Effect of Supply Flexibility - 1

by Moh. Mukhsin

EFFECT OF SUPPLY FLEXIBILITY ON SUPPLY CHAIN PERFORMANCE

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Abstarct

Building good flexibility with partners is important in supply chain activities. The establishment of good flexibility can have an effect on improving efficiency and effectiveness in the supply chain. This study analyzes how supply flexibility affects supply chain performance. This study uses quantitative method with questionnaire as a data collection technique conducted on 100 respondents who are businesses of breed chickens scattered in the District / City in Banten Province. The statistical tool used is the SmartPLS 3.0 application. The results of this study based on statistical analysis show that supplier flexibility and supply network flexibility have a positive and significant effect on supply chain performance. The results of this study have very important implications for the role of management to maintain supply chain performance in relation to supply flexibility.

Keywords : supplier flexibility, supply network flexibility, supply chain performance

1. Introduction

Poultry business (broilers) in Indonesia has become an industry which has complete components from upstream to downstream where the development of this business makes a real contribution to development agriculture and has a strategic value, especially in fulfillment efforts need of animal protein in the country and has a role in take advantage of job opportunities. an integrated approach. Specifically for broilers, the development and growth of broiler chickens can be seen from two sides, namely the supply side and the demand or consumption side. Broiler chickens are chickens cultivated by technology. Broiler chickens are a type of chicken that experiences fast growth, has more meat, is economical in feed, and has a faster harvest age of chickens, namely 21 to 35 days.

Poultry commodities have very good market prospects because they are supported by the characteristics of poultry products that are acceptable to the people of Indonesia, prices are relatively cheap and easy to obtain because they are public goods. This commodity is the main driver for the provision of national animal protein, so that this good prospect must be utilized to empower rural breeders through optimal resource utilization. The poultry industry in Indonesia is developing in line with the progress of global poultry, which is aimed at achieving an optimal level of business efficiency, so that it can compete with poultry products from abroad. The development of the poultry industry faces global challenges that include the readiness of poultry product competitiveness, especially when it is related to the weak performance of the supply of raw materials for feed, which is 60-70% of the production cost because most of it is still very dependent on imports. Efforts to increase the competitiveness of poultry products must be carried out simultaneously by realizing cross-departmental policy harmonization. This is done with due observance of internal factors such as implementing business efficiency, improving product quality, ensuring continuity of supply and in accordance with market demand.

Local chicken livestock can be a sufficient alternative promising with a certain market share. This is inseparable from the fact that the local chicken farm business is sufficient profitable and reliable as a source of family income. The business profile in the primary sector shows that the business broiler breeding provides sufficient business opportunities well, as long as maintenance management follows procedures and applicable statutes.

In general, animal husbandry in Banten Province is directed to create conditions advanced, efficiency and resilient farms. This condition is characterized by level ability to meet community needs, ability to adapt production patterns and structures with market demand and the ability to regional development, providing employment, income and improvement opportunities standard of living and play a role in economic growth. Efforts to increase livestock business opportunities, especially chicken poultry business support for regional and national policies in a comprehensive manner that can encourage increased productivity, flexibility, product quality and market competitiveness. Dinamika broiler farm business scale scale these are quite varied and scattered in regencies / cities in the province of Banten.

2. Literature Review
2.1 Supply flexibility

Supply chain flexibility is a strategic initiative that allows companies to respond quickly to changes in the market, including actual and unexpected disruptions in the supply chain. Uncertainty and disruption presents various operational risks, including factors from natural or man-made events or disasters, loss of important suppliers or customers, and other socio-economic and political factors that affect global sourcing, prices, and logistics.(Dixit & Prakash, 2018). (Liao, Hong, & Rao, 2010), divides flexibility into two parts, namely flexibility of resources and flexibility of coordination. Resource flexibility is the company's responsiveness through the use of specific company management knowledge and physical assets. It is the nature and design of a resource that limits the ways in which companies can use it. However, not all resources flow to well-resourced companies. Therefore the concept of flexibility coordination was developed. (Hong, Liao, Zhang, & Yu, 2019), divide the concept of flexibility into parts, namely supplier flexibility and supply network flexibility

2.1.1 Supplier flexibility
FSupplier flexibility refers to a supplier's ability to manage production resources and uncertainty to increase flexibility in meeting buyer demands (Chu, Chang, & Huang, 2012). Supplier flexibility means responsiveness through the use of the capabilities of suppliers.(De Angelis, Howard, & Miemczyk, 2018). Some companies have emphasized the linkage of existing resources in the company with performance, so as to produce relationships between partners well. Therefore the company combines specific internal company resources with supporting resources outside the company to build competitive advantage. Competitive advantage can be built by combining the internal resources of the organization with resources from outside the organization to create its own uniqueness (Suhartati & Rosietta, 2012).

2.1.2 Supply Network flexibility
FSupply network flexibility means responsiveness through the use of collaborative capabilities to build supply networks efficiently and effectively. Supply network flexibility means responsiveness through the use of collaborative capabilities to form a supply network efficiently and effectively (Hong et al., 2019). The structure of the partner network will affect the flow of goods from upstream to downstream and from downstream to upstream so that it will be able to produce the best supply chain based on optimal resources (Skilton & Robinson, 2009). In the context of the supply chain, the network structure will strengthen internal resources in relation to the use of external resources.

2.2 Supply Chain work
In the supply chain, the success or failure of product distribution can be measured, namely

by measuring the performance of the supply. Supply chain performance is the quality performance of activities related to the flow of goods from upstream to downstream, from raw materials to sanpai goods into the hands of consumers including related funds and the flow of information (Aziz & Dwiyanto, 2017). (Hong et al., 2019), supply chain performance finitions refer to the results of the supply chain's ability to meet end consumer desires and convey consumer desires efficiently (Hong et al., 2019). Knowledge of supply chain performance can help improve the overall business capability of a company because it can increase understanding and cooperation between supply chain members ("Analysis of the Effect of Quality of Supplier Relationships with Companies on Supply Chain Performance (Em.Pirik Study on Raw Material Suppliers at Pt Jamu Jago)," 2015).

2.3 Hypothesis development
2.3.1 Supplier Flexibility to Supply Chain Performance
According to (De Angelis et al., 2018), supplier flexibility is one of the variables that affect supply chain performance in the face of rapid environmental changes. Flexible suppliers have the advantage of being easy to coordinate in conveying ideas, product designs, and collaboration well and profitably. In research (Hong et al., 2019), Supplier flexibility plays a very important role in serious environmental uncertainty. (Saputra, 2019), concluded that flexibility is indispensable capabilities that help the company improve its performance, maintain resources and manage the market.Secustomer-oriented fruit factories must have the ability to influence suppliers flexibility to match dynamic customer demands.And based on the description above, a hypothesis can be formulated as follows:
H1: Supplier flexibility has a positive effect on supply chain performance

2.3.2 Supply Network Flexibility to Supply Chain Performance
According to (Hong et al., 2019), the flexibility of the supply network plays a very important role in serious environmental uncertainties. In research (Saputra, 2019), concluded that flexibility is indispensable capabilities that help the company improve its performance, maintain resources and manage the market. The supplier network needs to always be managed and improved, including managing the supply chain to maintain supplies in order to ensure the smooth operation of the process. Flexibility in the supply chain allows the company to achieve performance in several ways at once, for example speed or responsiveness and cost. This performance can be achieved, for example, through the use of new science and technology and reading market changes to create and deliver value to consumers. And based on the description above, a hypothesis can be formulated as follows:
H2: Supply network flexibility has a positive effect on supply chain performance

3. Research Methodology
In this study, there are three variables, namely; independent variable and dependent variable. Population Population is a generalization area consisting of objects or subjects that have certain qualities and characteristics that are determined by the researcher to be studied and then draw conclusions. The population in this study are breeders of chicken farming which are scattered in Regencies / Cities in Banten Province.The sample in this study is meUsing purposive random sampling method, the researcher first determines the part used as a basis before making a random selection. In this research what is meant isAs many as 100 broilers, scattered in regencies / cities in Banten Province.

3.1 Research Model
Here is a model that is formed based on the formulation of the problem.

Figure 2; Research Model
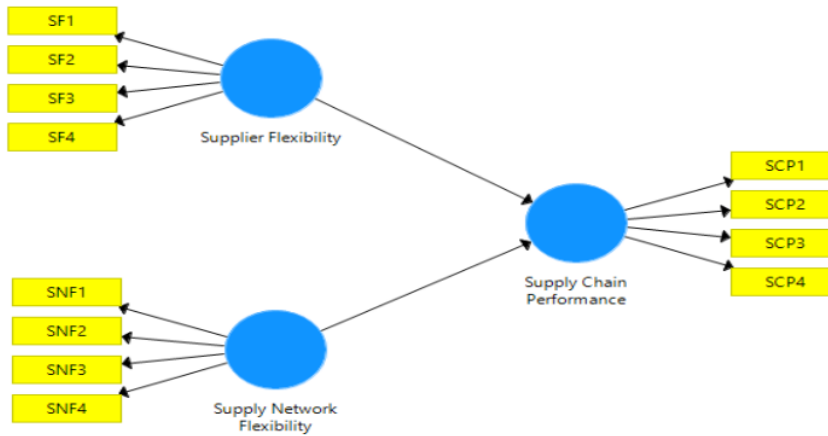
Source: Results of SmartPLS Processing

4. Analysis and Discussion
4.1 Validity and Reliability Test
4.1.1 Validity test

Testing the validity of the data in this study is by using the SmartPLS software with an Outer Model, namely Convergent validity as seen by the square root of average variance extracted (AVE) value of each construct where the value must be greater than 0.5. (Lin, 2017).

Table 1: Discriminant Validity

Avarage Variance Extracted (AVE)					
Construct	Original Sample	Sample Mean	Sstandard Deviation	T Statistic	P Values
Supplier Felexibility	0.801	0.802	0.050	16,092	0.000
Supply Chain Performance	0.792	0.795	0.046	17,325	0.000
Supply Nework Flexibility	0.707	0.707	0041	17,370	0.000

Sources: Primary data is processed (2021)

Table 1 describes the values of the AVE and the AVE roots of the constructs Supplier Felexibility, Supply Nework Flexibility and Supply Chain Performance. It can be seen that each construct (variable) has an AVE value above 0.7. This shows that each of these constructs has a good validity value from each indicator or the questionnaire used to find outvariable Supplier Felexibility, Supply Nework Flexibility and Supply Chain Performancecan be said to be valid. Another way that can be used to assess the validity of a construct is to compare the square root of the AVE in Table 1 with the correlation of the latent variables in Table 2.

4.1.2 Reliability Test

Reliability test is intended to measure the internal consistency of a questionnaire which is an indicator of variables or constructs. A questionnaire is said to be reliable if a person's answer to a statement produces the same answer from time to time. Testing the reliability of the data in this study using SmartPLS software with the test criteria for Composite reliability. A data is said to be reliable if the composite reliability is greater than 0.7.

Table 2: Composite Reliability

Composite Reliability					
Construct	*Original Sample*	*Sample Mean*	*Sstandard Deviation*	*T Statistic*	*P Values*
Supplier Felexibility	0.923	0.922	0.023	40,088	0, 000
Supply Chain Performance	0.918	0.918	0.023	40,443	0,000
Supply Nework Flexibility	0.904	0.903	0.018	49,028	0,000

Sources: Primary data is processed (2021)

From Table 2 it can be seen that the internal consistency of the independent variables (Supplier Felexibility, and Supply Nework Flexibility) with the dependent variable (Supply Chain Performance) has good reliability.

4.2 Data Analysis
4.2.1 Assessing the Outer Model (Measurement Model)
Measurement model is used to test the relationship (loading value) between indicators and constructs (latent variables). In the following, it can be seen that the overall correlation of each variable in Figure 3 is the picture that states the influence of supplier felexibility, supply nework flexibility and supply chain performance.

Figure 3
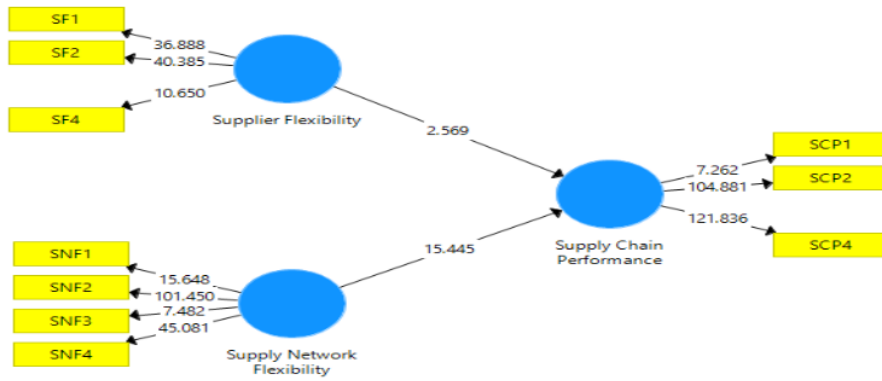Full Model Structural Partial Least Square
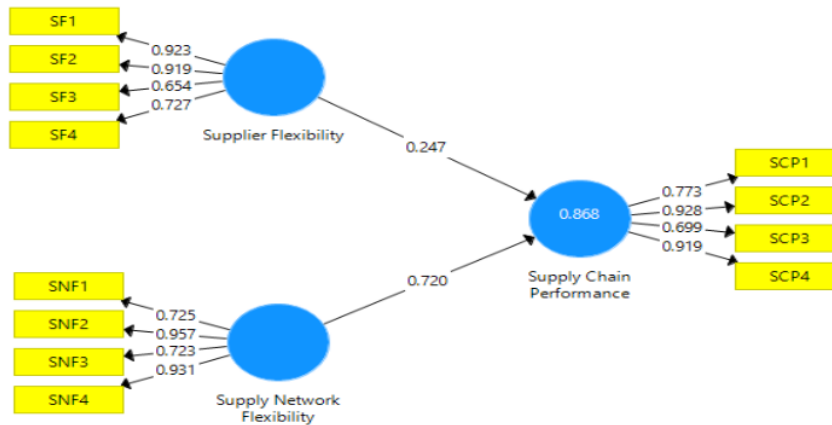
Source: Primary data processed by SmartPLS (2017)

Information:
     SF   = Supplier Felexibility
     SNF = Supply Nework Flexibility
     SCP = Supply Chain Performance

In the following, it can be seen that the overall correlation of each variable in Figure 4 is a picture that states the effect of the independent variable (Supplier Felexibility, Supply Nework Flexibility) and the dependent variable (Supply Chain Performance).

Figure 4
*Output*The second measurement model

Source: Primary data processed by SmartPLS (2021)

4.2.2 Outer Model Variable

From figure 3 Full Model Structural Partial Least Square above each variable is explained the value Outer Loadings as in table 3 below;

Table 3 Outer Loadings Values

Outer Loadings					
Construct	**Original Sample**	**Sample Mean**	**Standard Deviation**	**T Statistics**	**P Value**
SCP1 <- Supply Chain Performance	0.732	0.725	0.101	7,262	0.000
SCP2 <- Supply Chain Performance	0.958	0.960	0.009	104,881	0.000
SCP4 <- Supply Chain Performance	0.961	0.963	0.008	121,836	0.000
SF1 <-Supplier Flexibility	0.933	0.932	0.025	36,888	0.000
SF2 <-Supplier Flexibility	0.928	0.931	0.023	40,385	0.000
SF4 <-Supplier Flexibility	0.818	0814	0.077	10,650	0.000
SNF1 <-Supply Network Flexibility	0.710	0.710	0.045	15,648	0.000
SNF2 <-Supply Network Flexibility	0.960	0.960	0.009	101,450	0.000
SNF3 <-Supply Network Flexibility	0.725	0.713	0.097	7,482	0.000
SNF4 <-Supply Network Flexibility	0.936	0.938	0.021	45,081	0.000

Source: Primary data processed by SmartPLS (2021)

4.2.2.1 Outer Model Variable Supplier Felexibility

The results of processing using Smart PLS can be seen in Table 3, where the value of the outer loadings of the variable indicator Supplier Felexibilitythere is a value less than 0.7, namely SF3. This can also be seen in Table 3, where the t-statistical value of the indicators SF1, SF2, and SF4 has a greater value than the t-table (with sig level = 1.96 and n samples = 100). So that it can be concluded that the variable supplier felexibility has met the requirements of the model adequacy.

4.2.2.2 Outer Model Supply Nework Flexibility

The results of processing using Smart PLS can be seen in Table 3, where the value of the outer loadings of the variable indicator Supply Nework FlexibilityThere is no value less than 0.7 and it shows that the outer model value of the correlation with the variables as a whole has met convergent validity. This can also be seen in Table 3, where the t-statistical value of the SNF to SNF4 indicator is greater than the t-table (with sig = 1.96 and n samples = 100). So that it can be concluded that supply nework flexibility has met the requirements of the model adequacy or discriminant validity.

4.2.2.3 Outer Model Variable Supply Chain Performance

The results of processing using Smart PLS can be seen in Table 4 where the value of the outer loadings of the supply chain performance variable indicator is less than 0.7, namely SF3. in Table 3 where the t-statistical value of the indicators SCP1, SCP2, and SCP4 is greater than the T-table (with sig = 1.96 and n samples = 100). So that the variable supply chain performance has qualified from the adequacy of the model

4.3 Hypothesis Testing through the Inner Model

Inner model according to (Lin, 2017) is a description of the relationship between latent variables based on the substantive theory. Inner model which is sometimes called the inner relation, structural model and substantive theory. Testing of the inner model or structural model is carried out to see the relationship between the constructs, the significance value and the R-square of the research model. The inner model in this study is as follows:

Table 4
Result For Inner Weight

Path Coefficient					
Construct	*Original Sample*	*Sample Mean*	*Sstandard Deviation*	*T Statistic*	*P Values*
Supplier Flexibility-> Supply Chain Performance	0.151	0.153	0.059	2,569	0,010
Supply Network Flexibility -> Supply Chain Performance	0.151	0.153	0.059	2,569	0,010

Sources: Primary data is processed (2021)

Based on Table 4, it can be seen that the relationship between SF and SCP is positive at the coefficient = 0.151 with t count = 2.569 and (Pvalue; = 0.010) at t = 1.96. shows that SF has a positive and significant effect on SCP. The relationship between SNF and SCP is positive at the coefficient = 0.813 with t count =15,445and (Pvalue; = 0,000) at t = 1.96. indicates that SNF has a positive and significant effect on SCP. In assessing the model with PLS, it starts by looking at the R-Square for each dependent latent variable shown in Table 5.

5R-Square table

Path Coefficient					
Construct	*Original Sample*	*Sample Mean*	*Sstandard Deviation*	*T Statistic*	*P Values*
Supply Chain Performance	0.875	0.883	0.019	45,640	0.000

Sources: Primary data is processed (2021)

Table 5 shows the R-square value of supply chain performance 0.875 and supply chain management 0.541. The higher the R-square, the greater the independent variables can explain the dependent variables, so the better the structural equation.

5. Conclusion

Based on the findings obtained from the results of the analysis and the results of the discussion about the effect supplier flexibility and supply network flexibility to supply chain performance on breeders of chicken farming which are scattered in Regencies / Cities in Banten Province, then we conclude as following; The higher the higher supplier flexibility among the members of the supply chain can push for the better supply network flexibility performance, supply network flexibility the good can lead to the better supply chain performance. The results of the influence analysis test show that supplier flexibility and supply network flexibility able to improve supply chain performance. This study can have an effect on the role of management to be able to maintainsupplier flexibility and supply network flexibility in supply chain performance. Mincreasing supply chain

performance can be illustrated by the more flexibility the company has in meeting customer needs.

References

Analysis of the Effect of Quality of Supplier Relationships with Companies on Supply Chain Performance (Em.Pirik Study on Raw Material Suppliers at Pt Jamu Jago). (2015). Journal of Business Strategy, Vol. 24, pp. 66–82. https://doi.org/10.14710/jbs.24.2.66-82

Aziz, RT, & Dwiyanto, BM (2017). Analysis of the Influence of Longterm Relations, Information Sharing, Cooperation, Integration Process on Supply Chain Management Performance (Study on SMEs in Gresik Regency). 6, 1–13. Retrieved from http://eprints.undip.ac.id/57469/

Chu, PY, Chang, KH, & Huang, HF (2012). How to increase supplier flexibility through social mechanisms and influence strategies? Journal of Business and Industrial Marketing, 27 (2), 115–131. https://doi.org/10.1108/08858621211196985

De Angelis, R., Howard, M., & Miemczyk, J. (2018). Supply chain management and the circular economy: towards the circular supply chain. Production Planning and Control, 29 (6), 425–437. https://doi.org/10.1080/09537287.2018.1449244

Dixit, RV, & Prakash, G. (2018). Intentions to Use Social Networking Sites (SNS) Using the Technology Acceptance Model (TAM). Paradigm, 22 (1), 65–79. https://doi.org/10.1177/0971890718758201

Hong, J., Liao, Y., Zhang, Y., & Yu, Z. (2019). The effect of supply chain quality management practices and capabilities on operational and innovation performance: Evidence from Chinese manufacturers. International Journal of Production Economics, 212, 227–235. https://doi.org/10.1016/j.ijpe.2019.01.036

Liao, Y., Hong, P., & Rao, SS (2010). Supply management, supply flexibility and performance outcomes: An empirical investigation of manufacturing firms. Journal of Supply Chain Management, 46 (3), 6–22. https://doi.org/10.1111/j.1745-493X.2010.03195.x

Lin, HF (2017). Antecedents and consequences of electronic supply chain management diffusion: The moderating effect of knowledge sharing. International Journal of Logistics Management, 28 (2), 699–718. https://doi.org/10.1108/IJLM-01-2016-0023

Saputra, D. (2019). The Effect of Supply Chain Visibility, Supply Chain Flexibility, Supplier Development, and Inventory Control on Supply Chain Effectiveness with Risk…. Agora, 7. Retrieved from http://publication.petra.ac.id/index.php/mana Manajemen-bisnis/article/view/8175

Skilton, PF, & Robinson, JL (2009). Traceability and normal accident theory: How does supply network complexity influence the traceability of adverse events? Journal of Supply Chain Management, 45 (3), 40–53. https://doi.org/10.1111/j.1745-493X.2009.03170.x

Suhartati, T., & Rosietta, H. (2012). The Effect of Competitive Strategy on the Relationship Between Supply Chain Management and Performance (Studies on Manufacturing Companies Registered in Bei). XV National Accounting Symposium Banjarmasin, 15, 1–24. Retrieved from http://repository.ubaya.ac.id/25161/

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