive of Research Variable

No.	Variable	Mean Value	Conclusion
1.	Supply chain strategy - X1	3.77	Good

2.	Competitive Advantage - Y1	4.01	High
3.	Business Performance - Y2	3.94	High

It can be seen that in accordance with the average value or mean, the level of implementation of the supply chain strategy variable is in a good category with a mean is 3.77. This illustrates that small and medium industries in West Sulawesi have applied information sharing, internal integration, external integration, agility, adaptability, and the ability to align information is getting better. Then, the average value of the competitiveness variable is in a high category with a mean is 4.01. It means that 4 indicators namely cost, quality, flexibility, and product innovation are also getting better in implementation. In addition, the company's performance variable is also in a high category with a mean is 3.94. It means that small-medium industries have been getting profit growth, sales, and market share in a high level.

3.2. Confirmatory Factor Analysis (CFA)

This study also use Confirmatory Factor Analysis (CFA) to analyze and confirm the important factors that form a variable or construct based on a certain value. Hair et al. (2006) said that a factor can be said to be valid in shaping a construct if the factor has a loading factor value greater than 0.50. In addition, it can be used to find out the important factors that influence a variable or construct in a research model. The variable of supply chain strategy (X1) is measured through 6 (six) indicators: (1) sharing information (X1.1), (2) internal integration (X1.2), (3) external integration (X1.3), (4) agility (X1.4), (5) adaptability (X1.5) and (6) alignment ability (X1.6). The results of the confirmatory factor analysis of Supply Chain Strategy (SCS) can be seen in the table 3.

Table 3
Result of CFA - Supply Chain Strategy (SCS) Variable

Indicators <--- Variable	Estimate (Standardized)	Critical Ratio (C.R)	Prob.	Description
X1.1 <--- SCS (X1)	0.556	Fix	Fix	Significant
X1.2 <--- SCS (X1)	0.757	6.941	0.000	Significant
X1.3 <--- SCS (X1)	0.567	7.111	0.000	Significant
X1.4 <--- SCS (X1)	0.594	6.152	0.000	Significant
X1.5 <--- SCS (X1)	0.676	6.625	0.000	Significant
X1.6 <--- SCS (X1)	0.573	6.010	0.000	Significant

It can be concluded that indicators X1.1, X1.2, X1.3, X1.4, X1.5, and X1.6 are valid and significant indicators as indicators that form the variable of Supply Chain Strategy (X1). This can be seen from the probability value of each indicator that is smaller than the value of α (prob. < 0.05), and critical ratio which greater than t-table (C.R > 1.960). In addition, it can be seen that indicator X1.2, namely internal integration is a very important indicator in shaping the variable of supply chain strategy, because it has a factor loading value that is greater than other indicators, equal to 0.757.

Then, the results of confirmatory factor analysis also show that the variable of competitive advantage (Y1) is measured through 4 (four) indicators namely: (1) cost (Y1.1), (2) quality (Y1.2), (3) flexibility (Y1.3), and (4) product innovation (Y1.4). The results of the confirmatory factor analysis of competitive advantage (CA) can be seen in the table 4.

Table 4
Results of CFA - Competitive Advantage (CA) Variable

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Indicators <--- Variable	Estimate (Standardized)	Critical Ratio (C.R)	Prob.	Description
Y1.1 <--- CA (Y1)	0.715	Fix	Fix	Significant
Y1.2 <--- CA (Y1)	0.613	6.406	0.000	Significant
Y1.3 <--- CA (Y1)	0.773	7.272	0.000	Significant
Y1.4 <--- CA (Y1)	0.696	6.726	0.000	Significant

Based on the results of CFA of the CA variable showed in table 4, it can be concluded that indicators Y1.1, Y1.2, Y1.3, and Y1.4 are valid and significant indicators as indicators that shaping the variable of competitive advantage (Y1). This can be seen from the probability value of each indicator that is smaller than the value of α (prob. < 0.05), and and critical ratio which greater than t-table (C.R > 1.960). In addition, it can be seen that indicator Y1.3, namely flexibility is a very important indicator in shaping the variable of competitive advantage, because it has a factor loading value that is greater than other indicators, equal to 0.773.

Furthermore, the result of confirmatory factor analysis shows that the variable of business performance (Y2) is measured through 3 (three) indicators: (1) profit (Y2.1), (2) sales (Y2.2), and (3) market share (Y2.3). The results of the confirmatory factor analysis of the variable of company performance (CP) are presented in the table 5

Table 5
Results of CFA - Company Performance (CP) Variable

Indicators <--- Variable	Estimate (Standardized)	Critical Ratio (C.R)	Prob.	Description
Y2.1 <--- CP (Y2)	0.853	Fix	Fix	Significant
Y2.2 <--- CP (Y2)	0.699	8.276	0.000	Significant
Y2.3 <--- CP (Y2)	0.683	8.198	0.000	Significant

As table above, it can be concluded that indicators Y2.1, Y2.2, and Y2.3 are valid and significant indicators as indicators that shaping the variable of company performance (Y2). This can be seen from the probability value of each indicator that is smaller than the value of α (prob. < 0.05), and critical ratio which greater than t-table (C.R > 1.960). In addition, it can be seen that indicator Y2.1, namely profit growth is a very important indicator in shaping the variable of company performance, because it has a factor loading value that is greater than other indicators, equal to 0.853. Internal integration is an important factor in supply chain strategy. It is related with cross-functional collaboration within organizations. The more integrated functions within the organization, the coordination of all business activities can be done effectively.

3.3. Structural Equation Modeling Analysis

Structural equation modeling (SEM) analysis is used to test research hypotheses based on empirical data. Based on the results of the analysis, the results of the empirical research model can be presented in the figure 2 and table 6.

Figure 2
Result of Empirical Model

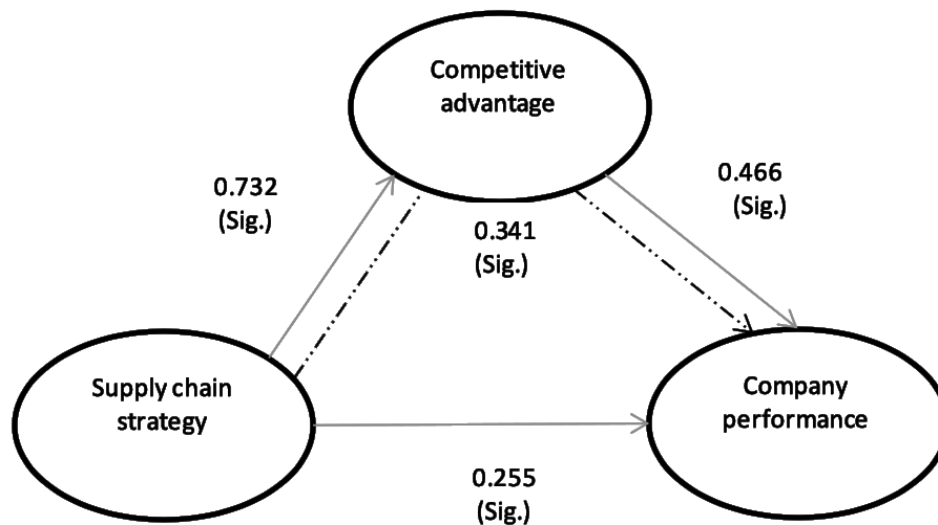


Table 6
The Results of Hypotheses Test

Direct Effect	Path Coefficient	Critical Ratio (C.R.)	Prob.	Conclusion
Supply chain Strategy ---> Competitive advantage	0.732	7.450	0.000	Significant (H1, Supported)
Supply chain strategy ---> Company performance	0.255	2.962	0.018	Significant (H2, Supported)
Competitive advantage ---> Company performance	0.466	5.664	0.000	Significant (H3, Supported)
Indirect Effect: Supply chain strategy ---> Competitive advantage ---> Company performance	0.341	Significant (H4, Supported)		

Based on the hypothesis test, it can be inferred that variable of supply chain strategy has a positive effect and significant on competitive advantage. This conclusion based on probability value (prob.) which is smaller than standard α value = 5% ($0.000 < 0.05$). Therefore, hypothesis I which states that variable of supply chain strategy has a significant influence toward competitive advantage of small-medium industries in West Sulawesi is supported by facts (H1, accepted). Then, this study also found that variable of supply chain strategy has a positive effect and significant on company performance. This conclusion based on probability value (prob.) which is smaller than standard α value = 5% ($0.018 < 0.05$). Therefore, hypothesis II which states that variable of supply chain strategy has a significant effect toward company performance of small-medium industries in West Sulawesi is supported by facts (H2, accepted).

Furthermore, the results of this study showed that the variable of competitive advantage (CA) has a positive effect and significant on company performance. This conclusion based on probability value (prob.) which is smaller than standard α value = 5% ($0.000 < 0.05$). Therefore, hypothesis III which states that variable of competitive advantage has a significant effect on company performance of small-medium industries in West Sulawesi is supported by facts (H3, accepted). In addition, the result of this study also showed that variable of supply chain strategy has a significant effect on company performance through competitive advantage indirectly ways (H4, accepted).

Related to our results, this study found that better implementation of supply chain strategy can produce a higher competitive advantage. It can be seen from the efficient manufacturing costs, increased product quality, flexibility in meeting customer needs, and product innovation. Moreover, a better supply chain strategy can improve company performance as reflected by increased profits, sales and market share. Furthermore, a higher competitive advantage can improve company performance. In addition, the results of the study indicate that supply chain strategy can improve company performance through competitive advantage variables. Small-medium industries that have been implemented in the best way concept of information sharing, internal integration, external integration, agility, adaptability, then supported by aligning more information and data within supply chain system can get increase both competitive advantage and company performance in the future.

Variable of integration, collaboration, and agility aspect are important components in supply chain strategies that influence company competitiveness (Cohen & Roussel, 2005; Pandey & Garg, 2009; Munizu et al., 2017). Then, the results of this study are also consistent with previous findings that information sharing internal integration, external integration, and collaboration are important elements of supply chain strategies that can affect company performance (Damien & Sohal, 2002; Bharata, 2016; Munizu et al. 2019).

Then, flexibility is one important element of the variable of competitive advantage (Barney, 1991; Lambert & Cooper, 2002; Lakhal, 2009; Nugroho et al., 2017; Pono et al., 2018). Companies that can fulfill customer's orders flexibly are companies that have competitiveness. Then, companies that have a good performance can be seen from its profit growth and sales which increase every year. The results of this study support the findings of Kannan & Tan (2005), and Munizu et al. (2017) that profit growth is a very important element in measuring company performance. Heizer & Render (2010), and Wheelen & Hunger (2012) have been stressed that supply chain strategy is one of the important factors that must be owned by the company as a weapon in winning competition in the global market, as well as a tool in supporting business continuity in the future.

4. Conclusions

Supply chain strategy is a key factor that must be considered by management in an effort to improve the competitive advantage as well as the company performance of small-medium industries. The variable of supply chain strategy consists of sharing information, internal integration, external integration, agility, alignment, and adaptability factors. Internal integration is a very important factor that influences the supply chain strategy. The variable of competitive advantage consists of cost, quality, flexibility, and product innovation. Flexibility is a very important factor that influences competitive advantage. Then, variable of company performance consists of profit growth, sales growth, and market share growth factors. The findings of this study show that profit growth is a very important factor that influences company performance of Small-medium industries in West Sulawesi Province. This study also found that the supply chain strategy has a significant influence on competitive advantage. The supply chain strategy also has a significant influence on company performance. Competitive advantage has a significant influence on company performance. Also, supply chain strategy can improve company performance through competitive advantage variable.

Furthermore, findings of this study become additional information and data for decision-makers within an organization to optimize supply chain strategies through sharing information, integration, agility, and collaboration as an effort in improving both competitiveness and company performance. Therefore, better company performance can be seen from some key indicators like profit growth, sales growth, and market share growth that increase annually.

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