

Research Article

## Supply Chain Performance Determinants Model in Furniture SMIs

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**Widiartanto, Fendy Eko Wahyudi, Amni Zarkasyi Rahman**

Faculty of Social and Political Sciences, Universitas Diponegoro,  
Jl. Prof. H. Soedarto SH Tembalang, Semarang, 1269, Indonesia

### *Abstract*

*Research to find the determinants of company performance has long been a field of strategic management studies. Many researchers discover why companies do better than others. In recent years, supply chain terminology has begun to emerge, in which a supply chain is a unit that transforms raw materials into finished products through a gradual, parallel, and/or networked structure partially or simultaneously. This study focuses on explaining supply chain performance in order fulfillment and delivery of required products to customers, with the market turbulence as a moderating variable that strengthens or weakens the relationship between the culture of competitiveness and knowledge development on supply chain performance. The research was conducted in Jepara Regency by taking samples of the Wood Furniture UKM in the Tahunan Village, Tahunan District with quantitative approach. The population in this study are all wood furniture business owners in the Tahunan Village, Tahunan District, Jepara Regency. The data are collected through a cluster random sampling technique with a probability proportional to size sampling method, with a research sample of 65 Wood Furniture UKM. The results show that the culture of competitiveness and knowledge development has a positive and significant effect on supply chain performance, either partially or simultaneously. Meanwhile, the market turbulence is only a potential moderating variable in the relationship between the culture of competitiveness and knowledge development on supply chain performance. Suggestions that can be given include sharing data and information as well as developing a shared understanding of supply chain management information that needs to be done among members of the Wood Furniture UKM Association in the Tahunan Village.*

**Keywords:** *Competitiveness Culture; Knowledge Development; Market Turbulence; Overseas Supply Performance*

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**Corresponding Author:** [widiartanto@live.undip.ac.id](mailto:widiartanto@live.undip.ac.id) (Widiartanto)

## INTRODUCTION

Research to find the determinants of company performance has long been a field of strategic management studies. Many researchers discover why companies develop better than others (Hitt et al., 2004; Rumelt et al., 2005; Summer et al., 1990). In recent years, supply chain terminology has begun to emerge, where a supply chain is a unit that transforms raw materials into finished products through a gradual, parallel, and/or networked structure partially or simultaneously (Bowersox et al., 1999).

As well as research by Hult et al. (2002), this research plan focuses on explaining supply chain performance in order fulfillment and delivery of required products to customers. Supply chain performance is a key metric for directly assessing the function of the supply chain. More importantly, supply chain performance is central to a company's strategic success. As Handfield & Nichols (2008) noted, supply chain performance is not only directly related to profits at the company level, but the advantage of supply chain performance is that it allows companies to grow faster and get higher profits compared to other companies in the industry, increasing market share by introducing new products, controlling overhead and inventory costs, and supporting the achievement of industry leadership positions. In contrast to the single-organizational focus of the study of Hult et al. (2002), this study tries to examine the supply chains of several companies.

This research plan is devoted to describing a logical step in the flow of supply chain management strategy research. This study is based on the study of Hult et al (2002), who introduced the concept of "culture of competitiveness" as a reflection of innovation, entrepreneurship, and learning orientation, and Hult et al (2004) who examined the knowledge development process, in the context of achieving high performance. Learning was a key element of both studies but the framework that was tested turned out to be different. Based on the previous studies, this research was built with a resource-based view (Wernerfelt, 1984), and theories of organizational learning (Huber, 1991) and information processing (Daft & Weick, 1984). Some kinds of literature argue that both the culture of competitiveness and knowledge development are partially influential enough to achieve superior performance in various market conditions.

Recent research by Ray et al. (2004) and Rumelt et al. (2002) highlights the value of resource testing in a firm's operations management process, with the research model covering two factors, namely the culture of competitiveness and knowledge development (each having several indicators) and their interactions. Cultural competitiveness (CC) is defined as the degree

to which the supply chain is used to detect and fill the gap between what the market wants and what is currently offered Hult et al (2002). Based on the resource-based view (Wernerfelt, 1984), CC is an unobserved latent factor (Godfrey & Hill, 1995) which is reflected in three orientations, namely innovation, entrepreneurship, and learning that will affect performance. The last orientation, namely learning orientation, is an important element that helps integrate CC and knowledge development.

Knowledge development (KD), on the other hand, is a phenomenon in which the acquisition of knowledge, dissemination of information, sharing of meaning, and memory is achieved in the supply chain (Hult et al., 2004). Thus, learning orientation will appear in a set of a search for the values of knowledge (Baker & Sinkula, 1999) while KD is reflected in behavior to generate knowledge (for example, Grant, 1996). Research on organizational learning (for example, Huber, 1991) and information processing (Daft & Weick, 1984) is the main basis for four indicators of KD, namely knowledge acquisition, information distribution, sharing of meaning, and achieving memory which has a strong relationship with performance in the supply chain. The broader learning literature (i.e., learning orientation and organizational learning) is the basis for integrating CC and KD in models (e.g., Argyris & Schön, 1997; Nystrom & Starbuck, 1984).

Historically, the field of strategic management has not paid empirical attention to supply chains, while disciplines such as marketing and operations management have long emphasized the performance implications of operational activities. In a review of the operations management literature, Anderson et al. (1989) noted that positioning or aligning operating capabilities can have a significant impact on the competitive advantage and performance of an organization. In recent years, some strategic management studies have begun to examine supply chain “management” not only as a means of obtaining the products needed, but also as a means to improve key outcomes (e.g., Hult et al., 2002, 2004). The strategic value of supply chain management is reflected on how companies such as Wal-Mart, Zara, Toyota, and Dell have used their supply chains as a competitive weapon to gain a higher advantage over competitors. Meanwhile, failure to manage the supply chain will have a negative impact. For example, supply chain difficulties have cost Cisco \$ 2.25 billion in 2001 inventories and Motorola money in sales of phone camera since early 2003. Given the implications for profits and sales, it is not surprising that the problems in major supply chain erode the market value of a company by an average of 10 percent (Hendricks and Singhal, 2003).

Likewise, at the IKM Furniture Kayu in Jepara Regency, the issue of supply chain management is also interesting to study, apart from being a way to increase the number of studies on the supply chain in the strategic management of small industries, as well as a way to find out the operational capabilities that will have an impact on competitive advantage and performance of small industrial operations. Therefore, the novelty of this study is the examination of supply chain in several small industries in Jepara Regency. Based on the industry potential data above, it can be seen that in 2019, the number of workers at the wood-based IKM furniture center was 50,668 people with 3,821 business units, a production volume of 2,667,567 pieces/set, an investment value of Rp. 160,494,600 and a production value of Rp. 1,200,406. With a large investment value and production value, many people enter the business in the wood furniture sector. On the other hand, the production volume has tended to decline during the last 4 years.

Based on the foregoing, the research questions posed are as follows: How does culture of competitiveness influence the performance of the supply chain?; How does knowledge development influence supply chain performance?; How does culture of competitiveness and knowledge development influence the performance of the supply chain?; How does the effect of moderation on the market turbulence influence knowledge development on supply chain performance?; and What is the effect of moderating the market turbulence on the influence of the culture of competitiveness with the performance of the supply chain?

Barney & Mackey (2005) note that the continuing theoretical development of a resource-based view requires researchers not only to correlate aggregate measures of resources at the firm level but also to move their research to the level of analysis where those resources are located. "Thus, theory and empirical attention should be directed at the resource level, not the firm level." The supply chain offers one such level of analysis of where resources are located, and the role of resources at this level can be prominent. In this case, shared supply chain resources can replace traditional features that bind company members, such as structure, culture, and strategy (Daft & Weick, 1984).

With a resource-based view, Hult et al. (2002) argue that a culture of competitiveness functions as an intangible strategic resource that can be developed through interaction and cooperation among supply chain members. CC provides supply chain members support with a shared value and belief pattern that emphasizes the importance of certain elements (and eliminates others) and encourages a chain approach to the market. Thus, CC is rooted in the broad phenomenon of 'culture' even though it focuses on a set of entrepreneurial, cultural-

oriented innovation and learning - which directs the supply chain to fill the gap between the customer's future desires and what is currently offered.

Entrepreneurial orientation is defined as the values of supply chain members related to the fulfillment of new market opportunities and renewal of new supply chain activity areas (e.g., Naman & Slevin, 1993). The innovative orientation refers to the value of the member's supply chain as it relates to the creation of new ideas (i.e., the openness of members to new ideas, Hurley & Hult, 1998). Learning orientation is defined as member values related to the creation of new insights that have the potential to shape supply chain activities (Huber, 1991). Each of the three orientations is needed, to bring up a higher strategic resource called the culture of competitiveness (Hult et al., 2002). Most importantly, rooted in a resource-based view, CC appears to be a valuable, scarce, and unrivaled strategic resource in the supply chain (Barney & Mackey, 2005; Wernerfelt, 1984) that can provide a sustainable competitive advantage and enhance performance (Hult et al., 2002). Based on the theory and previous empirical studies above, a hypothesis can be formulated: *The culture of competitiveness has a positive influence on supply chain performance.*

Huber (1991) describes four important dimensions for the learning effort. Hult et al. (2004) based on these elements developed a knowledge development model. The first dimension is the knowledge-acquisition process by which an entity, such as an organization or supply chain, becomes prudent. Information distribution is the process by which information from different sources is shared. In the supply chain, this information sharing occurs throughout the chain, including its nodes and members (Kohli et al., 1993). Information interpretation, or shared meaning, is the process by which members develop a common understanding of data and events (Corner et al., 1994). Given the lack of a strong culture in a typical supply chain, the meaning of sharing supply chain data and events is necessary to take advantage of collective action (Hult et al., 2004). Organizational memory is the most integral component of KD (Huber, 1991), which is memory achieved in the context of the supply chain. Hult et al. (2004) with (Moorman & Miner, 1997), define memory as the sum of knowledge, experience, and familiarity with supply chain processes, operations, and behavior, which serve as a mechanism by which knowledge is stored for future strategies since it is very important as a point of future learning behavior.

This theory, derived from the organizational information processing literature, provides a basis for supposing that as a group, the four dimensions should improve supply chain performance. The information-processing theory explains that gathering, processing, and

interpreting information is the main task of organizations (Daft & Weick, 1984) as is the supply chain (Bowersox et al., 1999). It has broad arguments to suggest that information processing activities shape strategic decisions-within firms and outcomes (Meyer, 1982; Thomas et al., 1993). The knowledge-based view (Grant, 1996) also supports the knowledge-performance development link. Based on the notion of a resource-based view of value, scarcity, and imitation, the knowledge-based view rests on the idea that the unique ability to create and utilize wisdom creates a competitive advantage and thereby enhances outcomes (e.g., Hult et al. (2004)). Thus, based on the above theory and empirical studies, a hypothesis can be formulated: *Knowledge development has a positive influence on supply chain performance.*

Learning is the key to integrating a culture of competitiveness and developing knowledge in the supply chain. While (Hult et al., 2002, 2004) developing the CC and KD constructs in the supply chain, they do not integrate the two concepts. This is unfortunate because the learning orientation within the CC framework is focused on the search for supply chain values (Baker & Sinkula, 1999) which guide knowledge-creation behavior within the KD development framework (e.g., Grant, 1996; Huber, 1991). Thus, learning is the second link missing in the conceptualization proposed by Hult et al. (2002, 2004) and the resultant integrators of the two frameworks. In other words, their shared concern for learning shows that both CC and KD are sufficient to maximize performance.

For example, Baker & Sinkula (1999) argue that if members of an organization [e.g., supply chain] enhance their learning orientation, they will not only collect and analyze market information but also constantly check the quality of their interpretive function of storage and the validity of the dominant logic that guides the whole process. At the same time, stressed knowledge-producing behaviors in the supply chain tend to lead to a culture of infrastructure that is exemplified by the associated values in learning orientation (e.g., Slater & Narver, 1995). Application in the supply chain, the synergistic interaction between CC and KD, is also consistent with Day (1994) regarding the in-out process that centers on the strategic interaction among excellence in process management, knowledge integration, and learning diffusion. Based on the theory and previous empirical studies above, a hypothesis can be formulated: *The interaction between the culture of competitiveness and knowledge development has a positive influence on supply chain performance.*

Organizational task environment provides a wealth of potential dimensions that can influence company strategy and operations. In this study, we use data and theories from the literature by focusing on market turbulence – the rate of change in the composition of customers

and their preferences (Jaworski and Kohli, 1993) – as one of the important elements of the environment that influence the relationships in this study (eg, DESs and Beard, 1984). Also, it is emphasized on the notion that managerial perceptions, especially market uncertainty, form strategic choices and decision making (Child, 1972; Duncan, 1972; Hall et al., 1968). Likewise, Sharfman & Dean (1991) state that "the environment is parts of the external information flow that companies present through attention and trust. It is a logical extension that mental-environmental perceptions and beliefs shape culture and behavior (Dutton & Jackson, 1987).

Some researchers hope that this argument will also continue to be true in supply chains. For example, one of the teachings of the behavioral theory is that organizational members depend on the conditions in which the company operates (Cyert & March, 1992; Levitt & March, 1988). Thomson (2003) considers that dealing with uncertainty as a "core administrative process" of a supply chain is likely to manifest the positive influence of market volatility on specific cycle-time knowledge development relationships in KD. A supply chain that is adept at developing greater knowledge will have better expertise to cope with the complexities created by rapid change than any other supply chain. Based on the theory and previous empirical studies above, a hypothesis can be formulated: *Market turbulence has a positive influence on the relationship between knowledge development and supply chain performance.*

Structural contingency theory suggests that the value of a resource depends on the context in which it is used (Hall et al., 1968). Based on this principle, the researcher hopes that market volatility will suppress the cultural-competitiveness-performance relationship. Under low-level turbulence, this gap is relatively consistent and slowly growing, suggesting that CC could be effectively targeted to fill the gap. When turbulence is high, however, market desires shift quickly and unpredictably, directing the gap that CC must fill to smooth and flow.

Indeed, as Aldrich (2008) emphasizes, high levels of turbulence cause external changes and are difficult to predict. For Weiss & Heide (1993), rapid changes in markets can undermine and harm existing cultural competencies (e.g., a culture of competitiveness) that are deep, ingrained, and embedded in supply chain members' values and belief systems. Thus, while greater market volatility increases the requirements for supply chain knowledge development (Levinthal & March, 1981), greater turbulence in the market is also detrimental to the culture of competitiveness. Thus, based on the theory and previous empirical studies above, a hypothesis can be formulated: *Market turbulence has a negative influence in the relationship between cultural competitiveness and supply chain performance.*

## RESEARCH METHODS

The data used in this study are primary data obtained by distributing research questionnaires to 65 owners of Wood Furniture UKM in Tahunan Village, Tahunan District, Jepara Regency. The data were collected through a cluster random sampling technique with a probability proportional to the size of the sampling method. The results of the interpretation of the model evaluation are presented in the form of a table consisting of testing the measurement model in the form of validity and reliability test results and structural model testing in the form of r-square and f-square tests. Data analysis was carried out with the help of the SmartPLS version 3.3.2 software program.

### *Variable And Measurement*

The measurement scale in the study on cultural variables of competitiveness, knowledge development, market turbulence, and supply chain performance using a Likert scale of 1-5, where each item is provided with a range of extreme angles, strongly agree, and strongly disagree, is based on the proxy of the measurement scale of the experts. Measurement of the construct of daytime power culture is seen from 3 things, namely: learning orientation, innovation orientation, and entrepreneurial orientation. Measuring the construct of competitiveness is seen from 3 things, namely: knowledge acquisition, information distribution, sharing of meaning and achieved memory. Measuring the construct of market turbulence is seen from 5 things; product preferences of customers changing from time to time, the tendency of old customers to look for new products over times, receiving product requests from customers who have never bought before, new customers have different product needs from existing customers /old customers, and continue serving new customers. Measuring the supply chain performance construct is seen from 4 things, namely: the supply chain process is getting shorter, the improvement in supply chain management performance, satisfaction with the acceleration of supply chain management, and the supply chain management process is getting more efficient.

### *Data Analysis*

The results of the interpretation of the model evaluation are presented in the form of a table consisting of testing the measurement model in the form of validity and reliability test results and structural model testing in the form of r-square and f-square tests. Data analysis is performed with the help of the SmartPLS version 3.3.2 software program. Testing the measurement model is done by testing the validity and reliability which includes 2 stages,



namely the evaluation of the measurement model (outer model) and evaluation of the structural model (inner model). The model tested is the influence of competitiveness culture (X1), knowledge development (X2) on supply chain performance (Y), which is moderated by the market turbulence (Mo).

**RESULTS AND DISCUSSION**

*Variable Description*

The analysis is conducted to obtain an overview of the data collected on each variable. Based on these calculations the average is calculated and is then classified. The variables of competitiveness culture, knowledge development, the market turbulence, and supply chain performance for the average value are classified on 5 criteria, namely very bad, not good, good enough, good, and very good. The variable description is shown in Table 1:

**Table 1.** Variable Description

<b>Variable</b>	<b>Mean</b>	<b>Criteria</b>
<i>Competitiveness Culture</i>	3,83	<i>good enough</i>
<i>Knowledge Development</i>	3,74	<i>good enough</i>
<i>The Market Turbulence</i>	3,86	<i>good enough</i>
<i>Supply Chain Performance</i>	3,74	<i>good enough</i>

Source: Primary data processed, 2020

*Measurement Model Analysis and PLS Analysis*

In PLS, measurement model testing is carried out. First, the outer model test is conducted by testing the validity and reliability of the construct forming indicators. The convergent validity test is carried out by looking at the Average Variance Validity (AVE) value. The AVE value must be greater than 0.5 as large as the cross-loading, which means that the factor must explain at least half the variation of the indicators represented (Chin, 1998; Hock and Ringle, 2006 in (Garson, 2016). AVE value below 0.5 means that the error variation exceeds the variation described. The result of the convergent validity test is presented in the Table 2:

**Table 2.** Final Convergent Validity Test Results

<b>Variable</b>	<b>Value</b>	<b>=</b>	<b>0,5</b>	<b>Conclusion</b>
	<b>AVE</b>			
<i>Competitiveness Culture</i>	0,526	>	0,5	Valid

Variable	Value	=	0,5	Conclusion
	AVE			
<i>Knowledge Development</i>	0,503	>	0,5	Valid
<i>The Market Turbulence</i>	0,518	>	0,5	Valid
<i>Supply Chain Performance</i>	0,738	>	0,5	Valid

Source: Primary data processed, 2020

Discriminant validity in this study is tested with the Fornell-Larcker criterion. The Fornell-Lacker criterion requires that the square root value of the AVE must be higher than its correlation value with any latent variable. This means that for any latent variable, the variation shared with the indicator block is greater than the variation shared with other latent variables (Garson, 2016). Table 3 is the results of the discriminant validity test:

**Table 3.** Discriminant Validity Model 2 Test Results

	BDS	KRP	PP	TAPI
BDS	<b>0,726</b>			
KRP	0,853	<b>0,859</b>		
PP	0,943	0,875	<b>0,709</b>	
TP	0,943	0,828	0,938	<b>0,720</b>

Source: Primary data processed, 2020

From Table 3, the value of the Fornell-Lacker criteria for the culture of competitiveness and supply chain performance variables has the greatest value compared to its correlation with other variables. It shows that the variables of competitiveness and supply chain performance can be said to be valid. Knowledge development variables and market turbulence do not have the greatest value compared to their correlation with other variables. Even so, the knowledge development and market turbulence variables are still considered valid because they have a value of more than 0.5.

Reliability is the value of the consistency of the measuring instrument in measuring the same symptoms. The questionnaire is said to be reliable if the answers to the questions are consistent over time (Ghozali, 2008). Reliability testing is carried out with the help of SmartPLS ver 3 software with composite reliability and Cronbach's alpha, with the same standard assessment using composite reliability as other reliability assessment standards, including Cronbach's alpha. The composite reliability value varies from 0 to 1, with 1 being the perfect reliability estimate. Sholihin & Ratmono (2013) state that to measure reliability with internal

consistency, the composite reliability value must be greater than 0.7 (0.6 - 0.7), is still allowed for explanatory research). Table 4 is the result of testing composite reliability:

**Table 4.** Composite Reliability Test Results

<b>Variable</b>	<b>Value</b>	<b>Composite Reliability</b>	<b>=</b>	<b>0,7</b>	<b>Conclusion</b>
Competitiveness Culture	0,898	>	0,7	Valid	
Knowledge Development	0,916	>	0,7	Valid	
Supply Chain Performance	0,918	>	0,7	Valid	
The Market Turbulence	0,797	>	0,7	Valid	

Source: Primary data processed, 2020

The next step is the inner model test or structural model test, which is assessed through the R-square and f-square tests shown in Table 5. The R-square is a measure of the overall effect measured for the structural model. Based on previous studies, Garson (2016) categorized the R-square value into 3 categories, namely strong (> 0.67), moderate (> 0.33 -0.67), and weak (> 0.19 - 0.33). Meanwhile, f-square is an effect size that explains how much the proportion of variance is not explained and calculated by changes in R-square (Garson, 2016). Cohen (1998, in Garson, 2016) classifies the f-square value into 3 categories, namely small effect (0.02), medium effect (0.15), and large effect (0.35).

**Table 5.** R-Square dan R-Square Adjusted Model

<b>Variable</b>	<b>R-Square</b>	<b>R-Square Adjusted</b>
Supply Chain Performance	0,789	0,771

Source: Primary data processed, 2020

**Table 6.** Effect Size for Path Coefficient Model

<b>Variable</b>	<b>f-square Supply Chain Performance</b>	<b>Interpretation</b>
Competitiveness Culture	0,070	Small
Knowledge Development	0,133	Moderate
The Market Turbulence	0,016	Small

Source: Primary data processed, 2020

**Table 7.** Value Goodness of Fit (GoF)

<b>Value Goodness of Fit (GoF)</b>	
Value Goodness of Fit (GoF)	0,76

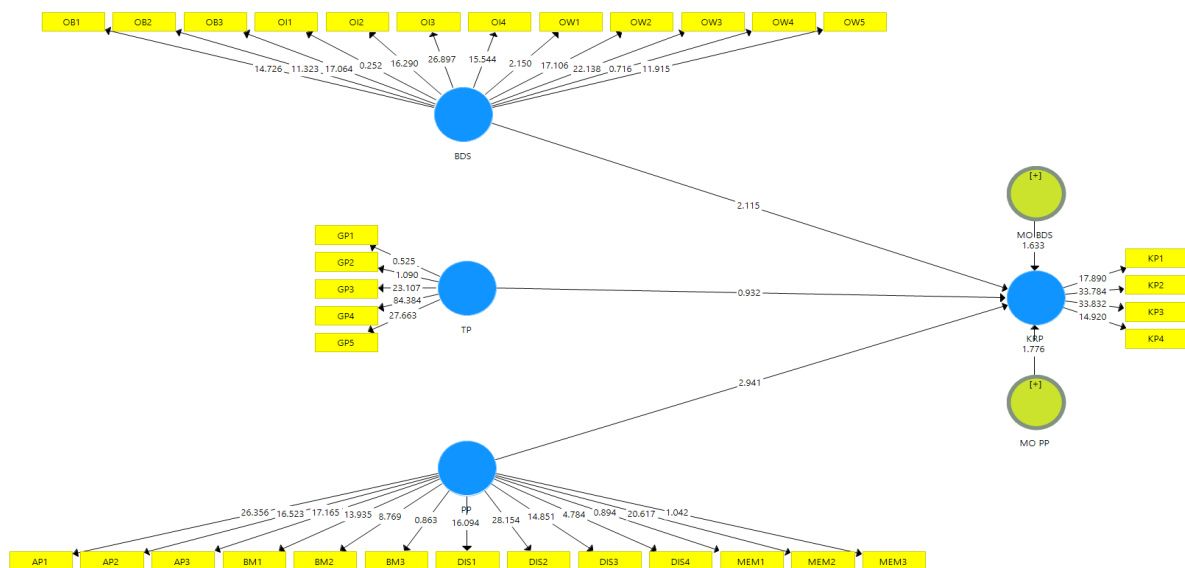
Source: Primary data processed, 2020

Based on Table 6, the cultural variable of competitiveness and market turbulence has a small or weak effect, while the variable of knowledge development has a moderate effect. This means that the competitiveness culture variable can explain 7.0% of the variance that is not explained by the R-square. The knowledge development variable can explain 13.3% of the variance while the market turbulence variable can only explain 1.6% of the variance that is not explained by the R-square. Referring to Garson's categorization, the goodness of fit value shown in Table 7 (0.76) is greater than 0.36 so it is included in the high feasibility category. This value indicates that the research model is fit and feasible to use.

*Hypothesis Testing*

Hypothesis testing is done by using the resampling technique with the Bootstrapping method on SmartPLS ver 3. Hypothesis testing in this study is conducted through direct effects procedures to test the direct effect. The relationship between variables can be seen through the T-statistic value, p-value, and original sample on the Path Coefficient output. The hypothesis is accepted if the p-value is less than 0.05 or 5%. The p-value is used to see the significance of the relationship between variables. The results of the model hypothesis test are shown in Figure 1.

**Figure 1. Model Hypothesis Test**



Source: Primary data processed, 2020

*Direct Effect Test*

The direct effect test between variables is carried out through the resampling technique with the bootstrapping method. In this study, the direct effect test is carried out on 1 model. Table 8 is the test result of the direct effect of the Path Coefficient through the Bootstrapping method.

**Table 8.** Results of Direct Effect Test on the Output Path Coefficient Model

	<i>Original Sample</i>	<i>Sample Mean</i>	<i>Standard Deviation</i>	<i>T Statistics</i>	<i>P Values</i>	<b>Interpretation</b>
<b>BDS -&gt; KRP</b>	0,453	0,419	0,210	2,155	0,032	Positive Significant
<b>MO BDS -&gt; KRP</b>	0,365	0,333	0,238	1,535	0,125	Not Significant
<b>MO PP -&gt; KRP</b>	-0,390	-0,351	0,233	1,676	0,094	Not Significant
<b>PP -&gt; KRP</b>	0,591	0,591	0,215	2,746	0,006	Positive Significant
<b>TP -&gt; KRP</b>	-0,204	-0,153	0,206	0,991	0,322	Not Significant

*Source: Primary data processed, 2020*

Based on Table 8, it can be seen that the influence of the culture variable on competitiveness and knowledge development on supply chain performance has a p-value of less than 0.05. The culture competitiveness variable has a p-value of 0.032 and a positive original sample value. It shows that the cultural competitiveness variable has a positive and significant effect on the supply chain performance variable. The knowledge development variable also has a p-value of less than 0.05, which is 0.006, and a positive original sample value. This means that the knowledge development variable has a positive and significant effect on supply chain performance variables.

The market turbulence variable, the moderating effect of the culture of competitiveness, and the moderating effect of knowledge development have a p-value of more than 0.05. This shows that the market turbulence variable, the moderating effect of culture competitiveness, and the moderating effect of knowledge development have no significant effect on the supply chain performance variables.

## CONCLUSION

The findings indicate that a culture of competitiveness has a significant positive impact on supply chain performance. The culture of competitiveness can leverage the performance of the supply chain. In the second hypothesis, it is proven that knowledge development has a positive and significant effect on supply chain performance. The development of knowledge can leverage supply chain performance. The third hypothesis about the interaction between the culture of competitiveness and the development of knowledge together has a positive and

significant effect on supply chain performance. The culture of competitiveness and knowledge development together can leverage supply chain.

The fourth and fifth hypotheses about the effect of moderating the market turbulence on the relationship between the culture of competitiveness on supply chain performance and the effect of moderating the market turbulence on the relationship between knowledge development on supply chain performance are rejected, meaning that the variable market turbulence is unable to explain the influence between a culture of competitiveness on performance, supply chain and knowledge development of supply chain performance. The market turbulence variable is only a potential moderating variable, meaning that the market turbulence variable has the potential to become a moderating variable since it does not significantly influence the dependent variable (supply chain performance) and the moderation effect also does not have a significant effect on the dependent variable.

The results show that three hypotheses are accepted, namely hypotheses 1, 2, and 3, while two hypotheses are rejected, namely hypotheses 4 and 5. There are several reasons or justifications why hypotheses 4 and 5 are rejected or the independent variable is unable to explain the dependent variable. In hypothesis 4, it can be seen that several question items on the competitiveness culture variable have a mean indicator value that is smaller than the mean variable, namely; the principle that if a company stops learning in the supply chain management process it will endanger the company's future, the principle that employee learning is an investment and is not a burden on the company, giving penalties for employees who do not implement new ideas at work, presenting innovation in supply chain management processes is highly encouraged, and giving emphasis on research and development and the ability to use technology in the company

In hypothesis 5, it can be seen that some of the question items on the knowledge development variable have a mean value of indicators that is smaller than the mean of the variable; those indicators among others are organizing regular meeting among members of the supply chain to find out what products are needed in the future, conducting a lot of research/studies in the company for the required products, holding frequent meetings among departments in the company to discuss trends in supply chain management, finding out quickly when something important happens in the company's supply chain management process, sharing effective supply chain management information among supply chain management participants, developing a shared understanding about supply chain management information

that can be done, and making investment on a lot of research and development in the supply chain management process.

On the other hand, the two indicators in the market turbulence variable have a mean value of the indicator that is smaller than the mean of the variable, the tendency of old customers to look for new products over times and receiving product requests from customers who have never bought before. This means that old customers tend to remain loyal to buy company products and product demand is dominated by old customers of the company.

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