The effect of green supply chain management implementation to marketing performance through company competitiveness (study on paper industry in West Java)

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Abstract. The purpose of this study was to determine and analyze the effect of direct and indirect implementation of Green Supply-Chain Management (GSCM) on the Performance Marketing and Competitiveness Mediation Paper Company in West Java province. Object This research is the paper company that existed in West Java Province, which amounts to 30 companies as well as a sample of research, while variables studied are Variable Green Supply-Chain Management, Company Competitiveness Variable and Variable of Paper Marketing Industry Performance in West Java Province. The method used SEM with Variance Based or Component Based with Software used is SmartPLS 3.0. On this research are identified that no effect of Competitiveness on Marketing Performance in Paper Companies in West Java Province.

1. Introduction

1.1. Background

Paper is known as the primary medium for writing, printing and painting and many other uses which can be done with paper, e.g. cleaning paper (tissue) that can be easily used for dishes, cleanliness, toilet and so on. He world’s total paper production is dominated by Asia (40%, or about 156 million tonnes), although most of the production in this region absorbed for local consumption. South America which has a larger forest area of Asia only produces 5% (or about 20 million tons) of total world paper production.

The high-quality paper market is relatively over capacity for both coated and uncoated types. High quality paper is widely used for books, photocopy paper, catalogs until annual reports. Many manufacturers rely on consumption growth from developing countries, especially China. However, companies with production bases and especially raw materials in Brazil and Indonesia are the most benefited. The cost of production in these two countries is relatively cheap so that paper or pulp products produced are still able to compete in the world market, although transportation costs are more expensive.

In 2016, the pulp and paper industry sector has been weakening prices since the last three years. The price of pulp three years ago that ranged in US $ 1,000 per ton, now drops to 25%. Not only that,
the supply of raw materials was reduced so that industrial utilization only left 40%. The high production of paper in Indonesia required the handling of environmentally friendly paper production ranging from the procurement of paper raw materials to the end-user consumer of paper. There are several advantages gained when the national industry uses environmentally friendly products namely; The key to entering global markets and free trade markets in strengthening product brands, saving energy-efficiency production costs, selling goods at low prices and contributing to reducing carbon emissions and improving productivity of goods production processes.

Uses of environmentally friendly raw materials, proper waste handling, pollution reduction, reuse and recycling are some of the strategies in applying Green Supply-Chain Management (GSCM) concept. The traditional supply chain consists of five parts: raw materials, industry, distribution, consumer, and waste. Any links to the supply chain can cause pollution, waste, and other hazards in the environment. To overcome the occurrence of pollution, waste, and other hazards in the environment due to the impact of activities in the supply chain, including the paper industry, the development of green supply-chain management was developed. Green supply-chain management as a process of using environmentally friendly inputs and converting those inputs into reusable outputs at the end of its life cycle creates a sustainable supply chain [1]. An environmentally friendly supply chain aims to limit waste in industrial systems to conserve energy and prevent harmful materials to the environment. The cost of eco-friendly supply-chain management is higher than that of Conventional Supply-Chain Management, but on the other hand, can create a corporate reputation on environmental concerns, which in turn can improve the competitiveness of the company.

As noted by Krugman, competitiveness is a measure on the ability and performance of an enterprise in the business sector [2]. It is also called the organizational ability to act and react through a financial power. Since its inception, competitiveness has become an interesting concept at various levels of study, including enterprise level, industry level (or micro-economic level), and national level [3]. The competitiveness of enterprises has become a core topic of competitive research.

World paper demand is very high, but paper supplies are very limited. On the other hand, the United States government imposed high import duties on pulp and paper products, causing high paper prices. The authors suspect that the concept of environmentally friendly paper industry from the start of raw material procurement until the end product is accepted by consumers or in other words the concept of Green Supply Chain Management affect the Performance of paper companies in West Java.

1.2. Specific objectives research
This research was conducted to know and analyze the direct and indirect The Effect Of Green Supply Chain Management Implementation to Marketing Performance through Company Competitiveness (Study On Paper Industry In West Java).

1.3. Research virtue
This research originated from the high production of paper on international demand, but on the other hand, the shortage of paper raw materials that resulted in world paper prices becomes expensive. Besides, global warming, especially in industrial areas located in West Java Province, that with the increasing of the paper industry will also increase the air pollution that will eventually lead to global warming. Therefore, the uses of environmentally friendly paper materials, proper paper waste handling, paper pollution reduction, reuse and paper recycling are some of the strategies in implementing the concept of Green Supply-Chain Management (GSCM).

1.4. Literature review: State of the art field under research
The research illustrates that Marketing Performance is directly or indirectly influenced by the Implementation of Green Supply-Chain Management with the Mediation of Competitiveness of the Company. With the Implementation of Green, Supply-Chain Management Company Competitiveness, and Marketing Performance will increase. The author has not found the results of research of direct and indirect influence of Implementation of Green Supply Management on Performance Pengasaraan,
the results of research direct influence Competitiveness of Companies on Marketing Performance. This gap will be made by the author to create a research design.

Thus, compared to previous studies, this study has the distinction of being an excellence that is: displaying a complete empirical model of the influence of Implementassi Green Supply-Chain Management on Marketing Performance with Mediation Paper Company Competitiveness in the Province of West Java. The tool used is the Analysis Structural Equation Modeling with Research object of Paper Industry located in West Java Province. This model, as far as researcher searches, has not been studied before so it promises an element of novelty.

1.4.1. Green supply chain management. Suggests that companies will adopt green supply-chain management if they identify that Green Supply-Chain Management will deliver results in financial and operational benefits. Therefore, there is a need for clear research to create a potential link between green supply-chain management initiatives and increasing competitive levels and improving economic performance to encourage companies to adopt "green" in their supply chain.

Supply-Chain Management can integrate environmental management practices into every supply-chain management in order to achieve green supply-chain management and maintain competitive advantage and also to increase business profits and market share objectives.

Zhu and Sarkis [4] also define Green Supply-Chain Management as a management that ranges from green purchasing to integrated supply chains from suppliers, to factories, to customers and reverse logistics, which "close loops". Green Supply-Chain Management is an integration of environmental thinking into supply-chain management, including product design, source and selection materials, manufacturing processes, final delivery of products to consumers and end-of-life product management after their useful life [5].

Green Supply-Chain Management improves operational work using environmentally-conscious solutions: (a) improves agility: Green Supply-Chain Management helps to reduce risk and accelerate innovation; (B) improve adaptation: Green Supply-Chain Management analysis often yields innovative processes and continuous improvement; (C) Promoting alignment: Green Supply-Chain Management involves negotiating policies with suppliers and customers, resulting in better alignment of business processes.

1.4.2. Competitiveness. Competitiveness is the ability of companies, industries, regions, countries, or inter-regions to generate income factors and factors of work that is relatively high and continuous to face international competition. Therefore, in the context of districts / municipalities as an organization, competitiveness is defined as the ability of districts to develop their socio-economic capacity to improve the welfare among the people within their areas. In strategic management theory, at least two familiar views can be used to base industry elections.

The first view is a view known as a market-based view. An organization should select an industry whose products are clearly accepted by the market. Furthermore, the selection of an industry should be oriented towards the fulfillment of market demand. A market-driven view will lead districts to produce only products whose markets already exist and thereby minimize the risk of unsold products.

Competitiveness can also be described as a benchmark for past achievements. To be competitive in this sense is to succeed in achieving the desired desired rank. The size often used in this criterion is part of the world market of a State. So, if Japanese companies have a significant percentage of the world market Video Cassette Recorder they are said to be competitive in their business up to now from the past to the present. Another measure of this criterion is the standard of life of a State. A State can be said to be competitive if per capita income, health services and life expectancy for its citizens are superior compared to those expected by citizens of other nations.

The competitiveness of research indicators that can be used in this research are: (1) Competition Point, (2) Supply Condition, (3) Demand Condition, (4) Physical Resources, (5) Human Resources, (6) Innovation, and (7) Networking (Laszlo Szeb and Jozsep Ulbert, 2009).
1.4.3. Marketing performance. Ferdinand suggests that marketing performance is a common factor used to measure the impact of a company’s strategy. Company strategy is always directed to generate marketing performance such as sales volume, market share and sales growth rate and financial performance. Suggested performance measurements using marketing activities that result in performance of units sold and customer turnover [6].

Sales growth is a concept to measure market performance of a product. Sales growth is a source of market share growth. Sales growth is used for all researchers as one of the market-forming performance variables. Market performance is part of marketing performance. The Marketing Performance indicator in this study refers to Book Marketing Metrics: 50 Metrics Every Executive Should Master from Faul W. Farris, et al. (Indonesian Version)[7], namely: Paper Sales Volumes and Financial Ratios Companies during the Year 2013-2015.

2. Methods

2.1. Research subject
The subject of this research is paper industry located in the industrial area of West Java Province.

2.2. Types and data sources
The data collected are primary and secondary data. Primary data was obtained directly from questionnaires or questionnaires containing questions relating to variables studied: Green Supply-Chain Management Implementation, Company Competitiveness, and Marketing Performance. Whereas secondary data is derived from previous research studies that have been summarized in the appropriate research journals and supportive of the problems studied.

2.3. Population, samples, and sampling techniques
The population specified in this study is the entire paper industry companies in the Industrial Area of West Java Province, which has applied the concept of green supply-chain management during the last three years of 2013 to 2015.

According to Sekaran [8], Sample is part of the population. The sample consists of a select number of members from the population. Sampling is the process of selecting an enough element from the population, so research on the sample and understanding of its nature or characteristics will allow us to generalize those traits or characteristics to the population element. The sample of this research is all paper companies in West Java Province, which amounted to 30 paper companies.

2.4. Data collection technique
To collect data for the purposes of this study used measuring instruments in the form of a questionnaire consisting of a number of questions that are closed following alternative answers that have been provided, so that respondents just choose the answer in accordance with the actual situation. The level of measurement of variables in this study is ordinal, and the answer category consists of 9 (nine) answer categories ranging from by referring to Ordinal Scale (Ordinal scale), as shown in table 1.

| Table 1. Ordinal Scale |
|------------------------|
| Strongly disagree      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Strongly agree |

According to Bailey in Silalahi [9], Ordinal scale is defined as An ordinal scale not only categorizes the variable in such a way as to denote qualitative differences among the various categories, it also rank-orders the categories in some meaningful way.
The above picture is used to answer the variable Implementassi Green Supply-Chain Management as variable X, Y variable is the Marketing Performance used data from observations in the field related to the performance results of paper industry companies in Industrial Area West Java Province, while the mediation variable is Competitiveness Paper Company in West Java Province.

2.5. Structural Equation Modeling (SEM)

Structural Equation Modeling (SEM) is a combination of two separate statistical methods of Factor Analysis and Regression. According to Ghozali [10], please be put forward as follows: please use algorithmic literatures consisting of ordinary least square's analysis series, the problem of model identification is not a problem for the recursive model, nor does it assume a particular distribution form for a variable size scale. Furthermore, the number of samples can be small with rough estimates. According to Fornell cited Ghozali [10] other advantages obtained by using Partial Least Squares (PLS) are as follows: SEM-based variance or PLS provide the ability to perform path analysis with latent variables. This analysis is often referred to as the second generation of multivariate analysis.

The advantages of PLS are PLS can analyze as well as construct formed with reflexive indicator and formative indicator, The flexibility of the algorithm, size dimensions are not a problem, can be analyzed with many indicators, and The sample data should not be large (less than 100).

The way PLS work according to Ghozali [11] that all the latent variables in the PLS consist of three sets of relationships, namely: (1) inner model Which specifies the relationship between the latent variable (structural model), (2) outer model that specifies the relationship between the latent variables with the indicator or the variable of the manifest (measurement model), dan (3) weight relation In which case values of latent variables can be estimated. Without loss of generalization, it can be assumed that the latent variable and the indicator or manifest of zero means and variance unit variables are equal to one so that the location parameter (constants parameter) can be omitted in the model [12]. Evaluation of the model carried out by PLS is done by evaluating outer model and inner model. Outer model is a measurement model to assess the validity and reliability of the model. While Inner Model, is a structural model to predict the relationship of causality between latent variables.

3. Results and Discussion

The object of this research is a paper company that existed in West Java Province, which amounts to 30 companies. From a number of paper companies, all companies are willing to give permission to carry out this research.

The number of questionnaires distributed for each paper company ranged from one questionnaire consisting of 52 research statements consisting of 21 statements are Green Supply-Chain Management variables, 17 statements representing Company Reputation variables, 11 statements are Company Competitiveness variables; Two statements are variable's Marketing Performance. Number of questionnaires sent by mail, and email to several paper companies is one questionnaire for each paper company in West Java Province. Of the total number of questionnaires distributed and sent, die 30 questionnaires, the number of questionnaires filled and returned is 30 questionnaires.

3.1. Data analysis

3.1.1. Reflective construct testing: assessing the outer model or measurement model. The data processing technique using Smart Partial Least Square (SmartPLS) based SEM method will be done in two tests: reflective construct test and formative construction test. There are three criteria in using data analysis techniques with SmartPLS to assess the outer reflective construct model die Convergent Validity, Discriminant Validity and Composite Reliability.

Convergent validity of measurement models with reflexive indicators is judged by correlation between an item score / component scores estimated with SmartPLS Software. Individual reflexive sizes are said to be high if they correlate more than 0.70 with measured constructs. However, according to Chin, 1998 [10] for the initial stages of development the scale of measuring the loading
values of 0.5 to 0.6 is considered sufficient. In this study, the load factor limit was used at 0.60. The model includes GSCM1, GSCM2, GSCM3, GSCM5, GSCM6, GSCM11, GSCM12, GSCM13, GSCM14, GSCM16, GSCM17, GSCM18, GSCM19, GSCM20, GSCM21. Then Outer Loadings Variable Competitiveness issued from the model are: CC1, CC2, CC6, CC9, CC10. Now the result has met convergent validity because all loading factors are above 0.60. To see how the display image, we can see into the Figure 1 path diagram which is the second stage.

![Figure 1. Path algorithm diagram PLS](image)

3.1.2. Reflective construct testing: discriminant validity. Discriminant validity is performed to ensure that each concept of each latent variable is different from other variables. The model has good discriminant validity if each loading value of each indicator of a latent variable has the largest loading value with another loading value against other latent variables. Discriminant validity test results are obtained as follows in Table 2.

| Indicator | Company Competitiveness (CC) | GSCM | Marketing Performance (MP) |
|-----------|------------------------------|------|--------------------------|
| CC3       | 0.765                        | 0.478| 0.198                    |
| CC4       | 0.675                        | 0.530| 0.356                    |
| CC5       | 0.708                        | 0.535| 0.276                    |
| CC7       | 0.639                        | 0.456| 0.066                    |
| CC8       | 0.725                        | 0.514| 0.066                    |
| CC11      | 0.673                        | 0.293| 0.236                    |
| GSCM4     | 0.589                        | 0.854| 0.473                    |
| GSCM7     | 0.363                        | 0.705| 0.508                    |
| GSCM8     | 0.524                        | 0.740| 0.570                    |
| GSCM10    | 0.520                        | 0.662| 0.199                    |
| GSCM15    | 0.594                        | 0.799| 0.118                    |
| MP2013    | 0.285                        | 0.478| 0.982                    |
| MP2014    | 0.313                        | 0.545| 0.990                    |
| MP2015    | 0.288                        | 0.501| 0.988                    |
Table 2 shows that 1) the correlation of competitiveness constructs with indicators is higher than the correlation of competitiveness indicators with other constructs (GSCM and marketing performance); 2) GSCM construct correlations with indicators higher than the correlation of GSCM indicators with other constructs (competitiveness and performance marketing), 3) the correlation of the marketing performance with the indicator is higher than the correlation of marketing performance indicators with other constructs (competitiveness and GSCM).

3.1.3. Reflective construct testing: Composite reliability. Criterion validity and reliability can also be seen from the reliability value of a construct of each construct. The construct is said to have composite reliability, Cronbach alpha, average variance extracted (AVE) which is high if the value is above 0.70. In table 3 presented the value of composite reliability and cronbach alpha for all variables.

| Variabel                     | Composite Reliability | Cronbach Alpha | AVE   |
|------------------------------|-----------------------|----------------|-------|
| Company Competitiveness      | 0.851                 | 0.792          | 0.488 |
| GSCM                         | 0.868                 | 0.810          | 0.570 |
| Marketing Performance        | 0.991                 | 0.986          | 0.974 |

The outputs of composite reliability and cronbach alpha are all constructed above 0.70. Unless the competitiveness construct has an average variance extracted of 0.488 <0.70. However, the test is still done to the next stage due to composite reliability and cronbach alpha all constructs are above 0.70.

3.2. Inner model testing
Test on the structural model is done by looking at the R-Square value which is a goodness-fit test model. The influence model of Green Supply-Chain Management Implementation on Competitiveness gives R-square value of 0.472, which can be interpreted that construction variability Competitiveness can be explained by construct's variability of Green Supply-Chain Management Implementation of 47.2%. While the influence of Green Supply-Chain Management Implementation on Marketing Performance gives R-square value of 0.281, which can be interpreted that the variability of Construction of Marketing Performance, which can be explained by the variability of the Green Supply-Chain Management Implementation of 28.1%.

| Variabel                     | R Square |
|------------------------------|----------|
| Company Competitiveness      | 0.472    |
| Marketing Performance        | 0.281    |

3.2.1. Formative construct testing: assessing the outer model. The outer weight results below a show that there is an invalid formative construct indicator where the resulting T Statistics <1.96 are the CC11 indicator of 1.269, so the indicator must be dropped from the analysis.

3.2.2. Formative construct testing: assessing the inner model. The outer weight results below a show that there is an invalid formative construct indicator where the resulting T Statistics <1.96 are the CC11 indicator of 1.269, so the indicator must be dropped from the analysis.

4. Conclusion
Based on the results of Analysis and Discussion of Effect of Green Supply-Chain Management Implementation on Marketing Performance with Competitiveness Mediation Paper Company in West Java Province concluded as follows: a. There is no Effect of Competitiveness on Marketing
Performance in Paper Companies in West Java Province. b. There is a Direct Effect of GSCM Implementation on Paper Competitiveness of Paper Companies in West Java Province. c. There is a Direct Influence of GSCM Implementation on Marketing Performance in Paper Companies in West Java Province. d. The Company's Competitiveness does not mediate the Effect of Green Supply-Chain Management Implementation on Paper Marketing Performance in West Java Province.

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