Supply Chain Management and Organizational Performance: Exploring Green Marketing as Mediator

Jutamat Sutdueana\(^a\), Watcharin Joemsittiprasert\(^b\), *Kittisak Jermsittiparsert\(^{c,d}\), \(^a\)College of Innovative Business and Accountancy, Dhurakij Pundit University, Bangkok, Thailand, \(^b\)Division of Business Administration, ASA College, New York, USA, \(^c\)Department for Management of Science and Technology Development, Ton Duc Thang University, Ho Chi Minh City, Vietnam, \(^d\)Faculty of Social Sciences and Humanities, Ton Duc Thang University, Ho Chi Minh City, Vietnam.

*Corresponding author email: kittisak.jermsittiparsert@tdtu.edu.vn

The main aim of this empirical research is to investigate the impact of the supply chain management and the organizational performance. In addition to that, the current study is also interested in examining the mediating role of green marketing in the relationship between supply chain management and the organizational performance. This article draws its attention to supply chain management concepts to discuss managing green marketing. The contribution of the paper will be in the investigation of supply chain management literature through the lenses of organizational performance and green marketing. The study revealed that practices of the supply chain management impact the competitive advantage and organizational performance of the organization. It is expected that they will improve the competitive advantage through product innovation, time to market, deliver dependability, quality and price of the product. Previous studies indicated that there are a number of supply chain management practices which impact the competitive advantage of the organization. In order to achieve high performance, it is important to change every aspect of the supply chain including processes design, which the findings of the study have shown an agreement.

**Key words:** Supply Chain Management, Green marketing, organizational performance
Introduction

In this era of globalization, rival companies are expanding globally and locally. It is the need of the times that organizations produce good quality services and products for the consumers and decrease the waste as well. Moreover, these companies should be able to handle their supply chain effectively and efficiently. Different kinds of challenges are being faced by the organizations, while these firms are trying to compete in a tough global environment. The market is getting more customer driven, dynamic and global. Consumers are demanding faster delivery, greater reliability, better quality and more variety of product. The product varieties are increased, and their life-span is decreased. Technological development is taking place at a very fast pace (Li and Lin, 2006).

For the organizations to be and remain competitive, they must understand the importance of supply chain practices which will be helpful in improving the performance of the organization. Moreover, coordination with the supply chain also plays a critical role in improving the performance. There must be strong downstream and upstream integration of the networks. Supply chain management is needed for this reason along all its sectors. In the past two decades, supply chain management has gathered the attention of a number of scholars and practitioners because of its operational success (Sundram, et al., 2011). Despite its success, a number of organizations are having a difficult time understanding the issues associated with the supply chain (Cook, et al., 2011).

On the other hand, green marketing is a concept which is applicable on services, industrial goods and consumer goods. A wide range of activities are integrated in it including modifying advertisement, packaging changes, production process and product modification. Over the last few years, the issues of reduction of resources, ozone depletion, disposal of toxic waste, deforestation and global warming have emerged. Researchers have discussed that there are chances for green marketing which includes such activities as green promotions, green logistics, green pricing, green positioning, green design and target marketing (Polonsky and Rosenberger, 2001).

Researchers proposed that corporate philosophy of an organization must integrate ‘greening’. This is because organization can use it to leverage their position among the competitors (Menon and Menon, 1997). Corporations are trying to incorporate the green marketing strategies into their marketing strategies like industrial marketing, strategic alliances,
customer segmentation, promotion, retailing, distribution, pricing, package design, product and planning. Firms are not making it clear as to the reasons for making these changes of promoting a green strategy. It’s not necessarily that firms are going green because of competition and to improve their performance in terms of environmental concerns. In fact, green marketing is one of the most modern and important strategy which can be used to strengthen the relationship of the community with the organization. On the other hand, it can be used to protect the environment from the organizations as well (Afande, 2015).

To improve the competitive advantage, supply chain management can be an effective tool for a firm. Moreover, supply chain management can be an effective tool to maintain the prosperity, growth and stability of the business. The group of activities used by firms to promote the effective management of supply chain is known as supply chain management (Li, et al., 2006). The initiatives which influence the key processes, whole supply chain and its parts are known as the best initiatives of the supply chain. There are the contextual factors that influence the practices of the supply chain. These factors include the length of the supply chain, type of supply chain, position, firm size and industry. There is a lot of importance to build the effective supply chain to build and sustain the competitive advantage of the firm’s services and products. According to the studies, integrated key elements of the information influence the performance of the supply chain. Key supply chain management practices are identified as information sharing, customer relationship and supplier partnership. It has been identified that the long-term relationship, supply chain leadership, process integration, cooperation, award sharing, risk, goals and vision underlie the concept of supply chain management (Li, et al., 2006).

It is important for the operations of the business to remain competitive because the business environment is getting more challenging. Therefore, implementation of the supply chain is important to improve the operations of the business. This will be later on translated into improved organizational performance. Though supply chain management is not a new strategy, there are still a number of issues which are needed to be addressed. These issues include a lack of understanding towards the practices of supply chain management and a lack of basic knowledge towards supply chain management despite realizing its importance (Mutuerandu and Iravo, 2014).

The basic idea regarding the concept of organizational performance is that the organization is an asset of capital resources, physical resources, human and productive assets used to achieve a shared goal. These assets will be committed to the organization if these assets are giving value to the organization (Kontsevaia & Berger 2017). As a result, the base of performance is
the creation of value. The asset committed will remain available for the organization as long as the value provided is more than the expected value of the asset (Carton, 2004).

There are a number of organizational constituencies upon which the organizational performance can be judged. Therefore, there can be different interpretations regarding the successful performance of a business. Different indicators of the performance are required for different stakeholders to make decisions. As mentioned by Sundram et al (2011); Afande (2015) there are three areas which reference the performance of a firm.

To begin with financial performance consists of return on investment, return on asset and profit. Product market performance consists of market share and sales, and the last is the shareholder return which consists of economic value added and total shareholder return. Thus, there is a need for a unified perspective of organizational performance to execute the research (Mwale, 2014).

The decision to adopt the supply chain practices is dependent upon the management at the top level and bottom level of the organization regardless of the fact that the reason to adopt the green practices is internal proactivity or external pressures. The aim of green supply chain management is to improve the performance of the business-like economic performance, ecological performance, organizational performance, environmental performance, financial performance, economic performance and environmental performance (Zampese, et al., 2016). The aim of this paper is to empirically test a framework which identifies the relationships among the various supply chain processes and organizational performance in perspective of green marketing.

**Literature Review**

**Supply Chain Management Practices**

In the late 1980’s the concept of supply chain management was introduced. The source of its development was traditional logistic management. Before this concept, companies were considered as the single entity having small connections with other companies known as their competitors. Therefore, internal processes and flows were considered by the organizations for decision making. Without considering other organizations, the flows and processes were optimized by the organizations. Resultantly, the cost of optimization was pushed downstream or upstream. Therefore, it did not affect the production of the organization. Supply chain management is focusing on both external and internal flow and processes (Mangan and Christopher, 2005).
The practices of supply chain management are defined as the combination of activities adopted by the organization to promote the management of the supply chain. Researchers proposed practices of supply chain management as multi-dimensional constructs having both downstream and upstream sides (Li, et al., 2006).

**Organizational Performance**

Organizational performance refers to the way organization achieves its objectives regarding financial goals and market-oriented goals. The short-term goal of supply chain management is to decrease the cycle time and inventory and increase the productivity of the organization. Whereas, long term goal is to increase the profit and market share of the organization. Companies have used the financial metrics to measure the performance of the organization (Holmberg, 2000). Any initiative by the organization, including the supply chain management have impact on the performance of the organization. A number of previous researches are conducted to measure the company performance based on overall competitive position, marker shares, sales, ROI, profit margin sales, increase in market share and increase in sales. The ultimate objective of any initiative taken by the organization including supply chain should be to enhance the performance of organization (Stock, et al., 2000).

**Supply Chain Management Practices and Organization Performance**

Practices of the supply chain management impact the competitive advantage and organizational performance of the organization. It is expected that they will improve the competitive advantage through product innovation, time to market, deliver dependability, quality and price of the product. Previous studies indicated that there are a number of supply chain management practices which impact the competitive advantage of the organization. Such as, supplier performance can be enhanced, customer satisfaction can be increased and time to market can be reduced by the strategic supplier partnership. Sharing of information leads to the integration of the supply chain which allows an organization to make the product and deliver it quickly. Sharing of information and quality of information has a positive contribution towards the quality of a partnership and customer satisfaction (Sukati, et al., 2012).

A postponement strategy not only balances the customer responsiveness and balances the global efficiency but also increases the flexibility of the supply chain as well. Organizations having a high level of supply chain management will have an impact on the competitive advantage. A company with a competitor advantage has more than one of the following capabilities, when compared to its competitors: less delivery time, higher dependability,
higher quality products and/or lower prices (Lechner, et.al 2018). The organizational performance will be enhanced as a result of these capabilities. The competitive advantage achieved by the organization may also lead to relationship effectiveness, loyalty, customer satisfaction and economic performance (Li, et al., 2006).

**Green Marketing**

Green marketing is a philosophy regarding organization and integration of marketing thoughts which aims to create a positive impact in the preferences of customers to motivate them to buy environmentally friendly products. The consumption habit of these customers is aligned with such products and the work of the organization provides an integrated marketing mix on the basis of creativity which leads to achieving goals regarding the profitability of the firm. Therefore, the concept of green marketing is based on the modification and use of raw materials and natural resources in a way that is environmentally sustainable. The production process is modified as well according to the basic objectives of green marketing (Al-Hersh and Aburoub, 2015).

On the other hand, researchers have established green marketing as a child of social responsibility. This is because ethical and social considerations are included in green marketing which creates a positive impact of organization on society Kärnä (2003). Also, Stanton et al (2007) presented the definition of green marketing as the combination of activities which create kind transactions and aimed to meet the requirements and needs of humans without harming the environment. Therefore, green marketing is the process developing a product and using the 4p’s in a way that does not damage the natural environment.

When the concept of green marketing is applied by organizations, they deal with high quality products, advertisements that are honest and environmental and social laws to promote the reputation of the firm. This mechanism helps organization to increase the sales and market value of the shares as well (Miles and Covin, 2000).

**Green supply chain management (GSCM) and organizational performance (OP)**

Research on supply chain management started back in the 1980s. This concept represents the important concern to integrate important business processes to create value for stakeholders and consumers (Burgess, et al., 2006). Under green supply chain management, the functions of the supply chain are covered and extended. The relationship with the environment is added
in supply chain management with the addition of the word green. Therefore, the roots of green supply chain management lie in supply chain management (Srivastava, 2007).

Researchers have divided green supply chain management into three areas. The green operations, green design and importance of green supply chain management corporate practices. The part which discusses the corporate practices regarding green supply chain manage is concerned with the initiatives towards the elimination of waste, saving natural resources and increase the productivity. These practices may be termed as reactive if they are adopted to comply with regulation or law. They are considered proactive if they are adopted while anticipating the law (Srivastava, 2007).

The term ‘green’ means to design a product in an environment conscious way, substituting processes and materials that are hazardous, analysing the lifecycle, monitoring the raw material being used from the point of extraction till the usage, flow of materials and energy in the environment. The operations under green operations are divided into waste management, network design, reverse logistic and green manufacturing (Sarkar, 2012).

Organizations take a number of other actions when adopting the greening of supply chain, including sustainability certification. Practices of corporate green supply chain marketing have the capability to create profitability and efficiency, increased sales and impact the market share. It also reduces the rework, optimize the resources, and uses reverse logistics in a way to develop new market opportunities. Researchers have reported a positive relationship between economic performance and environmental management in the manufacturing sector. Green supply chain management is significantly impacted by the financial performance of the firm (Chien and Shih, 2007). The performance of the organization is directly impacted by green supply chain management. The performance can also be improved by green marketing actions (Shang, et al., 2010).

**Green supply chain management (GSCM) and green marketing**

Researchers have reported that supply chain management provides organizations with a competitive advantage. There exists an important connection between marketing and supply chain management. The focus of supply chain management is on collaboration and sharing of information. Whereas, the focus of marketing is towards value addition, creating differentiated products, using valued elements like packaging, services given to customers and brands and other add-ons (Mentzer, et al., 2008). A taxonomy was developed by the researchers for the capabilities of green supply chain management capabilities. As a result, four clusters were formed, namely the green inventory-oriented cluster, green supplier-
oriented cluster, green marketing-oriented cluster and poorly green supply chain management-oriented cluster. From the examination of dimensions and clusters mentioned above, it was found that performance, in terms of marketing, was for the green marketing group. Marketing performance means the profitability, loyalty, customer satisfaction, market share, sales and branding (Shang, et al., 2010).

In the same way, Dahlstrom, (2011) divided green marketing into four sets and practices: pricing strategy (coherence with corporate mission, competitors, legal barriers, demand and cost evaluation); supply strategies; integrated communication (certification, green brands, massage strategies and communication) and market analysis (positioning and segmentation) (Rao and Holt, 2005).

Green marketing (GM) and organizational performance (OP)

The dedication of all stakeholders towards the environment is increasing. Therefore, companies are making products for the consumers that are environmentally friendly. For the same reason, organizations have adopted green marketing to develop and maintain a good relationship with customers (Peattie, 2001). Recent studies into green marketing have divided the history of green marketing into three phases: 1st face is from 1960 to 1986 in which there were no practical results other than awareness created by the government regarding the environment. The second phase is from 1985 to 2000 in which there were limited practical results regarding the ‘greening’. The third phase is from 2000 onwards, this is the phase where organizations started to create products that have less of an impact on the environment (Peattie, 2001).

There are a number of studies showing the importance of green marketing in the area of (Biloslavo and Trnavčevič (2009)) green marketing segmentation, green marketing performance (Shang, et al., 2010); (Fraj, et al., 2011); (Ham and Lee, 2011).

Figure 1. Conceptual Framework

Researchers have tried to find the connection between practices of green marketing and the financial performance of American restaurants. According to the results, the performance of these firms improved a lot by mentioning green practices on their websites (Ham and Lee,
Researchers also evaluated green advertisement by the impact on economic performance of the firm and tried to examine the share value as well. Researchers found that there was a decline in the market value of the firm from the time they adopted green advertisement. Moreover, ads of green products, appointments of managers and recycling efforts had a negative impact on the sales of the product (Mathur and Mathur, 2000).

On the other hand, Fraj et al (2011) revealed that organizations which adopted strategies of green marketing were able to reduce the cost and improve the profitability of their organization. Moreover, it was also revealed that long term performance of an organization is more likely to improve due to environmental practices. Another study conducted by Baker and Sinkula (2005) shows the success of new products that adopted environmental marketing, as their market share increased.

H1: Supply Chain managements has significant impact on the organizational performance
H2: Green marketing has significant impact on the organizational performance.
H3: Green marketing mediates the relationship between supply chain management and organizational performance.

Methodology

A survey method is employed to address the research questions of the study. Primary research method is used to collect data through questionnaires. A total of 331 questionnaires were administered to construction organizations in Indonesia for this study. Several phone calls, reminders were made in an attempt to achieve a high response rate, and SMSs were sent to respondents who were yet to complete their questionnaires after four weeks. (Kaplowitz, et al., 2004); (Porter, et al., 2004). These attempts yielded 195 returned questionnaires, out of 331 questionnaires that were distributed to the target respondents. Seventeen (17) questionnaires out of 195 were unusable because the participants did not complete a significant part of the questionnaires; and those remaining 178 were used for further analysis. This accounted for a 53.7% valid response rate. Therefore, the response rate of 53.7% is adequately considered in the analysis in this study. As suggested by Sekaran (2003) for the sufficient response rate for surveys, 30% is deemed enough.
Results

The Smart PLS Structural Equation Modelling (SEM) is used to test the relationships between the constructs in its conceptual model. SEM, which is recognized as a second-generation approach, is a powerful alternative to the first-generation approach of multiple regressions. While the multiple regression allows for only one dependent variable in the model, SEM can simultaneously handle multiple dependent variables (both techniques allow the inclusion of multiple independent variables) (Andreev, et al., 2009). SEM, which is very popular among behavioural science researchers, offers researchers the ability to incorporate latent (unobserved) variables in the analysis and to perform path-analytic modelling with them. Latent variables are those concepts that cannot be directly observed and measured in the study and which need to be approximated by other measures (also called items or indicators). All of the constructs in this research are latent and they need to be measured via their indicators. SEM couples a structural model (also called an inner model) with a measurement model (also called an outer model).

Henseler et al (2014) conducted a study, where he suggested that the goodness-of-fit (GoF) index is not suitable for the model validation. The measurement model identifies the allocation of measures to latent constructs, while the structural model incorporates the relationships among dependent and independent latent constructs. In due course, this technique enables the research to measure, explain and predict the degree of interrelationships among latent constructs (Chin & Newsted, 1999). According to Henseler et al (2014) in the measurement model assessment, when determining the internal consistency reliability, the individual item’s reliability content validity, discriminant validity and convergent validity are required as shown in the measurement mode. Sekaran (2003) further recommended the use of the few best indicators, for instance one or two indicators are often deemed sufficient. For a model with latent variables to be best estimated, there should be at least two measured indicators in each latent. This is because the degrees of freedom are increased when estimating such a complex model (Kaplowitz, et al., 2004).

Table 1: Convergent and Discriminant Validity

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Loadings</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OP1</td>
<td>0.843</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OP2</td>
<td>0.855</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OP4</td>
<td>0.802</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OP5</td>
<td>0.925</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table: Convergent and Discriminant Validity
According to Henseler et al (2014) convergent validity refers to the degree at which the items represent the intended latent construct which certainly correlates with other measures of the same latent construct. Convergent validity was assessed by examining the Average Variance Extracted (AVE) of each latent construct (Kaplowitz et al (2004)). Chin (1988) recommended that to achieve adequate convergent validity, the AVE of each latent construct should be 0.50 or more. In line with Biloslavo and Trnavčevič (2009) the AVE values in table 4.8 ranged from 0.567 and 0.8771 which revealed high loadings (>0.50) on their respective constructs, indicating that for all the constructs, the convergent validity has been established.

| OP6 | 0.939 |
| OP7 | 0.973 |
| OP9 | 0.932 |
| OP11 | 0.962 |
| GM1 | 0.884 |
| GM3 | 0.955 |
| GM3 | 0.932 |
| GM4 | 0.872 |
| GM6 | 0.832 |
| GM7 | 0.802 |
| GM8 | 0.982 |
| SCM1 | 0.822 |
| SCM2 | 0.855 |
| SCM3 | 0.722 |
| SCM4 | 0.825 |
| SCM5 | 0.841 |
| SCM6 | 0.8 |
| SCM7 | 0.88 |
| SCM8 | 0.881 |
| SCM9 | 0.826 |
| SCM10 | 0.821 |
| SCM13 | 0.882 |
| SCM15 | 0.928 |
| SCM16 | 0.84 |
| SCM17 | 0.921 |
| SCM18 | 0.882 |

According to Henseler et al (2014) convergent validity refers to the degree at which the items represent the intended latent construct which certainly correlates with other measures of the same latent construct. Convergent validity was assessed by examining the Average Variance Extracted (AVE) of each latent construct (Kaplowitz et al (2004)). Chin (1988) recommended that to achieve adequate convergent validity, the AVE of each latent construct should be 0.50 or more. In line with Biloslavo and Trnavčevič (2009) the AVE values in table 4.8 ranged from 0.567 and 0.8771 which revealed high loadings (>0.50) on their respective constructs, indicating that for all the constructs, the convergent validity has been established.
Researcher refer to discriminant validity as the extent to which a particular latent construct differs from other latent constructs. Discriminant validity in the present study was determined using AVE. He further emphasized that it was realized when the correlations among the latent constructs were compared with the square roots of the average variance extracted. In addition the discriminant validity was achieved.

Table 2: Discriminant Validity

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>GM</td>
<td>0.918</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GND</td>
<td>0.731</td>
<td>0.898</td>
<td></td>
</tr>
<tr>
<td>SCM</td>
<td>0.518</td>
<td>0.55</td>
<td>0.801</td>
</tr>
</tbody>
</table>

The next step is the estimation of structural equation modelling through a path diagram. It is a useful technique as it determines the direct and indirect relation among the observed variables. For this reason, structural equation modelling is preferred for the current study. This is done for hypotheses testing. The next stage is the assessment of the structural model after ascertaining the measurement model in this study. Next, bootstrapping through a number of 5000 bootstrap samples and a sample size of 331, to assess the significance of the path coefficients applied. The structural model, according to Henseler et al (2014) illustrates the reliance and dependence of relationships in the hypothesized model. In partial least squares (PLS), structural model takes before the directional relationships between the variables, their t-values and the path co-efficient. Regarding path coefficient, partial least squares (PLS) is entirely like the standardized beta (Std. Beta) coefficient in regression analysis. The study spotlights the evaluation model and then the assessment of the hypothesis of regression and correlation of variables. In the hypotheses structuring perspective, PLSSEM supports Parsimonious models those offer “as few parameters as possible for a given quality of model estimation results”.

Table 3: Direct Effect

<table>
<thead>
<tr>
<th></th>
<th>(β)</th>
<th>SD</th>
<th>T-value</th>
<th>P-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>0.111</td>
<td>0.035</td>
<td>3.161</td>
<td>0.002</td>
</tr>
<tr>
<td>H2</td>
<td>0.467</td>
<td>0.132</td>
<td>3.978</td>
<td>0.007</td>
</tr>
</tbody>
</table>

Indirect effect through mediation is also examined and the results are explained in table 4.
Table 4: In Direct Effect

<table>
<thead>
<tr>
<th></th>
<th>(β)</th>
<th>SD</th>
<th>T-value</th>
<th>P-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3</td>
<td>0.111</td>
<td>0.035</td>
<td>3.161</td>
<td>0.002</td>
</tr>
</tbody>
</table>

The variance explained in the organizational performance by supply chain management and the green marketing is 43 percent.

Table 5: Expected Variance

<table>
<thead>
<tr>
<th></th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCM</td>
<td>43.00%</td>
</tr>
</tbody>
</table>

Conclusion

Supplier performance can be enhanced, customer satisfaction can be increased and time to market can be reduced by the strategic supplier partnership. Sharing of information leads to the integration of the supply chain which allows an organization to make the products and deliver them quickly. The sharing of information and the quality of information has a positive contribution towards the quality of a partnership and customer satisfaction. The prime objective of the current empirical research is to investigate the impact of the supply chain management and green marketing on organizational performance. In addition to that, the current study is also interested in examining the mediating role of green marketing in the relationship between supply chain management and the organizational performance. This article has drawn its attention to supply chain management concepts to discuss managing green marketing. The contribution of this paper will be in the investigation of supply chain management literature, through the lenses of organizational performance and green marketing. The study revealed that practices of supply chain management impact the competitive advantage and organizational performance of the organization. It is expected that they will improve the competitive advantage through product innovation, time to market, deliver dependability, quality and price of the product. Previous studies indicated that there are a number of supply chain management practices which impact the competitive advantage of the organization. In order to achieve high performance, it is important to change every aspect of the supply chain, including process design.
REFERENCES


