

ANTICIPATED LEVERS FOR SUPPLY CHAIN PERFORMANCE AND ITS SUPPLY CHAIN ACTORS AND MAJOR VALUE CREATION FACTORS: INDONESIA AUTOMOTIVE SPARE PARTS INDUSTRY

Arry Hutomo MDKSP,
Widyatama University, Indonesia
arry.hutomo@widyatama.ac.id

Agung Augustrianto,
Widyatama University, Indonesia
agung.augustrianto@widyatama.ac.id

ABSTRACT

A recent data in GAIKINDO 2015 annual report noted Indonesia automotive manufacturers has ranked 15th world now. Although in last 2015 the automotive industry sector is quite affected by the global economic depression, but it's expected to trigger the growth of supporting other automobile sector so that the Indonesian economy will be thrived ever since the first quarter of 2016. Many of supply chain focus research on creation of value in automotive sector is characterized by customer expectations relevance with major value creation factors while Indonesia automotive spare parts research in maintaining and leveraging supply chain performance for each individual actor in the chain still rare. This study investigates major value creation factors within supply chain actors affect levers for supply chain performance on automotive spare-parts industries in Indonesia. Structural equation modelling has been chosen with *Warp PLS 3.0* and all samples have met the criteria composite reliability and *cronbach's alpha*. The study finds both of major value creation factors and supply chain actors as predictor latent variables have positive impact, but supply chain actors had large effect sizes and important role in improving practical supply chain performance and this offer corporate attention to manage spare parts supply chain policy.

Keyword: Levers Supply Chain, Supply Chain Actors, Major Value Creation

1. INTRODUCTION

1.1 Economy growth of spare parts automotive in Indonesia

As mentioned in the abstract above that Indonesia automotive manufacturers has ranked 15th world now. On the other hand, Indonesia included as an exporter and importer of component parts are considered by some countries in ASEAN. However, several problems appeared such as second-hand vehicles imported into Indonesia, there will replacement of parts, it is not the responsibility of sole agents (APM). In correlation with this case because the process into Indonesia directly through exporters and traders (importers). Paths entry into Indonesia not through involvement sole agent. Naturally

sole agents not to serve the service and provide spare parts for imported second-hand vehicles were damaged and need to replace parts, and it is not few in number.

Indonesia Automobile Association (GAIKINDO) [7] predicts the domestic automotive market rose about 5%, or could reach 1.05 million units, even 1,100,000 units. Throughout 2015, domestic car sales reached 1,013,291 units, down 16% compared to 2014 (1.2 million units). GAIKINDO [7] predict sedan type of car sales would soar if the government decreased the Sales Tax on Luxury Goods (Sales Tax) 30%. Other incentives regarding the above is most important that the government has subsidized assistance in the form of incentives for the development of the automotive industry is the tax incentives for spare parts or automotive component products.

The problems do not stop there, even more complex with the conditions of uncertainty. A previous research, Hutomo, A and Fitridayani, R [10] said there are many local markets are segmented than integrated market in Indonesia. Hutomo said there are many reasons the domestic market segmentation as including strong power of local government, regional cultural differences, labor immobility, lack of economic infrastructure and an adequate logistics, and information barriers. Hutomo, A and Fitridayani, R [10] according to a research study, that the integrated domestic economy is an important measure of a country's economic development. Proper supply chain strategy that is widely believed to improve the performance of supply chain management. Previous research from Makarennu [15] said discounting the important concept of alignment means that a failure in the supply chain due to a mismatch between two or more general remain important factors, some environmental uncertainty purposes a basis for designing appropriate strategies. However, the proposed framework still not match fit conditions or economic policy in Indonesia.

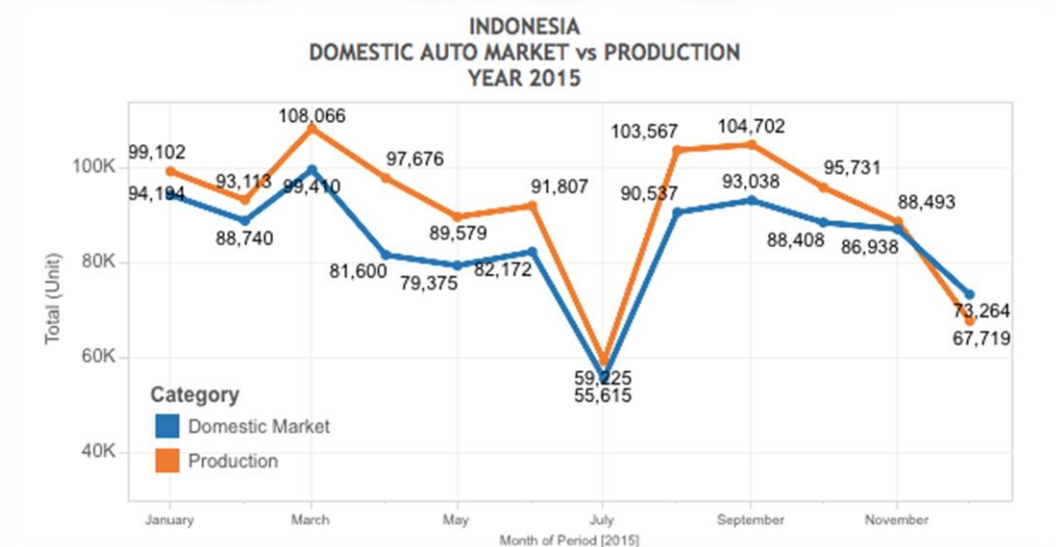


Figure 1. Indonesia domestic auto market vs production 2015

1.2 Spare parts component and impacts of growth in vehicle sales

Indonesia-Investment [12] reported the institution is pessimistic to see a rebound if global commodity prices remain low. However, domestic auto market still below production in 2015 see figure 1. A number of automobile manufacturers who already has a factory in Indonesia at this time with the capacity to make 1.9 units per year. Of

the number of products, of which 200 thousand units in the export market, GAIKINDO Annual Report 2015 [7].

Researchers attempting to mention that the rapid growth of the global automotive industry is now automatically also encourage the growth of the automotive component industry as a supporter of the industry. The existence of the vehicle spare parts components industry to supply products to automobile manufacturers or original equipment manufacturer (OEM), and also to meet the needs of consumers (after sales), both in the domestic and international markets. In fact, Imports world for automotive spare parts components in a group of spare parts components and accessories of motor vehicles continues to increase at an average of 12.67% in the 2009-2013 period, GAIKINDO Annual Report 2015 [7]. Parts of Indonesia are exported to Thailand include the vehicle's transmission, clutch and parts, motorcycle parts, accessories wheels, steering parts, accessories for vehicle body parts, brake parts, radiators, shock absorbers, bumpers and others. This condition describes the needs of an increasingly high on automobile parts. This situation shows that the automotive component industry in the country has the prospect to pass in the expansive market.

The author calculates that if the industrial sector continues to writhe in 2016. Industry growth is expected to reach 5.7 percent could plausibly be achieved. Basically, researchers try to analyze from the statement, until the third quarter 2015, the growth of non-oil and gas processing industry amounted 5,21persen according to the BPS (Central Bureau of Statistics). That's higher than the similar period of economic growth in 2014 by 4.73 percent.



Figure 2. Indonesia CBU Export Import 2015 (GAIKINDO, 2015)

Indonesia-Investment Reports [12] described given that many spare-parts components still need to be imported (in US dollars) hence raising production costs for Indonesian car manufacturers, price tags on cars became more expensive. However, not always have manufacturers and retailers been able to pass these costs on to end-users due to fierce competition in the domestic car market.

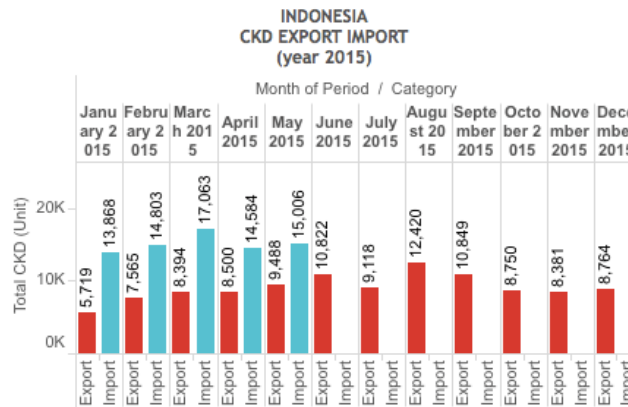


Figure 3. Indonesia CKD Export Import 2015(GAIKINDO, 2015)

This is illustrated by the graph export-import (CBU and CKD) in 2015 see figure 2 and 3. Neely and Gregory [16] said the supply chain remain regarded from many points of view, such as financial, information, strategic, operational, suppliers, clients, shareholders and societal. Performance evaluation cannot be conducted without the use of modeling or an approach identifies the values created for all of the supply chain. Performance is linked to the value created. Kaplan [13] mentioned the concept of a value chain is focused on the company, and the customer may be seen as outside the company, as a consumer who is not associated with the process of value creation. The traditional point of view is not to consider the interactions between companies and customers as a source of value creation. Prahalad and Ramaswamy [5] highlight, pertinently, that customers can choose the companies with which they wish to enter into a relationship, and that it is necessary for the company conjointly to create value with customers by concreting unique relationships. A supply chain process that is involved in common value creation with the customer is a process, the performance of which is directly measured by the customer, and where this performance corresponds to expectations. Investments Reports [6] described Indonesia is the second-largest car manufacturer in Southeast Asia (after Thailand). Indonesia Investments Reports [12] mentioned the low-cost green car (LCGC) are affordable, fuel efficient cars that were introduced to the Indonesian market in late-2013 after the government had offered tax incentives to automobile manufacturers that meet requirements of fuel efficiency targets. In exchange, the LCGCs are exempted from luxury goods tax, which allows manufacturers and retailers to set cheaper prices.

1.3 Research purpose

Cao M. and Zhang Q [1] mentioned on previous research that supply chain management aims to manage and drive a group of actors within an organization whose actors may have different aims but are working toward the same ends (or values). Shepherd and Günter [22] carried out quite a broad review of research literature relative to measurement systems for supply chain performance. Panayides [19] said major value creation attributes are innovation, trust and functionally of product have positive impact supply chain actors. Cao M. and Zhang Q [1] described that supply chain actors should encompasses information sharing, decision making synchronization, profit risk sharing, speed of supply chain and sustainable development to conduct business in order to better supply chain. So indirectly, that major value creation attributes had affects information sharing, decision making synchronization, profit risk sharing, speed of supply chain and sustainable development positively.

Prahalad and Ramaswamy [5] mentioned, that the creation of value for all of the actors in the chain is a key element which justifies the implementation of supply chain management in order to achieve a better performance, and supply chain actors necessary to be able to evaluate this value creation, not only in relation to the customer or within the company, but also across the whole of the chain with an appropriate evaluation tool. GEMDIST group is retailer operating on an international level in 11 countries with 250.000 workers achieving a turnover of over 50 billion euro. GEMDIST mentioned attributes which must encompassed and anticipated for levers supply chain performance are product availability, ensure perfect customer service, cost optimization and cooperation along supply chain and finally, need for proper management of attributes of supply chain actors. Estampe, D, Lamouri S., and Paris J.L [6], all of the models presented do not apply to all types of companies; in fact, the choice of one model over another will depend to a large extent on the logistics maturity level of the company. In accordance with the above-mentioned of researchers Estampe [2] said, we trying to streamline a business unit or scope to be studied. Due to many of supply chain focus on research creation of value in automotive sector is characterized by customer expectations relevance with major value creation factors while Indonesia automotive spare parts research in maintaining and leveraging supply chain performance for each individual actor in the chain still rare, in addition, which not clearly explains the correlation between major value creation factors within supply chain actors affect levers for supply chain performance.

Therefore, motivation of this paper as a main contribution are investigates major value creation factors within supply chain actors affect levers for supply chain performance on automotive spare-parts industries in Indonesia. Our final contribution is seen comprehensive nature of study. While many of the individual hypothesis explored in this paper find support in previous study. Perhaps this research all predictable variables/attributes and role-model can be part of basis to solve and to leverage supply chain performance and that variables can be considered by spare-parts industries in Indonesia to respond to major value creation (lead time, price, quality, functionally, trust and innovation) and supply chain actor itself.

The remainder of the paper is organized as follows. The next section (Section 2) will present the relevant literature and hypotheses. This will be followed by the research method (Methodology) in Section 3 and analysis, results, and discussion in Section 4. The last section (Section 5) provides conclusions, limitations and suggestions or implication for the future research.

2. LITERATURE REVIEW AND HYPOTHESIS

2.1 Major Value Creation and Supply Chain Actors

Panayides [19] said major value creation attributes are innovation, trust and functionally of product have positive impact to supply chain actors. Porter M.E [20] mentioned sustainability development, information sharing, and profit/risk sharing companies determined by trust, innovation, quality, lead time, responsiveness and brand image. Meanwhile, major value creation encompassed lead time, price, quality, functionally, trust and innovation and have positive impact to information sharing, decision making synchronization, speed of supply chain and sustainability development of companies. Cao M. and Zhang Q [1] described that supply chain actors should encompasses information sharing, decision making synchronization, profit risk sharing, speed of supply chain and sustainable development to conduct business in order to better supply chain. Base on previous studies, the attributes associated with each type of major value creation (MVC) implemented in supply chain are Lead time (MVC01),

Price (MVC02), Quality (MVC03), Functionally (MVC04), Trust (MVC05), Innovation (MVC06). Supply chain actors (SCA) attributes encompassed information sharing (SCA01), Synchronizing decisions (SCA02), Sharing risk and profits (SCA03), Speed of supply chain (SCA04), Sustainability development (SCA05). In this research, Major Value Creation (MVC) and Supply Chain Actor (SCA) become latent prediction variable for Levers Supply Chain Performance (ALSC) as latent construction variable. Based on the individual hypothesis explored in this paper find support in previous study above some attributes of argues that there is a positive association between major value creation (MVC) and supply chain actors (SCA).

H1: Major Value Creation is positively associated with Supply Chain Actors.

2.2 Major Value Creation and Levers Supply Chain

Cohen, S and Roussel, J [5] mention product availability, ensure perfect customer service, cost optimization and cooperation along supply chain, and brand/price differentiation influenced by price, quality and functionally from value of products. GEMDIST group mentioned attributes which must encompassed and anticipated for levers supply chain performance are product availability, ensure perfect customer service, cost optimization and cooperation along supply chain and finally, need for proper management of of attributes of supply chain actors. Gunasekaran, Patel C, and McGaughey [9] mention a framework for supply chain performance to optimize cost, product availability and cooperation along supply chain always maintain price, quality, lead-time and trust of product. Based on previous studies, the attributes associated with each type of Levers Supply Chain (ALSC) implemented in supply chain are Product availability (ALSC01), Ensure perfect customer service (ALSC02), Cost optimization (ALSC03) and Cooperation along supply chain (ALSC04) which have positively impact on major value creation attributes that mentioned above. In this research, Major Value Creation (MVC) become latent prediction variable for Levers Supply Chain Performance (ALSC) as latent construction variable. Based on the individual hypothesis explored in this paper find support in previous study above some attributes of argues that there is a positive association between major value creation (MVC) and levers supply chain performance (ALSC).

H2: Major Value Creation is positively associated with Levers Supply Chain Performance.

2.3 Supply Chain Actors and Levers Supply Chain

Prahalad and Ramaswamy [21] mentioned, that the creation of value for all of the actors in the chain is a key element which justifies the implementation of supply chain management in order to achieve a better performance, and supply chain actors necessary to be able to evaluate this value creation, not only in relation to the customer or within the company, but also across the whole of the chain with an appropriate evaluation tool. Cao M. and Zhang Q [1] described that supply chain actors should encompasses information sharing, decision making synchronization, profit risk sharing, speed of supply chain and sustainable development to conduct business in order to better supply chain performance. Cao M. and Zhang Q [1] The attributes to leverage supply chain performance are product availability, cost/profit, maintain relationship along supply chain and ensure demand and customer services are an optimal which these attributes lever supply chain performance same as GEMDIST [9] group mentioned. In this research, Supply Chain Actors (SCA) become latent prediction variable for Levers Supply Chain Performance (ALSC) as latent construction variable.

Based on the individual hypothesis explored in this paper find support in previous study above some attributes of argues that there is a positive association between supply chain actors and levers supply chain performance (ALSC).

H3: Supply chain actors is positively associated with Levers Supply Chain Performance.

Latent prediction variables (Major Value Creation and Supply Chain Actors) is positively associated with Levers Supply Chain Performance. And Major Value Creation is positively associated with Supply Chain Actors. The model employed in our study is depicted in Fig. 4.

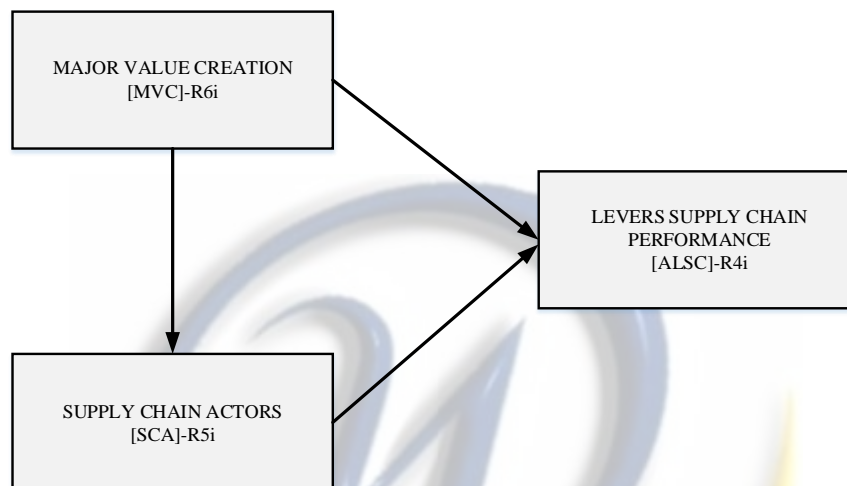


Figure 4. Model of the study: Levers for supply chain performance (ALSC) and its supply chain actors (SCA) and major value creation factors (MVC)

3. METHODOLOGY

3.1 Research setting and sample

The time required by researcher starting from the preparation to become a final paper require almost 4 months (3 month collected data). The study employs a sample of 3 functional managers, 3 supervisors (SCM or PPC/Logistics section) and 3 client of spare-parts industries in Indonesia. Industries are member of GAIKINDO consist of 24 sole agents, 6 distributors and 9 manufacturers see. Appendix.1, questionnaires sent to all sole agent, distributors and manufacturers, together with a covering letter with mailing system sent to functional managers and supervisors, all client and we associated with GAIKINDO and assuring data confidentially. This produced a total of 351 responses. With careful inspection of the responses, however, led to 35 respondents (3 sole agent (27 person), 4-person supervisors from 2-person distributors, 4-person client from 3 manufacturers) being drop unusable, yielding a final total of 316 responses for analysis (a 90.03 percent response rate). All data collection, the author and was assisted by co-author and to collect data assisted by staff of the GAIKINDO members, DH Consulting team to speed up data retrieval. In addition to the survey, interview discussions were conducted with 19 manager factory involved in the survey to ensure reliability of the survey responses and to gain a better understanding of manager's perceptions of the study to anticipated levers for supply chain performance and its supply chain actors and major value creation factors.

3.2 Instruments

To test the premises, a SEM-PLS approach was employed because it is able to deal with multiple dependent and independent variables simultaneously. Chin [3] mentioned it does not require a normal distributional assumption. Chin [3] the objective the structural model using a PLS approach is to maximize the variance explained by variables in the model using R-Square as the goodness of fit measure. Hulland [11] the parameter estimation procedure associated with covariance based structural equation modelling is not appropriate. Chenhall [19] following ordinary research which us SEM-PLS, this study uses a large bootstrap sample of 500. Chin [3], Gefen, Straub and Boudreau [8] mentioned this figure is chosen so that data approximates normal distribution and leads to better estimates of test statistic as PLS does not require normal distribution.

PLS is a component based modeling technique which simultaneously examines both measurement and structural models. The measurement model specifies the relationship between the manifest items (indicators) and latent variables (constructs) they represent.

4. ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Measurement model analysis

To enhance the validity and reliability of the construct and permit comparability of the results with previous studies, all variables were measure by instruments that had been previously developed and same as a 5-point Likert-type scale, in definition ranging from Level 1 to Level 5 use CMMI® MODEL FIVE MATURITY see Table.1.

Table 1. CMMI® MODEL FIVE MATURITY PERFORMANCE

Maturity Level	Capability	Description
Level 1	Initial	Process have not been defined or standardized, and there is no regular assessment of performance
Level 2	Managed	The process in place have been planned, carried out, monitored, checked, reviewed, and evaluated. The resources associated with the use of these processes are fit for purpose and have the means necessary to conduct them
Level 3	Defined	Process have been standardized. They have been improved upon and are used by entire organization. The organization's goal have been defined.
Level 4	Quantitatively Managed	The organization has fixed performance goals to the process. The goals are associated with the organization's and the customer's expectations. The results are measured quantitatively.

Maturity Level	Capability	Description
Level 5	Optimizing	Process are continually improved through analysis of the causes for variations in performance.

Pache G and Spalanzani A [18], Trkman P and Stemberger M.I, Jaklic J [23] mentioned on previous study that first maturity models emerged from studies on management by quality and clearly display several levels of company performance. Trkman P and Stemberger M.I, Jaklic J [23], the clear evidencing of these levels goes hand in hand with procedures aimed at improving company performance. The best known maturity model derived from these procedures is the Capability Maturity Model Integration (CMMI), which has been developed by the Software Engineering Institute (SEI) from the beginning of the 1990s onward, in order to improve the efficacy and efficiency of the processes of activities of development and maintenance for products and services, and which covers practices associated with the whole lifecycle of the product or service, from design to maintenance. Pache G and Spalanzani A [18] mentioned that model is most widely used in engineering activities. The maturity model is based on the description of the process that needs to be implemented to attain the level of excellence that corresponds to the maximum maturity level. When each maturity level is reached, this leads to an incremental and sustainable improvement in performance. Trkman P and Stemberger M.I, Jaklic J [23] said in the field of supply chain management, many authors have shown that there are links between maturity level and supply chain performance. However, others are not so sure that these links exist said Lapide [14] and view that supply chain performance comes from an evolving mode of application of practices that are “made to measure”, and which are founded on an understanding of the principles of value creation that stimulate the improvement of performance. Therefore, it is important that the supply chain processes and practices are brought about by the value creation goals. Pache G and Spalanzani A [18] mentioned that capacity of the supply chain management to integrate better practices in part defines its level of maturity. Nunnally [17], mentioned that construct of the composite reliability coefficient are accepted level of > 0.70 . Convergent validity is evaluated using the Average Variance Extracted (AVE). Hulland [11] mentioned to be consider as having tolerable convergent validity, a construct should have an AVE measure of 0.50 or more.

4.2 Results and discussions

To analysis all instruments we conduct goodness of fit model. As previously mentioned measurement model is used to evaluate the relationship between measures and constructs by assessing the reliability and validity of measure (indicators) relating to specific construct. Overall, the analysis demonstrates that the measurement model is reliable and valid. Measurement Model Analysis see Table.2, We use of WARP-PLS (SEM-PLS) is commonly reasonable in the social sciences for of its ability to attribute relationships among unobserved constructs (latent variables) from observable variables

Table 2. Measurement model analysis

		ALSC	MVC	SCA
ALSC	Path Coefficients		0.306	0.608
	Effect Sizes for Path Coefficients		0.201	0.477
	Latent Correlations	0.841	0.442	0.523
	Effect Sizes for Total Effects		0.201	0.637
	Cronbach's Alpha	0.858		
	Average Variances Extracted	0.708		
	Composite Reliability	0.805		
	P Values for Correlation	1.000	<0.001	<0.001
MVC	Path Coefficients			
	Effect Sizes for Path Coefficients			
	Latent Correlations	0.442	0.915	0.548
	Effect Sizes for Total Effects			
	Cronbach's Alpha		0.860	
	Average Variances Extracted		0.837	
	Composite Reliability		0.868	
	P Values for Correlation	<0.001	1.000	<0.001
SCA	Path Coefficients		0.667	
	Effect Sizes for Path Coefficients		0.446	
	Latent Correlations	0.523	0.548	0.853
	Effect Sizes for Total Effects		0.446	
	Cronbach's Alpha			0.806
	Average Variances Extracted			0.728
	Composite Reliability			0.831
	P Values for Correlation	<0.001	<0.001	1.000

The output shows the goodness of fit criteria have been met and that the models of the APC values of 0.527 and 0.561 as well as significant ARS. AVIF value of 1.492 also have met the criteria, so this is the best models of (competing models). By checking the output path coefficients and P-values are shown in Table. 2 that the path coefficient of major value creation [MVC] and supply chain actor's [SCA] attributes had positive affect to levers supply chain performance attributes. Major supply chain [MVC] positive path coefficient's (0.306) and supply chain actors [SCA] (0.608) dominant positive path coefficient's, on lever supply chain performance [ALSC] and significant with a p value of <0.001. The results showed the effect size estimate the effect of MVC to the ALSC is 0.201, SCA to the ALSC for 0.477 and MVC to the SCA is 0.446. These

results include a large group of effect size indicating that MVC, SCA has an important role from determining a practical perspective in the ALSC. In test results outer models to construct reflective had convergent validity that the entire value of loading above 0.70 (P value <0.001). If all the indicators that the value of the larger loading to construct where the cross-loading to other constructs lower. On Table. 2 is shown that output present two research instruments that measure the reliability of composite reliability and Cronbach's alpha. Both are worth over 0.70 values AVE above 0.50 (ALSC: 0.708; MVC: 0.837; SCA: 0.728). By paying attention to its structure loading to ALSC is MVC04 (0.105): functionally has a lower value followed by and MVC04 (0.105):lead-time. Structure loading have a high value followed by SCA05 (0.596) to ALSC is sustainable development attributes. Variables through three dimensions as reflective indicators for supply chain actors (SCA): profit/risk sharing, speed of supply chain and sustainable development are positively associated with levers supply chain performance (ALSC). Variables through three dimensions as reflective indicators for major value creation (MVC): Price, Quality, Trust and Innovation is positively associated with supply chain actors (SCA) and levers supply chain performance (ALSC). Interpretation of the nonlinear relationship between major value creation and supply chain actors, in the beginning SCA policies would lead to the MVC and ALSC variable tends to increase, but at -1.5 points until 0.5 points are shown in Fig. 5, it is made possible takes time for spare parts automotive industries to make adjustments, if SCA as dominant attributes policies continuously improved then it ALSC will be better. This study investigates whether major value creation and supply chain actors affect levers supply chain performance. Using a sample of 24 sole agents, 6 distributors and 9 manufactures are member of GAIKINDO the study finds major value creation (lead-time, price, quality, functionally, trust, innovation) is positively associated with supply chain actors. Supply chain actors in research sample describe information sharing, decision making synchronizing, profit/risk sharing, speed of supply chain and sustainability development are important to enhance or to leverage supply chain performance (product availability, ensure perfect customer service, cost optimization, cooperation along supply chain). This suggest attributes lead-time, price, quality, functionality, trust, innovation in spare-parts manufactures are important both supply chain actors and levers supply chain performance attributes

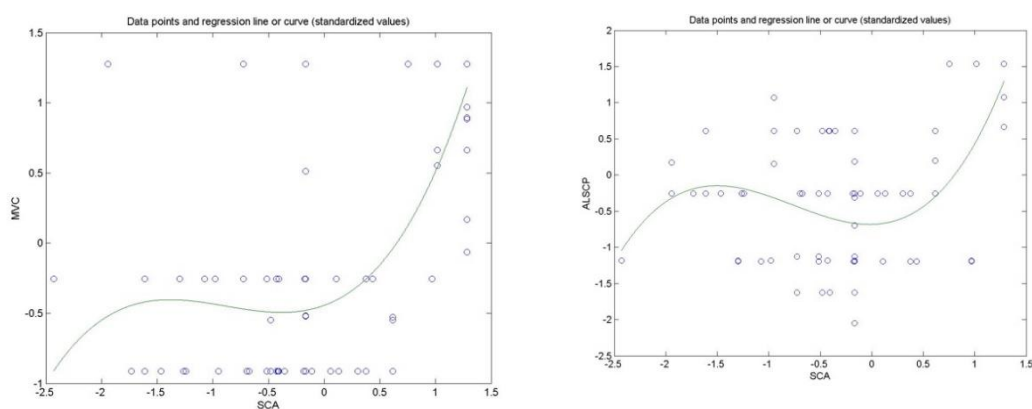


Figure 5. Non-linear relationship between latent variables.

5. CONCLUSIONS, LIMITATIONS AND SUGGESTIONS

This study investigates whether major value creation and supply chain actors affect levers supply chain performance. Using a sample of 24 sole agents, 6 distributors and 9 manufactures are member of GAIKINDO the study finds major value creation (lead-time, price, quality, functionally, trust, innovation) is positively associated with supply chain actors. Supply chain actors in research sample describe information sharing, decision making synchronizing, profit/risk sharing, speed of supply chain and sustainability development are important to enhance or to leverage supply chain performance (product availability, ensure perfect customer service, cost optimization, cooperation along supply chain). This suggest attributes lead-time, price, quality, functionality, trust, innovation in spare-parts manufactures are important both supply chain actors and levers supply chain performance attributes. A study such as this will have certain limitations. For example, the survey method employed is based on respondent perception (CMMI® Model Performance Criterion) should be checked the validity of the assessment all document by the surveyor but its need more time and and it is possible the company will not provide the data because it is confidential. Respondent's perceptions which may give rise to bias due to the lack of objective measures as above mentioned. While the research design sought to mitigate this potential bias by: (1) including more interviews with all respondents where survey responses were further discussed; and (2) drawing the sample from limited number of organizations, thereby permitting greater control of spare parts automotive manufacturers contexts, the possibility of some respondent bias remains (lack of survey documents). Future study could usefully explore the same issue using more objective measure (all areas of business), particularly to measure 24's manager performance, or manipulate variables using experimental designs. More attribution theory approach could be employed.

Finally, this paper has examined major value creation factors within supply chain actors affect levers for supply chain performance on automotive spare-parts industries in Indonesia. This research all predictable variables/attributes and role-model can be part of basis to solve and to leverage supply chain performance and that variables can be considered by spare-parts industries in Indonesia to respond to major value creation (lead time, price, quality, functionally, trust and innovation) and supply chain actor itself. Due to many of supply chain focus on research creation of value in automotive sector is characterized by customer expectations relevance with major value creation factors while Indonesia automotive spare parts research in maintaining and leveraging supply chain performance for each individual actor in the chain as additional resources next future research, in addition, which it clearly explains the correlation between major value creation factors within supply chain actors affect levers for supply chain performance. An appreciation is given to the Ministry of Environmental and Forestry Indonesia, DH Consulting for their data support and wish to acknowledge of Widyatama University in financial support.

ACKNOWLEDGMENT

An appreciation is given to Indonesia Automobile Association (GAIKINDO), DH Consulting for their data support and wish to acknowledge of Widyatama University in financial support.

REFERENCES

- [1] CAO M., ZHANG Q., “Supply chain collaboration: impact on collaborative advantage and firm performance”, *Journal of Operations Management*, vol. 29, no. 3, pp. 163–180, 2011.
- [2] CHANDES J., ESTAMPE D., “Logistics performance of actors in the wine supply chain”, *Supply Chain Forum: An International Journal*, vol. 4, no. 1, pp. 12–27, 2003.
- [3] CHIN, W. The partial least squares approach to structural equation modeling. In G.A. Markoulides (Ed). *Modern Methods for Business Research*, pp. 295-336, 1998.
- [4] CHENHALL, R.H. Integrative strategic performance measurement systems, strategics alignment of manufacturing, learning and strategic outcomes: an exploratory study. *Accounting organizations and Sociaety*,30(5), 395-422.2005
- [5] COHEN S., ROUSSEL J., *Strategic Supply Chain Management*, 2nd ed., McGraw-Hill, 2013.
- [6] ESTAMPE D., LAMOURI S., PARIS J.-L., et al., “A framework for analysing supply chain performance evaluation models”, *International Journal of Production Economics*, vol. 142, no. 2, pp. 247–258, 2013.
- [7] GAIKINDO, the Association of Indonesia Automotive Industries, *Annual Report*, 2015. <http://www.gaikindo.or.id>.
- [8] Gefen D., Straub, D. W., & Bourdreau, M. Structural equation modelling and regression: guidelines for research practices. *Communication of AIS*, (4) August, 1-79, 2000.
- [9] GUNASEKARAN A., PATEL C., MCGAUGHEY R.E., “A framework for supply chain performance measurement”, *International Journal of Production Economics*, vol. 87, no. 3, pp. 333–347, 2004.
- [10] Hutomo A. MDKSP and R. Fitridayani, the Impact of Perceived Environmental Uncertainty, Supply Chain Performance, and Integrated Domestic Economy: Plywood Manufacturer in Indonesia. *International Journal of Business and Management Study*, (2), 198-202, 2015. <http://www.seekdl.org>.
- [11] HULLAND, J. Use of Partial Least Squares (PLS) in strategic management research: a review of four recent studies. *Strategic Management Journal*, 20(2), 195-204, 1999.
- [12] INDONESIA-INVESTMENT, 2016. Available at: <http://www.indonesia-investments.com>
- [13] KAPLAN R.S., NORTON D.P., the *Balanced Scorecard: Translating, Strategy into Action*, Harvard Business School Press, Boston, 1996.
- [14] LAPIDE L., “MIT’s SC2020 project: the essence of excellence”, *Supply Chain Management Review*, vol. 10, no. 3, pp. 18–25, 2006.
- [15] Makarennu, Nakayasu A, Ichikawa M, “An analysis the demand market of Indonesian plywood in Japan.” *International Journal Sustainable Future of Human Society* vol. 2, pp. 2-7, 2014.
- [16] NEELY A. & GREGORY “The evolution of performance measurement research: developments in the last decade and a research agenda for the next”, *International Journal of Operations & Production Management*, vol. 25, no. 12, pp. 1264–1277, 2005.
- [17] NUNNALLY, J.C. *Psychometrics theory*. New York: McGraw-Hill, 1967
- [18] PACHÉ G., SPALANZANI A., *La Gestion des Chaînes Logistiques Multi-acteurs – Perspectives Stratégiques*, Presses Universitaires de Grenoble (PUG), Grenoble, 2007.

- [19] PANAYIDES P.M., VENUS LUN Y.H., “The impact of trust on innovativeness and supply chain performance”, *International Journal of Production Economics*, vol. 122, no. 1, pp. 35–46, 2009.
- [20] PORTER M.E., *Competitive Advantage: Creating and Sustaining Superior Performance*, Simon and Schuster, 2008.
- [21] PRAHALAD C.K., RAMASWAMY V., “Co-creation experiences: the next practice in value creation”, *Journal of Interactive Marketing*, vol. 18, no. 3, pp. 5–14, 2004.
- [22] SHEPHERD C., GÜNTHER H., “Measuring supply chain performance: current research and future directions”, *International Journal of Productivity and Performance Management*, vol. 55, no. 3/4, pp. 242–258, 2006.
- [23] TRKMAN P., ŠTEMBERGER M.I., JAKLIC J., et al., “Process approach to supply chain integration”, *Supply Chain Management: An International Journal*, vol. 12, no. 2, pp. 116–128, 2007.

APPENDIX 1.

The appendix should immediately follow the body and the references of the paper.

Sole Agents		
No	Member	Product/Brand
1	PT Astra Daihatsu Motor	Daihatsu
2	PT Astra Multi Trucks Indonesia	UD Trucks
3	PT Auto Euro Indonesia	Renault
4	PT Chery Mobil Indonesia	Chery
5	PT Duta Putera Sumatera (SUN Motor Group)	MAN Trucks
6	PT Ford Motor Indonesia	Ford
7	PT Foton Mobilindo	Foton
8	PT Garansindo Inter Global	Chrysler, Jeep, Dodge, Fiat, Alfa Romeo
9	PT Garuda Mataram Motor	Audi, Volkswagen
10	PT Gaya Makmur Mobil	FAW Heavy Truck
11	PT Geely Mobil Indonesia	Geely
12	PT General Motors Indonesia	Chevrolet
13	PT Grandauto Dinamika	Jaguar, Land Rover, Bentley
14	PT Honda Prospect Motor	Honda
15	PT Hyundai Indonesia Motor	Hyundai
16	PT Isuzu Astra Motor Indonesia	Isuzu
17	PT KIA Mobil Indonesia	KIA
18	PT Krama Yudha Tiga Berlian Motors	Mitsubishi
19	PT Mazda Motor Indonesia	Mazda

Sole Agents		
No	Member	Product/Brand
20	PT Proton Edar Indonesia	Proton
21	PT Suzuki Indomobil Motor	Suzuki
22	PT Tata Motors Indonesia	Tata
23	PT TC. Subaru	Subaru
24	PT Tjahja Sakti Motor	BMW, Peugeot

Distributor		
No	Member	Product/Brand
1	PT Astra International Tbk – Peugeot Sales Operation	Peugeot
2	BMW Goup Indonesia	BMW
3	PT Hino Motor Sales Indonesia	Hino
4	PT Mercedes-Benz Distribution Indonesia	Mercedes Benz, Smart
5	PT Nissan Motor Distribution Indonesia	Nissan
6	PT Toyota Astra Motor	Toyota, Lexus

Manufactures		
No	Member	Product/Brand
1	PT Gaya Motor	Daihatsu, UD Trucks, Isuzu
2	PT Hino Motors Manufacturing Indonesia	Hino
3	PT Krama Yudha Ratu Motors	Mitsubishi, Fuso
4	PT Mercedes-Benz Indonesia	Mercedes Benz
5	PT Mesin Isuzu Indonesia	Isuzu
6	PT Mitsubishi Krama Yudha Motor & Manufacturing	Mitsubishi, Fuso
7	PT Nissan Motor Indonesia	Nissan
8	PT Toyota Motor Manufacturing Indonesia	Toyota
9	PT Trijaya Union	Mitsubishi, Fuso

Sources: Gaikindo,2015[7]