Analysis of the Influence of Structural Social Capital (SSC) Variables on Supply Chains Integration (SCI) and Business Performance (BP) of Supply Chain of Onions

(Study in farmers onions at Nganjuk Regency)

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Abstract—**The management of SSC and the SCI is a solution to improve the BP of onions products. How is the frequency of interaction between farmers, the relationship between farmers and the network, and how to obtain the network as an important element, the production process, and the quality assessment system becomes an important element to improve the onions' BP. The purpose of this study is to prove the variable influence of SSC as an intangible asset used to build an SCI as an organizational capability. In addition, this study also proves the influence of SSC and SCI on the BP of onion farmers. Research used a quantitative approach with the unit of analysis is farmers. Research location in Nganjuk. The sampling method in this study used the simple random sampling. Total sample is 90 respondents with a degree of error of 5%. Analysis using PLS-PM analysis. The results showed that social structural capital variables have a significant effect on SCI, SSC variables have a significant effect on SCI and SCI have a significant effect on BP. The results of this study can have implications for the importance of relationships between farmers and stakeholders in relation to maintaining stakeholder harmonization in the SCI so that it can improve BP in each chain of lines.**

Keywords—structural social capital; supply chain integration; business performance; farmers

I. INTRODUCTION

Supply chains is a corporate strategy to improve business performance by integrating and guaranteeing the procurement of materials and services from conversion to intermediate goods and final products to customers, taking into account the factors of timeliness, cost and quality of products [1]. Today's business competition in the modern era has an impact on changing the focus of competition from competition between companies independently towards competition between business networks or supply chains.

In general, the supply chain does not only focus on the internal company but also includes the management of relationships with trading partners both customers and suppliers [2]. Seeing the development of stakeholders or related parties in the supply chain system, so that coordination and integration are needed both within and between stakeholders to meet customer needs and achieve mutual benefits. Good coordination and integration can be obtained from the smooth flow of information so that it can avoid a decrease in the company's ability to optimize company profits due to weak coordination in the supply chain system. In order to realize the smooth flow of information required the collaboration of roles from all stakeholders in the supply chain. SCI facilitate the creation of collaboration between stakeholders in the supply chain system.

Integration creates value in the supply chain. Many empirical studies show that SCI not only improves operational and financial performance but also improves the quality of performance [3]. Supply chain management is quite complex because it involves all stakeholders from upstream to downstream. An integrated supply chain can bring each member of the supply chain to the optimum level of efficiency and effectiveness so as to increase profits. Appropriate SCI can provide strategic opportunities to improve performance.

The effectiveness of the SCI requires the role of social capital, one of which is the structural relationship between farmers and partners. The role of social capital in the modern era is important where free trade and free migration occur [4]. In line with that, Brata states that social capital is an interesting issue and many of them are reviewed by one of them [5].

Many studies based on the social capital framework indicate that trust-based social relations contribute to business development indicators [6,7]. The study strengthens the findings which states that there is a significant relationship between social capital, entrepreneurial orientation, and organizational resources on entrepreneurial performance [8]. While there is no significant influence between Social Capital on Entrepreneurship Performance, but social capital and entrepreneurial orientation have a simultaneous and significant influence on entrepreneurial performance.

Onions is a commodity that has high economic value. In addition, the commodity of onions plays an important role in trade because changes to the price of onions can affect inflation. Based on the above phenomenon, it seems that the

most disadvantaged are farmers, at the time of the harvest the prices fall and not infrequently the yield cannot cover the costs that have been incurred. So far, many preliminary studies have been carried out by looking at the variables of social capital as a whole. However, the study has not analyzed in depth the social capital more specifically in this case focusing on structural social capital. Based on the constraints and challenges of interesting onions to examine more deeply the influence of SSC on SCI and BP of onions products in Nganjuk.

II. METHODS

This study used a survey and quantitative method research approach. Research is directed to explain the influence between variables (explanatory) by conducting a hypothesis test. The unit of analysis of this research is individuals, namely onion commodity farmers spread in Nganjuk as the research location. Consideration of choosing the location of the study because Nganjuk is the largest producing center in East Java [9].

The population of this study were all onions farmers spread in Nganjuk. The sampling method in this study used the simple random sampling method. Determination of the number of samples using the Roscoe formula, this study uses 30 times on 3 variables so total sample is 90 respondents. The number of samples that have been determined is then randomized by name using Microsoft Excel.

The conceptual framework is built in general by modeling existing problems, the relevance of theoretical factors, previous studies, the basis, methods of analysis, and alignment of research objectives, so that research is systematic. Based on previous research, the current hypothesis is as follows:

H1   : SSC has a significant influence on SCI

H2   : SSC has a significant influence on the Onions BP

H3   : The SCI has a significant influence on the onions BP
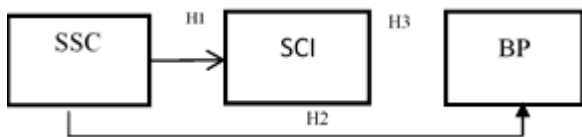
The hypothesis model in this study:

Fig. 1. Hypothesis model.

Variable structural social capital indicated with 3 indicators, namely the frequency of interaction between farmers, relationships between farmers, and the relationship between farmers and the network (stakeholders) [10]. SCI variables using 2 indicators, namely the production process and production quality assessment system [11,12]. While the business performance using 3 indicators, namely production quantity, production quality, and profit generated [13]. Measurement of variables and indicators use the Likert Scale 1–5. Data collection is done directly by visiting respondents, namely farmers based on names that have been randomized. Before taking field data, the instrument testing phase was carried out. Validity was tested by Pearson correlation

coefficient, while the Cronbach's alpha test was performed to prove the reliability or reliability of the instrument or questionnaire. After being declared a valid and reliable instrument, the next step is field data collection. The hypothesis testing method used in this study is PLS Path Modeling).

A. Reliability and Validity

The model test results have met the criteria for indicator reliability; where all factors load> 0.50. The Outer Model is reinforced by AVE values which are all greater than 0.5, and Cronbach's value, s Alpha> 0.6 and Composite Reliability> 0.7, this means that all indicators of latent variables made measuring the latent variables are reliable. This is shown in the following table 1:

TABLE 1.   CONSTUCT RELIABILITY AND VALIDITY

Matrix	Cronbach's Alpha	rho_A	Composite Reliability	AVE
BP	0.879	0.900	0.905	0.545
SSC	0.694	0.832	0.860	0.755
SCI	0.672	0.782	0.819	0.609

To show the validity of the outer model can be seen discriminating validity in the loading crosses. The following is the cross loading value in Discriminate Validity in table 2.

TABLE 2.   DISCRIMINANT VALIDITY (CROSS LOADING)

	BP	SSC	SCI
i10	0.454	0.935	0.386
i11	0.262	0.797	0.232
i47	0.452	0.225	0.771
i48	0.548	0.386	0.933
i49	0.219	0.240	0.603
i51	0.687	0.087	0.400
i52	0.761	0.359	0.420
i53	0.876	0.491	0.432
i54	0.694	0.319	0.277
i55	0.627	0.165	0.311
i56	0.819	0.363	0.569
i57	0.708	0.332	0.439
i58	0.700	0.321	0.323

The value of cross loading of each variable SSC i10 and i11 is the largest value of the other crosses loading on the same line (on the same indicator variable), as well as other variables. This means that the indicator of the variable builds the latent variable in question (SSC is built by i10, i11 etc.). This means that between indicators of latent variables and latent variables are valid.

III. RESULTS

In accordance with the results of the descriptive analysis, the characteristics of respondents can be described according to gender and level of education. The results of the description analysis of the characteristics of the respondents. All of respondent is 100% male. Based on education level, respondents did not school with 3 people (3.3%), elementary school respondents with 36 (40%), middle school respondents

with 26 (29%), high school respondents with 22 respondents (24.4%), D1-D3 number 0 (0%) and S1 number 3 (3.3%). Based on these data the majority of respondents in this study received education up to elementary school, amounting to 40% of the total respondents.

The data analysis technique used to answer the hypotheses developed in this study is SEM through the PLS approach. The first step is to evaluate the outer model by using convergent validity which is seen from the value of loading factors with a cut-off of 0.5. The next test is discriminant validity, which is seen from AVE value with a cut-off of 0.5. Gradually items that do not meet the requirements are removed from the model. Until the final model, there are 2 (two) items, namely items i12 and i50 issued. The reliability value (Cronbach's alpha) which is all above 0.6 and AVE value greater than 0.50 indicates that the measurement model is fit with the data.

After all the values fulfill the requirements to build the outer and inner model of the next model, the parameter estimation of the path coefficient is carried out. Coefficient coefficient path is presented in table 3 below:

TABLE III.   PATH COEFFICIENT WITH BOOSTRAPING

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P-value
SSC →BP	0.264	0.272	0.098	2.700	0.007
SSC → SCI	0.372	0.379	0.087	4.285	0.000
SCI →BP	0.453	0.458	0.105	4.302	0.000

Based on the table above, the effect can be displayed directly from the path that was built. The direct effect of the variable SSC on SCI can be seen from the path coefficient below the p-value <0.05 so that it can be said to be significant. These results support hypothesis 1 of this study. The direct influence of the variable structural social capital on business performance can be seen from the path coefficient below the p-value <0.05 so that it can be said to be significant. These results support hypothesis 2 of this study. The direct effect of the SCI variable on BP can be seen from the path coefficient below the p-value <0.05 so that it can be said to be significant. These results support hypothesis 3 of this study.

While the total indirect effects are presented in the following table 4:

TABLE IV.   TOTAL INDIRECT EFFECT SPESIFIC

	Original Sample	Sample Mean	S. Dev.	T Statistics	P-value
SSC → SCI →BP	0.169	0.174	0.059	2.870	0.004

The total indirect effect is 0.169 or smaller than the direct effect of SSC on BP, which is equal to 0.264.
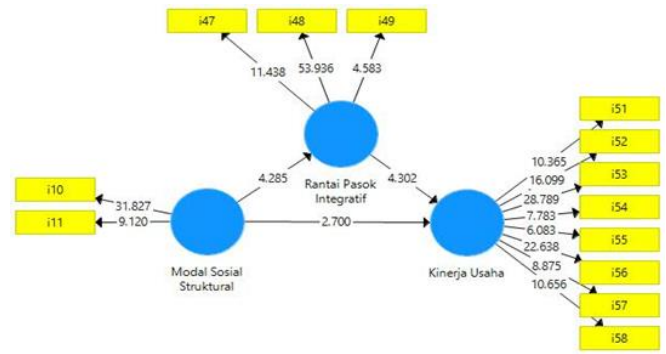

Fig. 2.   Hypothesis model and statistical tests on bootstrapping the value of loading factors on the outer model and path coefficients.

Fig. 3.   Path coefficient.

Q-Square $= 1 - (1 - 0.3642)(1 - 0.1392)$

$= 1 - (0.867)(0.98)$

$= 0.15$

IV. DISCUSSION AND IMPLICATION

Social capital is a theory that has roots in sociology and political science, especially those that explain the relationship between individuals and groups. Social capital have 3 dimensions, namely cognitive, relational and structural dimensions. This study focuses on the structural dimensions where this dimension refers to the pattern of communication between parties in the interaction of social capital. The structural dimensions are related to impersonal relationships in social networks, to achieve mutual benefits in buyer supplier relations, building structural social capital is an important issue [14].

The results of this study have shown a significant relationship or influence between structural social capital on SCI (path coefficient 0.375 with p value <0.05). Social structural capital as indicated by the frequency Interaction indicator among farmers, relationships between farmers (large, medium or small), and the relationship between farmers with various levels of networks (gapoktan, collectors to retailers and consumers of onions have a significant effect on the SCI. showing that the relationship between farmers and trading partners through the above indicators is going well, which is inversely proportional to the fact in the field that the Nganjuk area shows that there are obstacles to the bargaining position of farmers when dealing with markets. caused by structural capital, SCI are systematic and strategic coordination activities between various business actors in the SCI, thus there are other factors not examined in this study that allow development in advanced language [15]. This is consistent with the low Q-

Square (15%) which shows many other factors that have not been included in this model.

The results of this study also show that SSC has a significant effect on BP (path coefficient of 0.433 with p-value <0.05). SSC as indicated by the Frequency Interaction indicator among farmers, relationships between farmers (large, medium or small), and the relationship between farmers with various levels of networks (gapoktan, collectors to retailers and consumers of onions have a significant effect on the SCI. shows that the relationship between farmers and trade partners can improve BP. Structural capital is an important link that allows intellectual capital to be measured at the organizational level [16]. Results empirically shows that in Malaysian industry the development of structural capital has a positive relationship with business performance regardless of industry [17]. There is a strong positive relationship between structural capital and overall performance in Telekom Malaysia [18]. Structural capital was significantly related to the performance of business organizations for the service industry and non-service industries in Malaysia [19]. Structural capital as one of the key components of intellectual capital has an impact on business performance in companies surveyed in Hong Kong [20]. The results of this study are also in line, that structural capital is indeed important and has a significant influence on organizational performance [21].

The results of this study indicate that SCI have a significant effect on business performance (path coefficient of 0.453 with p-value <0.05). SCI are indicated by indicators of production processes and production quality assessment systems carried out by cooperating from the entire supply chain. Supply chain is an approach in integrating various organizations that carry out procurement or distribution of goods, namely suppliers, manufacturers, warehouses and stores so that these items can be produced and distributed in the right amount, the right location, the right time with minimal costs [22]. The results of this study reinforce previous research which shows a significant relationship between SCI on the performance of both business (company) and financial performance [23].

The results of this study have implications for the importance of the role of structural social capital in building an SCI which ultimately is directly proportional to the improvement in the business performance of Onions farmers. Increasingly improving the SCI can reduce operational costs, and make profits even greater at all network levels. However, in order to build an SCI not only structural social capital but there are other factors not examined in this study so that it needs to be a reference for further research.

V. CONCLUSION AND LIMITATIONS

A. Conclusion

Based on the analysis and discussion in the previous section, it can be concluded that the variable SSC has a significant effect on the SCI variable. Second, the variable social structural capital has a significant effect on the variable BP. Third, SCI variables have a significant effect on BP variables.

B. Limitations

The limitations in the study are the unit of analysis in this study is farmers so that the scope of research is narrow and cannot generalize to all stakeholders in the Onions supply chain. In addition, this study has different characteristics of respondents with the majority of elementary and junior high school education backgrounds, making it difficult for researchers to collect data.

The suggestions in this study are structural social capital can be strengthened by forums of coordination and cooperation not only between farmers but also with stakeholders in the supply chain. This is important in relation to the dissemination of information to support the optimization of the performance of Onions commodities in Nganjuk. In addition, looking at the importance of overall social capital or there are still loopholes seen from Q Square is low, allowing other variables that can become renewal in future research including by examining all variables of social capital namely cognitive social capital, relational social capital and also social structural capital and add variable information sharing because it is considered important for information exchange in the SCI. By entering this new variable, it is expected to solve the problem of the weak bargaining position of farmers in Nganjuk

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