Corporate Sustainability Practices and Supply Chain Management Performance of Bahraini Companies: An Initial Survey

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Abstract
Owing to the relatively small area and the decreasing natural resources of the Kingdom of Bahrain, businesses are searching for supply chains that are both sustainable and Greenly friendly. This study was conducted to determine the level of implementation of sustainable supply chain management (SSCM) practices and the effect of these SSCM activities on the efficiency of supply chain companies in Bahrain. Bahraini companies are adopting two classes of SSCM practices: Renewable Packaging and Green Procurement. Five key components that make up the overall SSCM performance of the respondent firms were identified: Operational Performance, Efficiency, Green Performance; Corporate Social Responsibility; and Socio-economic Performance. The use of recyclable materials as packaging and the option of using only items that are safe at their end-of-life have a direct, positive and more importantly, significant impact on operational efficiency. Sustainable SSCM practices of Bahraini firms have a positive and significant impact on their sustainable supply chain efficiency.

Keywords: Green Performance, Renewable packaging, Green Procurement, Recyclable materials, Corporate Social Responsibility and Integrating sustainability

Introduction
More and more industries today are aware that their supply chains face increasingly complex challenges. Due to tightening Green sustainability regulations, methods of discharging waste and other byproducts of manufacturing and service businesses have become more difficult and expensive. Companies face two options. The first is the road to bankruptcy and closure; and the other is to absorb the increasing costs of sustainable practices with the hope of passing it on to the consumer.

This is the same situation faced by companies in Bahrain. As the population of the kingdom increases and its available resources decreases, Bahraini companies must make it a priority to redesign or augment their supply chains to address the newly-discovered flaws in the system. From the perspective of the Balanced Score Card approach, “companies must portray the Greenly friendly image of their products and processes” (Vachon & Klassen, 2006).

Moreover, the latest literature has shown the importance of researches in Sustainable Supply Chain Management practices of companies. While the need to incorporate economic, environmental and social sustainability is academically visible, there is a considerable need to develop a better and more oriented approach to sustainability explicitly in terms of supply chains, given the widespread existence of these fields. The definition, interpretation, study
and practice of sustainable supply chains are essential to this enhanced awareness and the review of applicable literature is the most suitable means for achieving this and guiding future SSCM study (Emerald Gems, 2016).

Sustainable Packaging and Green Procurement are the two main sustainable supply chain management activities that have been evaluated in this study to determine their effect on Sustainable Supply Chain (SSC) quality specific metrics. This study covered the Kingdom of Bahrain’s manufacturing and service industry. The goal of the research was to focus on sustainable supply chain practices within these organizations and their effect on the quality of the sustainable supply chain of the client. The findings gave us a fairly clear view of companies here in Bahrain and their responsible supply chain management practices.

This survey of Bahraini companies was an adaptation of a similar survey conducted on sustainable supply chain management (SSCM) and performance in Malaysia by Zailani et al. in 2012. In that survey, “the researchers investigated the extent of implementation of sustainable supply chain management practices (Green procurement and sustainable packaging) among manufacturing firms. They also examined the outcomes of these practices on sustainable supply chain performance” (Zailani, Jeyaraman, Vengadasan, & Premkumar, 2012).

Packaging end-user products for delivery using eco-friendly or recyclable materials is considered part of the SSCM practices. This is referred to in this study as Sustainable Packaging. Renewable packaging is “packaging that effectively contains and protects products during movement across the supply chain; uses materials and energy efficiently; and is made up of materials that are recycled continuously and does not pose any risks to human health or ecosystems” (James, Fitzpatrick, Lewis, & Sonneveld, 2005).

Given the realization that the organization is no more sustainable than its supply chain, sustainability filters are being used to review the current ways in which supply chains operate. In addition to economic performance, supply chain quality is now calculated against its social and Green performance. Sustainable supply chain management, therefore, promotes a socially responsible way of conducting business and controlling the environment and resources. (Prasad, 2018)

A German study revealed that relational and moral motives are key drivers and that firms exhibiting high levels of moral obligations tend to outperform those primarily driven by amoral considerations (Paulraj, 2017).

Another very recent study highlighted the importance of sustainable supply chains to the environment. “The growing demands for goods, which has been accompanied with a negative effect on the environment and society as it escalates the environmental, social disasters, has led to the increased pressure on supply chains to be sustainable” (Andalib Ardakani & Soltanmohammadi, 2019).

This study was also anchored on the concept that to create an impact on sustainability; the procurement function should be considered as one of the priority areas for the company to focus on. According to Jimenez and Lorente, “Green procurement considers the issue of sustainability in their procurement of inputs on top of the traditional procurement criteria of cost, quality and delivery” (Burgos-Jiménez & Cespedes-Lorente, 2001).

The main objective of the study was to provide an overall picture of the level of implementation of sustainable supply chain management practices between manufacturing and service companies in the Kingdom of Bahrain. Specifically, the goal was to identify the different sustainable supply chain management practices implemented; to evaluate the level of contribution of Green procurement and Renewable packaging to companies and their effect on sustainable supply chain management (SSCM) performance; and to assess the influence and direction of Green procurement and Renewable packaging on the supply chain.

**Survey of Literature**

Kalenyuk et al. thought of sustainable supply chains as part of the company’s social responsibility. He explained that the “implementation of the environmental aspects of social responsibility is not only an integral part of the modern companies’ activity, but it rather permeates through all lines of the business chain through a continuous line. Global ratings of modern companies take into account not only their commitment to the social responsibility
principle but also the degree of implementation in the supply chains. The forms of appearance for the environmental responsibility are expanding, while the requirements for all suppliers, contractors, and stakeholders are increasing” (Kalenyuk, Tysmbal, & Aslanzade, 2019).

Daud and Mokhtar supported this by adding that “The implementation of the Environmental Management System (EMS) in the Green Supply Chain (GSC) is an approach to adopt the green initiatives in the business operations that beneficial to the organization, not just regarding the environmental benefits, but economic and social as well” (Daud, Yusof, & & Mokhtar, 2019).

However, there are always challenges in the implementation of sustainable supply chain systems. In a study conducted in Canada of 100 corporate sustainable development reports and in-depth interviews with Canadian experts, it was found out that “there are many challenges in integrating sustainability into SCM.” These challenges highlight a need for more research on “research that reflects the interconnected nature of the economic, environmental, and social dimensions of sustainability, particularly as it relates to measuring supplier performance on sustainability initiatives” (Morali & & Searcy, 2013).

Despite these inherent challenges, researchers believe that the benefits outweigh the cost. In one of the studies conducted in Brazil, it was found “that innovation and sustainable process management variables play a mediating and moderating role in the relationship between sustainable supply chain and sustainable competitive advantage. The results showed that there is a positive and significant relationship between sustainable supply chain management and sustainable competitive advantage.” (Vafaei, Bazrkar, & Hajimohammadi, 2019) Another study found that “sustainability efforts help reduce supply chain risk, especially in emerging market contexts. Also, we find that, while reactive risk mitigation strategies on their own fail to reduce supply chain risk, they are effective when used in conjunction with sustainability efforts” (Gouda & Saranga, 2018).

In the context of company-supplier relationship, it is worth noting that “businesses are also in a global competition over resources; if companies from one part of the world impose tough sustainability requirements on their suppliers, those suppliers may look into selling to customers in other parts of the world” (Grant, Trautrim, & Wong, 2017).

SSCM production involves attention and includes co-operation on the supply chain and the active involvement of members of the supply chain (Kirchoff, Tate, & Mollenkopf, 2016). In the areas of wastes, environmental data on purchased materials (Rivera-Camino, 2007), the development of creative environmental enhancement method (Kusi-Sarpong, Sarkis, & Wang, 2016) material recycling or energy conservation (Gold, Seuring, & Beske, 2010), and successful planning and coordination have been identified for supply chain areas.

Leadership is also a factor in establishing an efficiently-performing sustainable supply chain. A study of 653 managers of Thai SMEs “highlighted that transformational leadership has a positive impact on developing organizational sustainability capabilities. Further, organizational sustainability capabilities enhance organizational sustainable supply chain management performance.” (B., 2019).

Research Method and Design

The research used a descriptive model based on a survey of the sample population of manufacturing and service firms in the Kingdom of Bahrain. Such a model is also necessary to achieve the research objective of creating a kind of preliminary image of the state of sustainable supply chain management (SSCM) by Bahraini companies. The survey approach, using a standardized assessment tool tailored to the firms concerned, is intended to provide a consistent view across the respondent firms. The standardized appraisal stock provided for equivalent qualitative outcomes across the respondent companies.

In the Malaysian study, it was discovered that medium-sized companies tend to adopt SSCM practices compared to smaller-sized firms (Zailani, Jeyaraman, Vengadasan, & Premkumar, 2012). This high rate of adoption could be related to the availability of resources for the firm to use to ensure the adoption of SSCM practices. Taking this into consideration, the study utilized stratified random sampling in the conduct of the study.

The steps taken to collect the data in this particular study were as follows:
1. Initial visits were made to the identified respondent firms to get their commitment to being involved in the study, preceded by a request letter asking for their inclusion in the study of their SSCM practices. Respondent firms are companies belonging to the manufacturing and services sector of the Kingdom.

2. After securing approval from the key officers of the respondent firms, and the key informants have been identified in each respondent firm, the administration of the assessment questionnaire was conducted at the offices of these key officers / informants.

3. The responses to the Sustainable Supply Chain Management (SSCM) assessment inventory were tabulated as well as to their rating of the organizational supply chain performance. The answers were pre-coded and tabulated for data analysis.

Data Treatment
1. Descriptive statistics describing the Supply Chain Management assessment inventory scores. Mainly descriptive statistical tools were used following the nature of the study in terms of frequencies, ranges, maximums, minimums, and medians. Where applicable, matrices showing the patterns of assessment inventory scores across respondent organizations were prepared.

2. Principal Components Analysis (PCA) or Factor Analysis with Varimax rotation was completed first before multiple regression analyses to validate the appropriateness of the scale used for measuring SSCM performance.

3. Multiple Regression Analysis. MRA was done on Green Procurement and renewable packaging practices to identify and measure their respective relationships on the five dependent variables of individual SSCM performance. All tests of significance were set at 0.05%.

The study mainly focused on self-reported experiences and assessments of key informants in a sample population of selected Bahraini manufacturing and service industry firms. It did not attempt to be a definitive and comprehensive study of Supply Chain management implementation among all companies in the Kingdom of Bahrain. The methodology used allowed only descriptive insights into the problem at hand. No strong causal statements or conclusions were made or justified.

Results and Discussions
Data with statistical treatments are interpreted using the above-specified criteria and techniques.

Company Profile of Respondents
As regards the size of the companies, more than 53% of the respondents come from companies that have up to 50 employees, followed by 31.48% of respondents coming from 51-100 employees. As to the number of years in operation, 67.59% of respondents come from companies that are relatively young-less than five years in operation. This is followed by 19.44% of respondents who come from companies between 5-9 years in operation.

Determining sustainable practices for the supply chain as implemented by respondent firms and their level of implementation, the practices were ranked according to the degree of implementation on a Likert scale wherein 5 is the strongest level and 1 is the weakest level. The scores achieved by each SSCM practice were tallied and ranked according to the strongest level of implementation. Based on similar studies, SSCM practices were grouped into two types- Green Procurement and Sustainable Packaging. There are six practices listed under Green Procurement and eight under Sustainable Packaging.

Table I on the next page shows the results on the ranking of these practices in order of implementation by respondent companies, with Rank 1 as the strongest level of implementation of the SSCM practice.

Table 1: SSCM Practices Implemented by Respondent Companies and their Level of Implementation

<table>
<thead>
<tr>
<th>Green Procurement Practices</th>
<th>Total Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participates in designing products for disassembly</td>
<td>372</td>
<td>1</td>
</tr>
<tr>
<td>Use life-cycle research to measure the Green friendliness of goods and packaging</td>
<td>367</td>
<td>2</td>
</tr>
<tr>
<td>Buy products that are lighter in weight</td>
<td>365</td>
<td>3</td>
</tr>
<tr>
<td>Purchases recycled packaging</td>
<td>364</td>
<td>4</td>
</tr>
</tbody>
</table>
Calls on manufacturers to adhere to waste management targets 363 5
Participates in the production of recycled and reused materials 357 6

<table>
<thead>
<tr>
<th>Sustainable Packaging Practices</th>
<th>Total Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meets quality and price industry requirements</td>
<td>394</td>
<td>1</td>
</tr>
<tr>
<td>Physically built to maximize material and energy</td>
<td>389</td>
<td>2</td>
</tr>
<tr>
<td>Beneficent, safe and healthy for individuals and communities across their entire life cycle</td>
<td>388</td>
<td>3</td>
</tr>
<tr>
<td>Manufactured using green manufacturing methods and best practices</td>
<td>387</td>
<td>4</td>
</tr>
<tr>
<td>Effectively recovered and used in the biological and manufacturing processes from cradle to cradle cycle.</td>
<td>385</td>
<td>5</td>
</tr>
<tr>
<td>Maximize the use of green and reused source materials.</td>
<td>382</td>
<td>6</td>
</tr>
</tbody>
</table>

Sourced, generated, transported and recycled with renewable energy 378 7
Constructed from natural products in all possible end-of-life situations 377 8

From Table 1, we can surmise that the highest-ranked or strongest level of implementation for Green procurement is that of “Participates in designing products for disassembly.” For sustainable packaging, the top-ranked SSCM practice is that of “Meets quality and price industry requirements.”

The Level of Influence and Significant Relationship of SSCM Practices on Sustainable Supply Chain Performance

Before testing this study’s hypotheses to determine the level of impact and the significant relationship between SSCM activities on sustainable supply chain quality, Factor Analysis with Varimax rotation was first performed to verify the suitability of the scale used to evaluate SSCM output. The results of the value variable analysis of the sustainable supply chain are shown in Table II below.

Table 2: Factor Analysis for Sustainable Performance in the Supply Chain

<table>
<thead>
<tr>
<th>Component</th>
<th>Operations</th>
<th>Efficiency</th>
<th>Environment</th>
<th>CSR</th>
<th>Socio-economic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations</td>
<td>Var00002</td>
<td>.841</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Var00001</td>
<td>.821</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Var00003</td>
<td>.764</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Var00004</td>
<td>.628</td>
<td>.441</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficiency</td>
<td>Var00005</td>
<td>.805</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Var00006</td>
<td>.784</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Var00007</td>
<td>.606</td>
<td>.434</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-Economic</td>
<td>Var00013</td>
<td>.865</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Var00014</td>
<td>.739</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Var00012</td>
<td>.661</td>
<td>.409</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSR</td>
<td>Var00011</td>
<td>.823</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Var00010</td>
<td>.822</td>
<td>.312</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>Var00008</td>
<td>.764</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Var00009</td>
<td>.303</td>
<td>.737</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.; Rotation Method: Varimax with Kaiser Normalization.a

a. Rotation converged in 6 iterations.
The results show that there are five principal factors/components extracted from the analysis instead of the four components derived in the earlier model of the study conducted by Li et al. (Li, 2006). Varimax rotation was used to verify that the output of SSCM is characterized by five constructs. Extracted original values greater than 1.0, which clarified 68,976 of the overall variability. The sampling adequacy measure for KMO was 0.645, suggesting enough inter-correlation while the sphericity test for Bartlett was important (Chi-square= 436.6, p=0.001). This finding suggests that the construct is one-dimensional and factory distinct and that all products used to calculate a particular construct are loaded on five factors.

The result of the Factor analysis was used to develop the conceptual framework in the study. Instead of just one dependent variable or outcome (SSCM Performance), it is further subdivided into five (5) components. This is reflected in Figure 1 on the next page.

![Figure 1: Modified Conceptual Framework](adapted from S. Zailani et al., 2012)

The researcher determined the effect of different practices of Green procurement and renewable packaging on individual measures of sustainable supply chain management (SSCM) performance.

The following hypotheses and sub-hypotheses were tested in this study:

**H1.1. Green Procurement has a positive influence on SSCM performance**
- H1.1a. Green procurement has a positive influence on the performance of the company.
- H1.1b. Green procurement has a positive influence on efficiency.
- H1.1c. Green procurement has a positive influence on sustainable efficiency.
- H1.1d. Green procurement has a positive influence on CSR performance.
- H1.1e. Green procurement has a positive influence on socio-economic performance.

**H1.2. Renewable Packaging has a positive influence on SSCM performance**
- H1.2a. Renewable packaging has a positive influence on the company’s performance.
- H1.2b. Renewable packaging has a positive influence on efficiency.
- H1.2c. Renewable packaging has a positive influence on sustainable efficiency.
- H1.2d. Renewable packaging has a positive influence on CSR performance.
- H1.2e. Renewable packaging has a positive influence on socio-economic performance.

To determine the influence of the independent variables (Green Procurement and Sustainable Packaging) on individual measures of SSCM Performance, regression analysis was used. The following tables only show the results of the study of regression between the variables which show statistically significant relationships.

**Sustainable Packaging to Operations Performance**

The findings of the regression analysis from Renewable packaging to Operations Performance are shown in Tables III and IV below.

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.284*</td>
<td>.081</td>
<td>.072</td>
<td>.61858</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.364*</td>
<td>.133</td>
<td>.116</td>
<td>.60383</td>
<td>1.893</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), VAR00004; b. Predictors: (Constant), VAR00004, VAR00008; c. Dependent Variable: VAR00010
The R values above are 0.284 and 0.364, which indicates both weak and medium strength correlations between Variables 4 and 8. In the case between Renewable packaging to Operations Performance, the R² value is only 9% that can be explained.

However, unlike the other independent variable, Table IV indicates that the two regression models for Variable 4 (Maximize the use of green and reused source materials) and Variable 8 (Constructed from natural products in all possible end-of-life situations) predict the dependent variable significantly. The statistical significance of the regression models are p = 0.003 and p = .001, respectively, which are both less than 0.05, and indicates that, overall, the regression models are statistically significant predictors of Operations Performance as an SSCM.

### Hypothesis Testing Results

In this study, the researcher tested two groups of hypotheses based on the influence of the two independent variables of Green Procurement and Renewable packaging on five individual measures of SSCM Performance.

Based on the results of the regression analyses, the following is a summary of the results of testing the various hypotheses:

**H1.1. Green Procurement has a Positive Influence on SSCM Performance**

There is no significant relationship between Green Procurement and the factors of Operational Performance; Efficiency; Green or “Green” Performance; CSR Performance; and Socio-Economic Performance, thus we reject all the hypotheses covered under H1.1.

**H1.2. Renewable Packaging has a Positive Influence on SSCM Performance**

There is no significant relationship between renewable packaging and Efficiency; Green or “green” performance, CSR performance and socio-economic performance.

However, there are positive significant relationships between Green Procurement and two variables of socio-economic performance. Thus we accept hypothesis H1.2a. The two renewable packaging practices that have a significant and positive effect on Operational Performance are:

**Variable 4** - Maximize the of renewable or recycled source materials.

**Variable 8** - Made from materials healthy in all probable end-of-life scenarios.

### Summary of Findings

The results are described as follows based on the data collected and analyzed by the researcher:

1. In terms of defining the numerous Sustainable Supply Chain Management practices adopted by manufacturing and service firms in the Kingdom of Bahrain and their level of implementation of these practices, it was first discovered that Bahraini firms’ SSCM practices could be divided into two categories—Green Procurement and Sustainable Packaging. There are 6 Sustainable Procurement practices and 8 Renewable packaging practices that endorse previous SSCM literature (Zailani, Jeyaraman, Vengadasan, & Premkumar, 2012).

2. It was found out that the strongest level of implementation of Green Procurement practice is on “Participate in the design of products for disassembly.” This shows that Bahraini employees, specifically supply chain executives, have a strong desire to learn and participate in the technical and practical design of their products. This paves the way for creative, practical and innovative SSCM ideas and is a positive attitude that must be encouraged by management.

3. For Renewable packaging practices, the strongest level of implementation is on the practice of “Meeting market criteria for performance and
cost.” Bahraini firms still hold on to a market-centered supply chain management operation. This is clearly shown in the final result of the survey.

4. Before running the multiple regression analyses, the researcher conducted Principal Components Analysis (PCA) or Factor analysis with Varimax rotation. Sustainable supply chain performance factor review results show that, despite previous literature showing only four individual SSCM quality measurements, there are five (5) main components or SSCM performance measurements for this research. These are Operational performance; Efficiency; Green or “green” performance; Corporate Social Responsibility; and, Socio-economic Performance.

The relationship and extent of influence of SSCM practices on the aforementioned individual measures of SSC performance are found out using Multiple Linear Regression. The results show that out of the ten pairs of relationships between SSCM practices and performance, there is only one significant pair of relationship, and that is between operational efficiency and the two practices of Renewable packaging which are “Maximize the use of green and reused source materials” and “Constructed from natural products in all possible end-of-life situations.” Bahraini firms and their employees believe that the practice of using recyclable materials (such as paper) as packaging and using only materials that are healthy at their end-of-life forms contribute significantly to improvement in operational performance.

It is interesting to note that the findings of this study are also supported by current researches on SSCM. In a study of oil and gas distribution companies in Romania and Moldova, it “concluded that Sustainable Supply Chain Management strategies have a positive and significant influence on Supply Chain Management functions, both overall and on each of the functions considered in the study.” (Florescu, 2019)

Conclusion and Recommendations

From the above summary of findings, the researcher makes the general conclusion that the Bahraini firms who practice sustainable packaging through the use of recyclable materials (such as paper) as packaging and using only materials that are healthy at their end-of-life forms experience improved operational performance. This also indicates that Bahraini firms place a high priority on sustainable supply chain practices, particularly in the use of recyclable packaging materials to improve their operational performance, perhaps in the area of profitability and fiscal management.

Integrating sustainability with business operations and strategy is fast becoming a reality today. The practice of SSCM points the way forward for Bahraini companies and organizations to proactively assume full responsibility for their products that is both sustainable and environment-friendly. This study proves that at least two SSCM practices have a significant and direct influence on the sustainable supply chain performance of the firm. These sustainable packaging practices were found to have a positive effect on the firm’s operational performance. This means that these two practices can bring value to both the business firms and the environment where it operates.

The following recommendations are given based on the conclusion:

1. That the study expands in scope to include more business firms in Bahrain to prove the robustness of the conceptual model.
2. That Bahraini firms focus on other SSCM practices, particularly those that are still unclear on their effects on individual measures on SSCM performance.

Research Limitations and Areas for Further Study

One main limitation of the study was the low retrieval rate of the questionnaires due to factors such as non-response among company executives. One of the main causes of the low-retrieval rate is the low priority afforded by supply chain or logistics executives on the answering of the questionnaire. Their hesitancy to answer is also due to some company policies that do not allow the release of data they consider as sensitive, although it has been explained by the researchers that no names of individuals or business firms will be published.

Further research can be conducted to investigate
to determine the reasons by companies in adopting sustainable supply chain management practices. Additional research should also be undertaken to investigate the reasons behind the moderation of certain SSCM practices on firm performance, especially those that seemingly have a negative association with firm performance metrics. To this end, future researchers are challenged to undertake studies that will develop a deeper understanding of the individual relationship of SSCM practices on firm performance. Another challenge for future research is on determining the direct financial benefits, if any, derived from increased or improved SSCM performance. Attributes such as the cash-to-cash cycle and inventory dwell time are interesting variables to be studied for future research.

References


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