

**THE EFFECT OF REVERSE LOGISTICS CAPABILITY ON COST SAVINGS:
INNOVATION AS MODERATOR VARIABLE**

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ABSTRACT

Facing tough competition in the era of AEC, every company would be demanded to be able to provide high quality products based on customers' preferences. By managing a good supply chain and performance will lead to better quality of products than before. The supply chain is identical with upstream to downstream problems. Unconsciously, the downstream to upstream also plays a big role in the company; therefore a company should be able to manage the reverse logistics activities. By developing the reverse logistics, it can help the company to elevate their ability to compete in the market, and also minimizing their cost. The factors that affect reverse logistics, thus will also affect to the cost saving. The factors can be broken down into: orientation towards consumers; opportunistic behavior of consumers; commitment to the resources; contractual agreement; and innovation as the moderate variable. This research conducted to analyze the reverse logistics capability of book publishers in Surabaya. The data were collected from 30 book publishers then being analyzed by using SmartPLS 2.0 software. The result from this research shows that the reverse logistics capability has positive relations towards cost savings. Innovation also has strong relation towards the reverse logistics in minimizing costs. Despite the factors of opportunist customers should have negative relations towards reverse logistics, but in fact, it has positive relations towards reverse logistics.

Keywords: Reverse Logistic, Commitment to the Resources, Contractual Agreement, Cost Savings, Orientation towards Consumers, Opportunistic Behavior of Consumers, Innovation

INTRODUCTION

Facing tough competition in the era of AEC, every company would be demanded to be able to provide high quality products based on customers' preferences. By managing a good supply chain and performance will lead to better quality of products than before. The supply chain is identical with upstream to downstream problems. Unconsciously, the downstream to upstream also plays a big role in the company; therefore a company should be able to manage the reverse logistics activities. By developing the reverse logistics, it can help the company to elevate their ability to compete in the market, and also minimizing their cost.

To create a competitive advantage every company should be able to control all activities within the company. Many of the activities that need to be done by the company, but one example is to manage the supply chain of its supply chain well. One of the most important parts of the supply chain is logistics. Logistics is becoming part of supply chain management rather than being a separate parts section (Larson et al. 2007). According to Bowersox (1989), logistics is the process of setting the strategic removal of material, components and finished goods from suppliers between facilities within the company and to consumers.

In the supply chain, when seen from the logistic flow can be divided into 2 of the forward logistics and reverse logistics. At this time forward logistics is not the only supply chain. Reverse logistics has attracted the attention of experts in marketing and supply chain for reverse logistics literature reflects the company's ability to manage the supply chain and its distribution channel that can provide a positive influence on consumers (Horvath et al., 2005). Reverse logistics is considered to have a significant impact on financing companies and suppliers (Daugherty et al., 2005). Another objective of the reverse logistics of creating values back to the disposal of products or goods that flows back (Rogers and Tibben-Lembke, 1999). Handling of goods retur who came to the company can be done by removing waste and material from the

plant site to a landfill, can also be sold or can be donated to a third party (salvage) and disposal of the results of returns is part of a process related to reverse logistics and supply chain management.

Returns of consumer goods are of varying quality, there is a return to conditions that are good and some are already damaged, so that makes stakeholders of the company considers that reverse logistics is not too important and even cause more costs for the company. The complexity of handling reverse logistics company resulted in the increasing operational cost (Trebilcock, 2001). In fact, if properly managed reverse logistics can be a good alternative for reducing the limited resources of raw materials. In addition, reverse logistics proved capable of providing economic value for the perpetrators (Rivera & Ertel, 2008). Economic values of reverse logistics obtained through the use of returned goods, namely the reuse when they can be used, recycle for the manufacture of raw materials, the repair for resale (Stock, 2001).

Another benefit of the application of reverse logistics is able to save logistics costs. Economic potential indirectly from the use of reverse logistics are savings in operational costs of logistics, such as the reduction of distribution costs and the reverse flow or transaction processing (Stock et al, 2002). Besides the use of the application of reverse logistics is able to improve after-sales service, which is able to understand the complaints of consumers and be able to provide a guarantee or assurance regarding the completion of the returned goods, thus resulting in increase of a good image for the company in the eyes of consumers (Daugherty et al., 2004; de Brito et al., 2002). With the good relationship with consumers will lead to the loyalty of the consumers themselves. However, to achieve the above objectives the company must understand the antecedents, of variables that can affect the ability of reverse logistics. These variables include the consumer orientation, innovator opportunist attitude, commitment to resources and contractual agreements (Eric P. Jack et al. 2010). Knowing an innovation can be a positive influence on the cost savings (Richey, R.G et al., 2005).

The purpose of this study was to determine the relationship between customer orientation with the ability to reverse logistics, determine the relationship between the opportunist attitude of customers with the ability to reverse logistics, determine the relationship between increasing resource commitment to the ability of reverse logistics, determine the relationship between the contractual arrangement with the ability to reverse logistics, mengetahui the relationship between reverse logistics capabilities with the cost savings, as well as find out whether the innovation as a moderating variable has the influence of reverse logistics capability in reverse logistics cost savings.

RESEARCH METHODOLOGY

This study uses quantitative methods. A quantitative research requires the existence of a hypothesis and testing which will then be determined subsequent stages, such as the determination of analytical techniques and statistical formulas that will be used. In this study, the independent variable is the consumer orientation, opportunistic behavior of consumers, the commitment of resources, and contractual agreements. The dependent variable in this study is the cost savings and innovation into moderating variable.

Data collection procedures used in this study is the field surveys to obtain primary data by distributing questionnaires and conduct interviews with respondents who deal directly with the activities of reverse logistics. This research was conducted by distributing questionnaires to 30 companies 30 book publishers in Surabaya and surrounding areas. Research hypothesis testing is done with the approach of Structural Equation Model (SEM) based Partial Least Square (PLS). According Ghazali (2006), PLS is an alternative approach that shifts of SEM-based approach covariance be based variants. Covariance-based SEM generally examine causality or theory, while PLS is more predictive models.

To achieve cost savings need to know first is what factors are likely to influence the ability of reverse logistics so as to achieve cost savings. In this study these factors include several variables that can affect the formation of reverse logistics capability to achieve cost savings.

Customer orientation or orientation towards the consumer itself is a condition that describes the attitude of the company and what activities they intervenes in its aim to satisfy the needs of consumers (Deshpande et al., 1993). Various methods are used to be the company's customer-oriented, for example, collect a variety of information that focuses on the consumer, the ability of the company how to know the consumer to assess the products provided by the company, a competition held by the company based on the differentiation of consumers, and they believe that business exists to serve consumer. Thus the consumer-oriented companies will have positive impact on the formation of reverse logistics capabilities, so the first hypothesis, namely:

H1: There is a positive relationship between the orientation toward consumers with reverse logistics capability.

Opportunist attitude often seen in someone who wants to do as they wish, regardless of who or what he is facing. Opportunist attitude will arise when an individual or organization betingkah according to personal wishes or based on his

personal intentions (Williamson, 1975, p. 6). Such attitudes will arise if a wish to act without restraint for the sake of the hope of profit regardless of the load to be covered by the other parties. With the opportunist attitude of customers who often make low ability to reverse logistics in the company, so that the second hypothesis, namely:

H2: There is a negative relationship between the opportunistic behavior of consumers with the reverse logistics capability.

Commitment to the company's resources consist of financial resources, technical, and managerial company that is committed for the benefit of reverse logistics capabilities. Much can be done by the company to improve its resources, for example by investing in technology. Companies that have the urge to invest its resources in the field of technology is regarded as a company that pays special attention to the improvement of performance and service in their organization, and it was good (Zhou et al., 2005). That would make the company's performance increased so as to positively affects the ability of reverse logistics, therefore it can be said that the third hypothesis is:

H3: There is a positive relationship between the increasing commitment of resources with reverse logistics capability.

The contractual agreement is a common thing owned company with its partners. The contractual agreement is part of a process of socialization with members of other partners in the supply chain that involves relationships are deliberately arranged to align (Wathne and Heide, 2000). Contracts can contribute to improved performance in partnership with a minimal degree of uncertainty (Cannon et al, 2000). This means that the contractual agreements that have been made are able to improve the performance of the company with partners who are in the supply chain to guarantee a higher (level of uncertainty at a minimum), and thus the contractual agreement can be useful for reverse logistics, so that the fourth hypothesis, namely:

H4: There is a positive relationship between the contractual agreements with reverse logistics capability.

Four factors are a factor that can affect reverse logistics capability. Factors that will determine the success of the company in achieving its goal of cost savings. The better a company is managing its reverse logistics, the better the company's ability to make cost savings, making it the fifth hypothesis, namely:

H5: There is a positive relationship between reverse logistics capability with cost savings.

Innovation refers to the creative process through new products, services or production processes are developed (Tushman and Nadler, 1986). According to the study (Bello, Lohtia, and Sangtani (2004) specifically examined the supply chain associated with innovation, they characterize innovation as the incorporation of development in the information and technology related to logistics and marketing procedures to improve operational efficiency and increase speed in response to the service. Therefore Therefore in this research innovations into a moderation, the sixth hypothesis, namely:

H6: Innovation strengthen the relationship between reverse logistics capability to reverse logistics cost savings.

Relationships and the influence of the antecedents of the reverse logistics capability in achieving cost savings moderated by innovation can be described conceptually in the method of analysis in Figure 1.

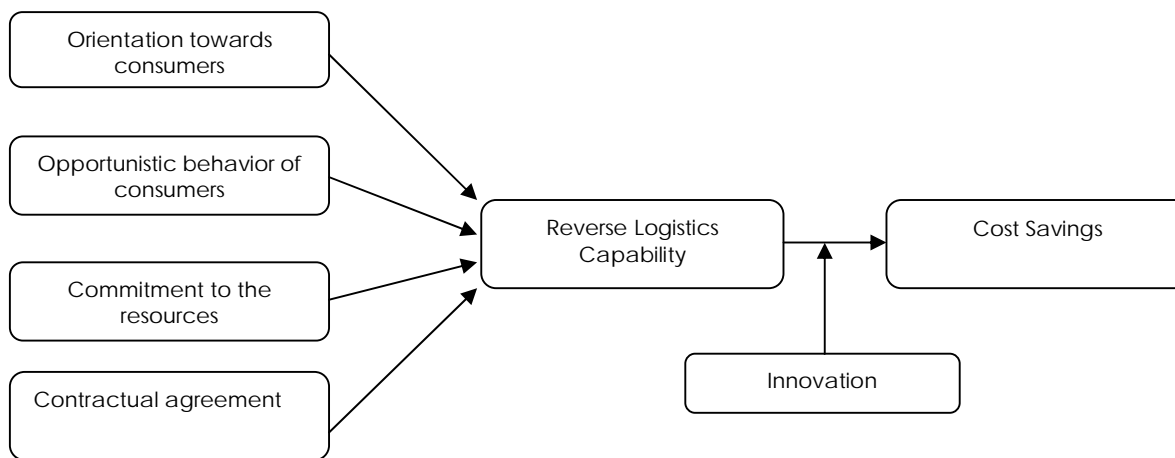


Figure 1. Conceptual Model

FINDINGS

Analysis of Structural Model

In the evaluation of the structural model assessment PLS R2 to construct dependent. To test the significance of inter-construct the structural model in each lane then the note is the t-statistic on the path coefficient. The use of R2 value is to measure the degree of variation changes the independent variable on the dependent variable (Jogiyanto, 2011). The higher the value of R2 means the better the prediction model of the proposed research model.

Table 1. The value of R Square

	<i>R Square</i>
KRL	0.8602
PB	0.9129

Hypothesis testing

The next step is testing the hypothesis and the relationship between logistics path that will answer the hypothesis in this study. Path coefficient values indicate a level of significance in hypothesis testing. To know that, it is necessary to read the value of t-statistic compared with t-table value, if the value of t-statistic greater than t-table then the hypothesis is accepted. In this study, t-table value is 1,96. Table 2 is a booth-strapping test results, as follows:

Table 2. Path Coefficient

	<i>Original Sample (O)</i>	<i>Sample Mean (M)</i>	<i>Standard Deviation (STDEV)</i>	<i>Standard Error (STERR)</i>	<i>T Statistics (O/STERR)</i>
KRL -> PB	0.7052	0.7648	0.1823	0.1823	3.8684
KRL * RLI -> PB	0.1167	0.0998	0.048	0.048	2.4327
KSD -> KRL	0.1725	0.1707	0.0444	0.0444	3.8862
OTK -> KRL	0.326	0.3372	0.0772	0.0772	4.2228
PK -> KRL	0.4072	0.3993	0.0584	0.0584	6.9762
POK -> KRL	0.1075	0.1083	0.0383	0.0383	2.8093

The effect of variable orientation on consumers of reverse logistics capability with a positive regression coefficient value worth of 0.326 and the value of t-statistic of 4.2228, this means that the first hypothesis can be accepted. Opportunistic behavior variables influence consumers against reverse logistics capabilities with a positive regression coefficient value worth 0.1075 and the value of t-statistic of 2.8093, this means that the second hypothesis is rejected.

The variable effect on the resource commitment to reverse logistics capabilities has a positive regression coefficient value worth 0.1725 and the value of t-statistic of 3.8862. This means that the third hypothesis can be accepted. The variables influence the contractual agreement to reverse logistics capabilities with a positive regression coefficient value worth 0.4072 and the value of t-statistic of 6.9762. This means that the fourth hypothesis can be accepted. The effect of reverse logistics capabilities variables on cost savings has a positive regression coefficient value worth 0.7052 and the value of t-statistic of 3.8684. This means that the fifth hypothesis can be accepted. The influence of reverse logistics capability variables with a moderating variable reverse logistics innovation against austerity charge has a positive regression coefficient value worth 0.1167 and the value of t-statistic of 2.4327. This means that the hypothesis can be accepted.

The first hypothesis says that there is a positive relationship between the orientation toward consumers with reverse logistics capabilities. Companies, in this case a book or magazine publishers, need to remain the first choice of consumers to be smart to take the hearts of consumers. Understand the desires or needs of consumers, with good communication between companies and consumers, so they achieve the value of their customers. Activities that take place within the company should be in line with the wishes of the consumers. Consumers will love the company's products always meet their needs. In this case the publication of a book or magazine, companies must know what the phenomena that occur

at this time. Diverse needs of consumers who will make the company the confusion, and therefore companies should be smart filtering and processing what products will be offered to consumers so that consumers are not bored to choose the company's products continuously and periodically. It certainly will make consumers loyal to the company and will indirectly create a competitive advantage for companies and create profits for the company. By creating a good relationship with its customers, the company is able to create long-term relationships with its customers, thus again, the company also can create a sustainable competitive advantage (Brady and Cronin, 2001).

The second hypothesis says that there is a negative relationship between the opportunistic behavior of consumers with reverse logistics capabilities. Results of testing the second hypothesis (H2) suggests that the reverse logistics capability variables positively impact variable opportunistic behavior of consumers. This means that the second hypothesis is rejected. A good company is a company that can understand consumer, receiving consumer complaints, and take responsibility when the company made a mistake to the consumer. Opportunistic behavior on consumers will emerge when the consumers feel disadvantaged by their own opinion about the product that you have purchased. In this case the company has not been able to control consumers who have opportunistic nature that will indirectly affect the activities of reverse logistics and if continuously occur will certainly have an impact on the ballooning costs of the company. The company's policy will be visible when a consumer to perform an action as a consumer who has the opportunist attitude, this is because companies must explicitly deal with such matters as opportunist attitude will indirectly affect the decreased ability of reverse logistics because of the trust that the company be reduced so that the ability or capability to other consumers also reduced. This is consistent with that expressed by Williams (2007), that when the opportunist behavior appears it will be a source of problems that can undermine the trust that exists. Companies must continue to seek the best solution in order to reduce the opportunist attitude of consumers, because it can have an impact on the activities of reverse logistics. Opportunist customers can increase the return on products that impact on the cost of reverse logistics (Padmanabhan and Png, 1997).

The third hypothesis says that there is a positive correlation between the increased commitment of resources with reverse logistics capabilities. Results of testing the third hypothesis (H3) indicates that the variable reverse logistics capabilities a positive influence on the variable commitment of resources. This means that the third hypothesis can be accepted. Companies that have good resources will certainly produce a good product anyway with a high value. The Company is expected to be able to maintain and even improve the ability of internal resources that are inside as well as the commitment that was made by the company in order to support reverse logistics capabilities that have been developed. To compete era of globalization today is not an easy thing for the company. Companies must be able to implement technology to improve internal capabilities. By investing in technology, can help companies to develop a sustainable competitive advantage where the technology used is a difficult duplicated or imitated by competitors (Day, 1994; Srinivasan et al., 2002). The technology designed by the company will surely make the activity of reverse logistics work more effectively and efficiently than with manual systems. Logistics technology applications is the main trigger reverse logistics operational efficiency and help improve the speed of response to complaints desire nor the distribution chain partners (De Brito et al., 2002; Richey et al., 2005).

The fourth hypothesis says that there is a positive relationship between the contractual agreements with reverse logistics capabilities. Results of testing the fourth hypothesis (H4) indicates that the variable reverse logistics capabilities received positive influence of variable contractual agreements. This means that the fourth hypothesis can be accepted. In the contractual agreement expected the company was able to establish good relations with its partners namely that includes suppliers and the distributor, as partners is one important key in achieving excellence in competition. The company is also required in order to make a good agreement and clearly before making a contract in order to avoid misunderstandings later on so that no one feels aggrieved. As explained by Canon, et al. (2000), that contracts can contribute to improve the performance in partnership with a minimal degree of uncertainty. This means that the contractual agreement that has been made is able to increase the performance of the company with its partners who are in the supply chain to guarantee a high (level of uncertainty minimal).

A good relationship between the company and its partners would be devastating for reverse logistics activities itself, therefore it is very necessary good communications from various parties in order to avoid misunderstanding. With good communication will trigger the activity of reverse logistics and will certainly minimize errors. Reverse logistics is managed and well organized to be more freely arrange the information regarding returns with internal or external. The company also will more quickly provide status information returns, more quickly want to respond to customer complaints, and easier authorizes returns (Daugherty et al., 2005).

The fifth hypothesis says that there is a positive relationship between reverse logistics capabilities with cost savings. Results of testing the fifth hypothesis (H5) indicates that the variable cost savings are positive effects of variable reverse logistics capabilities. This means that the fifth hypothesis can be accepted. Companies are able to process reverse logistics in the company so well that the company can create cost savings. This is in line with a previous study conducted by Eric et al. (2010) that there is a positive influence between reverse logistics capabilities to cost savings. Although previous studies used different objects, but it is known that by doing a reverse logistics activities effectively and efficiently must be a direct effect on the company, especially in terms of cost savings. Factors such as customer orientation, opportunistic behavior of consumers, the commitment of resources, contractual agreements, and reverse logistics capabilities into a determining factor of success or failure of companies in terms of achieving its goal of cost savings. The better the company's ability to manage its reverse logistics, the better the company's ability to make cost savings.

The sixth hypothesis says that innovation strengthens the relationship between reverse logistics capabilities to cost savings. Results of testing the hypothesis sixth (H6) showed that the variables of innovation reinforces the strong relationship between reverse logistics to cost savings. This means that the hypothesis can be accepted. The company must continue to develop innovations in order to exist in the business world. Innovation is good and done continuously will certainly make the performance of the company, especially in the reverse logistics activities, the better. Reverse logistics is a complex logistical business, therefore, necessary innovation capabilities in handling it, and to enhance the innovation capabilities required allocation of adequate resources (Daugherty et al., 2001).

Innovation is needed in terms of resolving issues of reverse logistics activities. Innovations that will either trigger for companies to manage reverse logistics activities in order to achieve its goal, namely in terms of cost savings. Handling reverse logistics is an innovative, potentially increasing revenue and reduction in operating costs of logistics (Rush et al., 2002). In addition to profitable companies, the innovation of its own reverse logistics activities would also benefit customers, because with an innovation performance of the company will be increased so that the consumer will get services quickly and will certainly have an impact on efficiency. Consistent with previous studies, namely, innovation capabilities contribute to the operational efficiency and effectiveness of logistics services to customers (Mouritsen et al., 2004; Richey et al., 2005).

As well as goods produced from other companies, companies engaged in book publishing and newspaper or magazine would also have expired. If the period from the expiration is up, goods can not be reused. Expired goods or expiration of the orbit will be returned from its distributors, while the company received the results of the consumable goods distribution. Such goods can not be reused, therefore it is very necessary process of reverse logistics in order not to suffer losses due to goods that have been produced are out of orbit. The expired goods are gathered together to be destroyed and the existing process will make the paper is ruined into a new paper that can be recycled into new products and can be resold. Goods sold are no longer a second-hand goods but has become a new item with the content of news or a new story with new packaging.

Publishers always produce products that are desired by consumers. Seeing that many consumers desire the company tried to realize, for example by publishing a magazine or on a specific topic, namely on a vacation trip. But the topic is not repeated constantly because it will make consumers bored. It means that the company is always oriented to the consumer. Each item produced will possibly experience a product defect. As a consumer, or even a distributor of these sales will not receive the product so that it is possible the item will be returned to the company. As a consumer-oriented company that is certainly the company will receive and indirectly the company will suffer little loss of opportunistic behavior of the consumer. The returned goods will not be sold by the company back, but will be processing as is done for the product expired orbit.

Handling of returned goods, or in this case the activity of reverse logistics indispensable adequate resources, ranging from financial resources, labor resources, until the source of the technology. The company issuing the book or magazine is certainly already have these resources, but these resources must be continuously improved in order to achieve the company's objectives in terms of cost savings. Sources of labor must continue to be trained in order not to lose its ability to compete with other companies, the allocation of funds should be made as possible so that there is no possibility that the company had insufficient funds, and technology must always be updated in order to reverse logistics activities are going well and quickly. In addition to controlling all activities in the internal, the company must also work well in external activities. There are so many external activities should the firm, for example, that a good relationship between the supplier and the distributor of the book. An agreement is necessary for supporting the activities that will be carried out later. The company expressly must describe to its partners what it should do and what it should not do. The agreement must be approved by both parties. It needs to be done so that later when misunderstanding nobody feels right and feels wrong, and no party feels aggrieved own.

Reverse logistics activities are carried out properly and better course would make the company become profitable. The company did not experience a loss during reverse logistics activities goes according to existing procedures. Necessary also an innovation in order to support the reverse logistics activities to avoid the loss of the company and add to the benefits of reverse logistics activities.

CONCLUSION

The companies have to pay more attention and further increase its reverse logistics capabilities, especially in terms of handling the problem of consumer owned opportunist attitude. The right solution from these events that the company should be closer to the consumer so that the consumer opportunistic attitude can be reduced so as to make consumers more loyal to the company. It was not an easy thing for the company on the one hand companies want to meet the needs of consumers and on the other hand consumers are opportunists will do everything for the sake of satisfaction. To reduce it to the company must conduct prevention activities is to double check on products and clearly explain and prove directly to distributors, for example, that the products are not experiencing product failure or defect. In addition the company also had to make a strict policy on all existing conditions in order to prevent the opportunist attitude of consumers.

The companies are expected to move closer to the consumer so that it knows what customers want and to maintain and enhance the resources of the company and update the agreements in the contract as well as continue to perform a wide range of innovations to support the company in the activities of reverse logistics to realize the wishes of the company in terms of cost savings.

This study resulted in new findings that confirm the truth of the theory put forward by Eric et al., (2010) that the antecedent of opportunist customers show a negative effect on the reverse logistics capability, but in this study found a positive relationship of opportunist consumers against reverse logistics. Therefore, the academics should make the discovery as one means to enrich the knowledge of reverse logistics management in the context of effectiveness and efficiency.

For further research, we encourage the researchers to increase the number of respondents to strengthen the generalized results of the findings. Although based on the central limit theorem and rules of using the PLS that the minimum limit of respondents was 30, but the number of respondents that more will add to the significance of the research. In addition, the researchers conducted further research by adding variables that can affect the activities of reverse logistics. The latter is best to use another respondent, a company that is larger than previous research.

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