

EFFECT OF ORGANIZATIONAL CHANGE ON SUSTAINABLE SUPPLY CHAIN MANAGEMENT: A STUDY OF MALAYSIAN SME MANUFACTURERS

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ABSTRACT

The firm's change strategy is important to adapt to new changing business environment. As the organizational change is a common phenomenon in a highly competitive business environment with respect to its effect on supply chain management, this study aims to develop an integrative approach on the relationship among organizational change, supply chain disruption, sustainable supply chain management and supply chain resilience. Using data from 324 SME manufacturers, the hierarchical regression analysis shows that there is significant relationship among these variables. Several plausible causal effects are also discussed. In addition, this study offers insight about the impact of organizational change on supply chain management.

Keywords: Organizational change; Supply chain management; Supply chain disruption; Supply chain resilience

INTRODUCTION

Many firms actively practice organizational change (OC) under the harsh economic environment as a mean to reduce their operational costs, eliminate the weaknesses in functional processes, revise the existing business practices and enhance the resource allocation (Todnem, 2005). Albeit OC is essential to improve the firm's financial performance, it also has potential to create risk to firm's operational and supply chain activities. When the environments change, the organization must be flexible enough to respond at a faster pace. Past studies generally show that the managerial decision on change is a spontaneous strategy choice in response to dynamic business environment. Poor management of change may lead to supply chain disruption (SCD). SCD can emerge as the hidden or unpredictable risk if the management lack awareness on its supply chain operation (Teller *et al.*, 2016). The impact of SCD may extend to the destruction of sustainable supply chain management (SSCM). In this regard, the supply chain resilience (SCR) is an effective tool to mitigate all supply chain risks. The Malaysian SME manufacturers are constantly pressured by the rapid change of business environments such as labour cost, new governance regulations, technology advancement, customer's demand, production cost, and social responsibility (MNC in Malaysia, 2019; March, 1981). Many problematic firms are in favour of practising OC as a resort to overcome the critical business difficulties (Kache and Seuring, 2014; Forslund and Jnsson, 2009) regardless of its impact to firm's SSCM. This study as such aims to examine the relationship among aforementioned variables with emphasis on SME manufacturers.

LITERATURE REVIEW

There are two underpinning theories in this study. These are Resource-based View (RBV) theory and Prospect theory. RBV theory has been applied to investigate a variety of sub-disciplines in supply chain management (SCM) field. The sub-disciplines include supply chain disruption (SCD) (Bode *et al.*, 2011; Brandon-Jones *et al.*, 2014), sustainable supply chain management (SSCM) (Shibin *et al.*, 2017) and supply chain resilience (SCR) (Bhamra *et al.*,

2011; Bertram, 2016). The Prospect theory on the other hand is mainly used to theorize the behaviour of an individual in perceiving risk and opportunity (Edwards, 1996; Holmes *et al.*, 2011). Although not many studies in the past explored OC in the context of Prospect theory, several studies revealed the relevance of OC towards Prospect theory. This relevance is based on the OC formulation which involves the evaluation of risk that creates uncertainty (Todnem, 2005; Burke, 2018) and also advantages to retain the sustainability of business (Benn *et al.*, 2014; Chattopadhyay *et al.*, 2017).

OC is a process that covers broad perspective of business strategy approaches (Strandholm *et al.*, 2013). In specific, OC is the process by which organizations move from their existing state to some desired future state in order to increase their effectiveness. This study recognizes that the downsizing and restructuring strategies are actively practiced by Malaysian firms. Tsai and Shih (2013) discovered that downsizing influences the overall supply chain performance. Downsizing and restructuring as such contributed to the uncertainty of a manufacturer’s SCM. This uncertainty can disrupt the existing organization’s sustainable management (Benn *et al.*, 2014; Burke, 2018). Therefore, the change in the existing SCM due to OC strategy can pull down the supply chain integration between customer and supplier (Shub and Stonebraker, 2009; Bode *et al.*, 2011; Zhao *et al.*, 2013). Therefore, SCD is inevitable during OC.

Based on the theories (Prospect theory and RBV), the conceptual framework of this study consists of four main interrelated variables as shown in Figure 1 below:

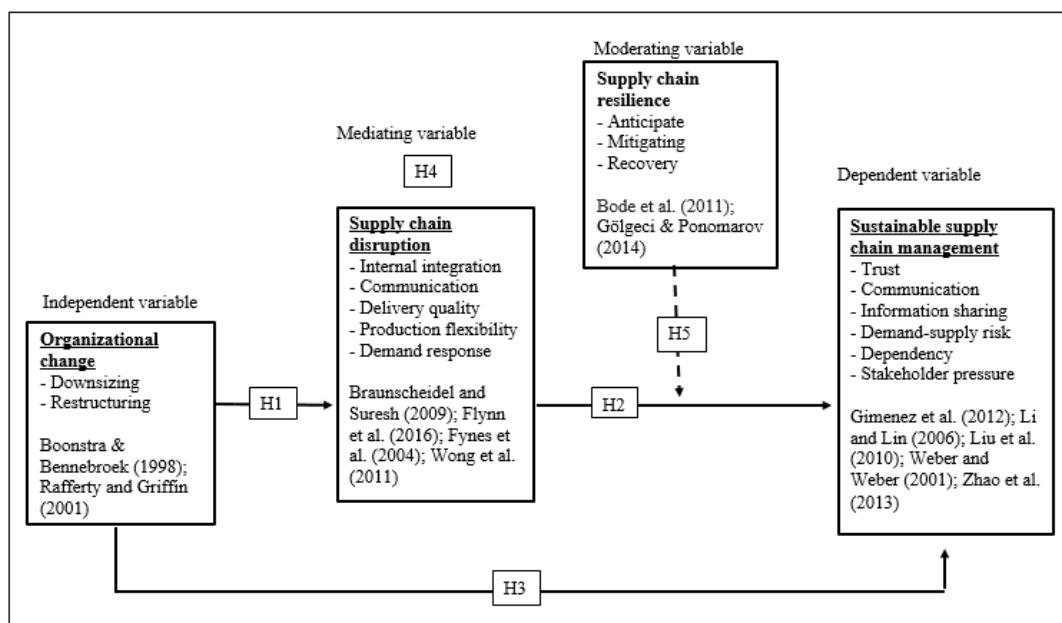


Figure 1: Conceptual Framework

Those two theories provide a clear paradigm on understanding the interrelationship between the variables and their importance in elaborating the hypotheses development of the present study. Prospect theory describes how management’s perception of OC is accompanied by the willingness to take risks and uncertainty in existing supply chain operational activities (Kache and Seuring, 2014). Thus, Hypothesis 1 can be stated as:

H1: There is a relationship between OC and SCD

Based on the RBV perspective, supply chain disruption (SCD) can eliminate the competitive advantage of the firm's operational SCM activities (Stevens and Johnson, 2016; Pagell and Shevchenko, 2014). Simangunsong et al. (2012) found that uncertainty of business due to disruption of resource structures occurred after the implementation of OC. The massive layoff of employees cause various challenges such as loss of business intelligence (knowledge-based) and trust of employees (Clarke, 2005). Sustainable SCM is vulnerable to any disruption because it highly relies on resources such as information-sharing, trust, knowledge and experience of employees (Stevens and Johnson, 2016; Beske and Seuring, 2014; Alfalla-Luque et al., 2012; Ambrose et al., 2010; Power, 2005). RBV proposed a close collaborative relationship grounded on the trust and dependency between business and stakeholders to gain competitive advantage (Bode et al., 2011). Based on the argument given above, Hypothesis 2 is proposed as follows:

H2: There is a relationship between SCD and Sustainable SCM

Prospect theory highlights the importance of the top management to evaluate the pros and cons of OC, especially its impact on current business operational activities (Burke, 2018; Schmitt and Raisch, 2013). Chattopadhyay et al. (2017) described that the hesitation of managerial decision on a firm's OC goes beyond the financial gain or loss. Kahneman and Amos (1979) explained that the cognitive psychology that influences the individual choice between probabilistic alternatives that involve risk or the probabilities of outcomes are uncertain. Most of OC decisions are merely based on the potential value of losses and gains rather than the final outcome. Thus, there is a need to investigate whether the managerial decision of OC considers the impact on sustainable SCM. Thus, the Hypothesis 3 is proposed as follows:

H3: There is relationship between OC and sustainable SCM

Change in terms of downsizing strategy is often done by massive cuts of the firm's resources (i.e. human capital) in a short period (Datta *et al.*, 2010; Strandholm et al., 2013). The loss of a key person in communication network of SCM can lead to SCD (Macdonald and Corsi, 2013; Scheibe and Blackhurst, 2017) and thus affects sustainable SCM. This indicates that SCD provides a linkage (also known as mediating) in the relationship between OC and sustainable SCM (Innes and Littler, 2004; Noronha and D'Cruz, 2005). Since every firm is keen to attain sustainable SCM by reducing and removing the cost of unneeded resources (Benn *et al.*, 2014), OC also plays a significant role in restructuring the firm's resource from wastage to a more efficient and proper resource utilization (Benn *et al.*, 2014; Pettigrew *et al.*, 2001). In this regard, the Hypothesis 4 states that:

H4: SCD mediates the relationship between OC and sustainable SCM

SCR is a prominent strategy to reduce the impact of SCD (Pettit et al., 2010). However, the moderating effect of SCR on the relationship between SCD and sustainable SCM remains pristine in the literature. The development of SCR field in literature is mainly focused on general contribution to the overall firm's financial and non-financial performance (Li et al., 2017; Chowdhury and Quaddus, 2016; Bhamra et al., 2011; Kamalahmadi and Parast, 2016). Pettit et al. (2010) suggested that SCR should be extended to examine the causal effect on sustainable SCM. Thus, the Hypothesis 5 states that:

H5: Supply chain resilience moderates the relationship between SCD and sustainable SCM

METHODOLOGY

The sampling frame of this study mainly consists of Malaysia's SME firms from the manufacturing sector. The sampling frame includes the list of sampling population that was retrieved from online directories, such as www.smecorp.gov.my, www.infopages.net.my, and www.smeam.org. The unit of analysis for this study is staff who works in SME of manufacturing sector in Malaysia. However, the selection of individual or respondent is constrained to staff whose work is related to supply chain management. Moreover, respondents who have working experience (more than 2 years in SCM) and position (senior executive and above) are preferred in this study. This study adopted or adapted the questionnaire items from past studies in the literature. All these questionnaire items are structured and are presented as close-ended questions for all four main constructs. This study used the Structural Equation Modelling (SEM) to examine all five hypotheses.

STATISTICAL RESULTS

The convergent model validity was initially analysed, including indicator load, established average variance (AVE) and CR. The result shows the loading of indicators for all products are above the minimum of 0.708 value as recommended by Hair et al. (2016). However, items OC1, SD1, SD7, SCR3, SCR6, SCM6, and SCM3 were removed with a load factor of less than 0.5 because of the recommended value of 0.50 of the AVE of the latent variable for this item. The AVE range of all variables ranged from 0.589 to 0.891, above recommended 0.50 values, and the CR range ranges from 0.801 to 0.875 which are greater than recommended 0.70 values suggested by Hair et al. (2016). This study thus ensured that convergent validity exists.

Table 1: The Results of Measurement Model

Variable	Item	Loading	Cronbach's Alpha	CR	AVE
OC	OC2	0.688	0.801	0.859	0.554
	OC3	0.881			
	OC4	0.689			
	OC5	0.834			
	OC6	0.591			
	OC6	0.591			
SCM	SCM1	0.795	0.875	0.901	0.507
	SCM10	0.773			
	SCM11	0.589			
	SCM2	0.824			
	SCM4	0.597			
	SCM5	0.645			
	SCM7	0.640			
	SCM8	0.701			
	SCM9	0.796			
	SCM9	0.796			
SCR	SCR1	0.845	0.826	0.876	0.545
	SCR2	0.891			
	SCR4	0.626			
	SCR5	0.744			
	SCR7	0.628			
	SCR8	0.652			
SD	SD2	0.668	0.803	0.863	0.558
	SD3	0.765			
	SD4	0.764			
	SD5	0.782			
	SD6	0.750			
	SD6	0.750			

Note: Organizational Change= OC; Sustainable Supply Chain Management = SCM; Supply Change Disruption = SD; Supply Change Resilience = SCR

Heterotrait-Monotrait (HTMT) ratio is used to check the discriminant validity of the model. Henseler et al. (2015) explained that in comparison with other methods like the Fornell-Larcker criterion, the HTMT ratio is the highest criterion. They proposed two different HTMT threshold cut off values of 0.85 and 0.90 for discriminant validity. This analysis used 0.90 (i.e. HTMT.90) criterion to determine the discriminant model’s validity. The result shows that the model to have discriminating validity, as all the HTMT.90 parameter tests were below the critical value of 0.90. In fact, there has been ample convergence and disparity in the measuring model.

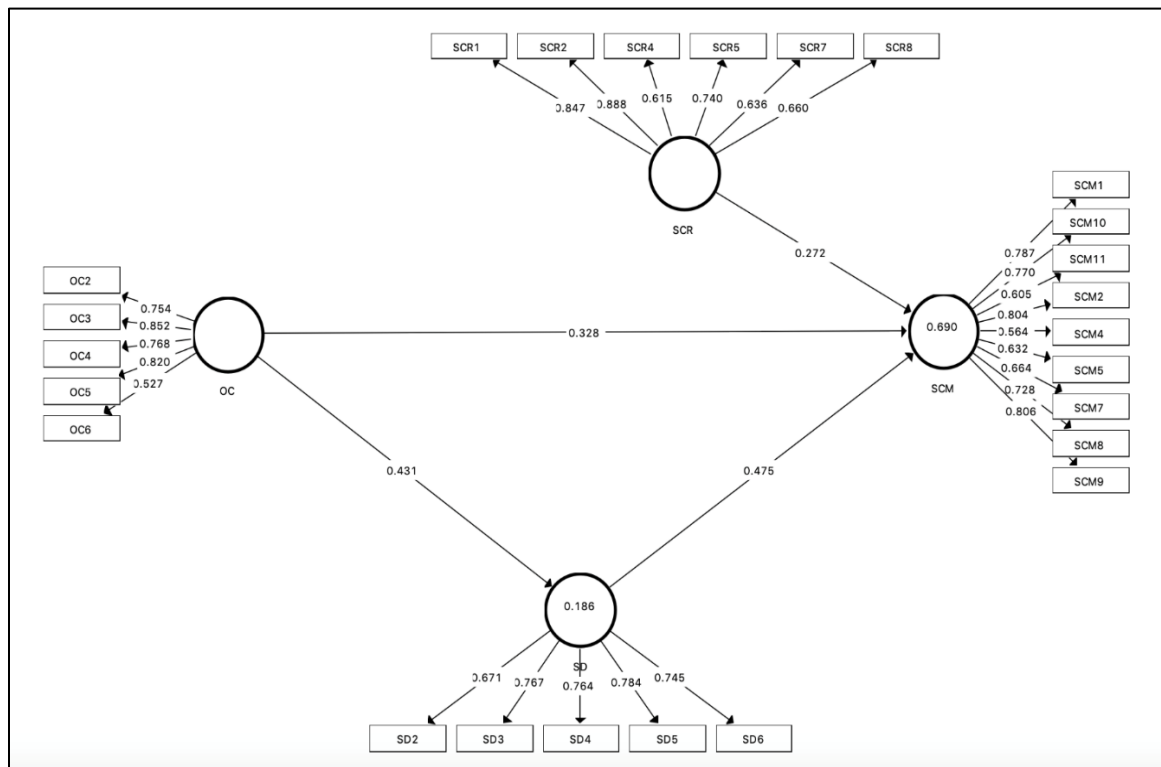


Figure 2 : Output of Measurement Model

For the analysis of direct hypothesis result, the last hypothesis tested was H3 which shows the path of SD → SSCM with the beta value 0.576, Std error 0.038. The t-value of the hypothesis exceeds the minimum accepted value for one tail hypothesis with 14.970. This shows that the p-value for the hypothesis is less than 0.01 showing that the hypothesis is highly significant. The lower limit of the path was 0.499 and the upper limit was 0.651. Hence, the findings of the study concluded that the hypothesis is significantly accepted.

Table 2: Results of Structural Model Analysis (Direct Hypothesis)

HYP	Path	Beta	Std. Error	t-values	p-values	2.50%	97.50%	Decision
H1	OC → SD	0.432	0.041	10.489	0.000	0.354	0.512	Supported
H2	OC → SCM	0.353	0.048	7.291	0.000	0.256	0.449	Supported
H3	SD → SCM	0.576	0.038	14.970	0.000	0.499	0.651	Supported

Note: Organizational Change= OC; Sustainable Supply Chain Management = SCM; Supply Change Disruption = SD; Supply Change Resilience = SCR

**p < 0.01, *p<0.05 (based on one-tailed test)

The specific indirect effect analysis shows that supply chain disruption mediates the relationship between organizational change and sustainable supply chain management with $\beta = 0.249$ and confidence interval (LL) 0.202 and (UL) 0.298. Thus, H4 was found to be supported.

Table 3: Results of Mediation (Indirect Hypothesis) analysis

HYP	Path	Beta	Std. Error	t-values	p-values	2.50%	97.50%	Decision
H4	OC → SD → SCM	0.249	0.025	10.098	0.000	0.202	0.298	Supported

Note: Organizational Change= OC; Sustainable Supply Chain Management = SCM; Supply Change Disruption = SD; Supply Change Resilience = SCR

**p < 0.01, *p<0.05 (based on one-tailed test)

The results of moderation analysis found that supply chain resilience moderates the relationship between supply chain disruption and sustainable supply chain management, and as such H5 was found to be significant.

Table 4: Results of Moderation Analysis

HYP	Path	Beta	Std. Error	t-values	p-values	Decision
H5	SD*SCR → SCM	0.053	0.028	1.911	0.057	Supported

Note: Organizational Change= OC; Sustainable Supply Chain Management = SCM; Supply Change Disruption = SD; Supply Change Resilience = SCR

**p < 0.01, *p<0.05 (based on one-tailed test)

DISCUSSION

The findings indicated that OC disrupts SCM in several aspects such as i) communication process interference; ii) vital information not exchanged; iii) affecting the productivity of the production; iv) the quality of products/services delivery declined; v) the existing operational activities become ineffective before adapting to the new changed working environment. On the other hand, the SME manufacturers perceive their SSCM is affected by SCD when there is insufficient information sharing among departments. The SCM performance declines due to inability to deliver on-time action (information blocked). The study of Wolf (2014) supports this finding because small companies (including SME manufacturers) are keen to establish an effective information-sharing system where their simple organizational structure is an added advantage to pursue this goal.

Many practitioners perceive the change strategy as a non-essential strategy for an organization. The finding reveals that SME manufacturers generally perceive OC as an unfavorable strategy to their SCM. Todnem (2005) supported this result where the change strategy is deemed as a contingency strategy instead of a planned strategy. In this regard, the SME manufacturers are pursuing OC to improve their efficiency and competitiveness despite contributing to SCD. The customers are impressed with the supplier's high efficacy responses to their demand, which is an added advantage to score the supplier's competitiveness (outperforming competitors).

This study has proven that the smooth information sharing exchange in an organization significantly reduces the negative impact of SCD, such as gaining mutual trust. The result also indicates that the SME manufacturers should provide the essential information to other departments in the early stage of OC. This prior information exchange between departments increased the chance to make change strategies implementation much more successful. The SME manufacturers also tend to practice high frequency of operational information sharing to increase the sustainability of SCM. Malaysian SME manufacturers as such are raising awareness on the importance of an information sharing system especially to reduce the impact of SCD on SSCM.

The SME manufacturers are found to perform well the SCR strategies to mitigate the SCD in order to maintain their SSCM. The small companies with its simple organization structure manage to respond to any supply chain risk faster (Scholten et al., 2014; Vanany et al., 2009). Thus, the SME manufacturers are generally able to resolve the impact of SCD during organizational change. The findings also revealed that the information sharing system or knowledge management is well preserved among SME manufacturers in order to monitor the SSCM performance. The SME manufacturers will use their strength of organizational structure to control over functional performance, and this can emerge as the SCD monitoring mechanism (Gölgeci & Ponomarov, 2014).

LIMITATIONS OF STUDY

Although this study has achieved the stated objectives, there are several limitations are worthy of discussion. First, the sampling strategy used is confined to SME manufacturer in Klang Valley, Malaysia. For those manufacturers that are not in this specific area, they were excluded in the sampling frame. The results as such may not be generalized to other manufacturers from other parts of the country. However, as the SME manufacturers are focused in Klang Valley, this area is recognized as a strategic geographical location in Malaysia where most SME manufacturers established their businesses (SME Annual Report, 2017/18). The high intensity of SME manufacturers presence in Klang Valley can be indicative of Malaysian SME business culture.

In addition, this study is conducted as quantitative research. All measurement instruments are designed to provide the empirical evidence, thus, it lacks qualitative evidence. It is believed that there are other evidences that are overlooked in this study especially the manager's qualitative comments. The empirical findings of this study are limited in term of change strategy literature, thus other OCs that influence the supply chain management are not presented in the results. Finally, this study only focused on food and beverage SME manufacturers. Other industries under the purview of SME manufacturers were not covered, thus the result might not generalizable to other SME manufacturers that have different experiences on change strategies implementation.

RECOMMENDATION

Future studies should utilize the framework developed in this study by adopting new theories. Those theories include knowledge-based theory and Agency theory. Moreover, future studies should also revalidate the framework onto different SME industries besides food and beverage manufacturers. These industries may comprise electronic manufacturer, mould and die manufacturer, and plastic manufacturer. Finally, future research also could adopt new variables to reconstruct the framework, for instance inclusion of supply chain intelligence

would derive meaningful insights. It is important to identify the effect of supply chain intelligence on the relationship between organizational change and supply chain management.

CONCLUSION

Though the organizational change is commonly practiced by SME manufacturers, its negative impact should not be ignored. This study has contributed to increase the awareness on how change strategies can influence the business operational activities especially the supply chain management. The SME manufacturers' perception on organizational change is necessary to ensure the survival of their business although it is apparent that it may cause supply chain disruption. This perception of manufacturers is aligned to the Prospect theory where the managerial decision can be influenced by the consideration of pros and cons. On the other hand, the Resource based-view theory also explains the importance of resource to determine the sustainability of supply chain management. In this study, it is proven that the information sharing, communication and trust are valuable intangible assets (resources) to manufacturers in order to resolve the supply chain disruption. Even though there are several limitations of this study, the results derived are significant to provide theoretical and practical contributions to scholars and practitioners. This study has the potential to increase value on SME industry development especially in enhancing the SMEs' change strategies and supply chain strategies. Lastly, future researchers can extend the framework used in this study to create further empirical evidence to examine the effect of the organizational change on SME's different management practices.

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