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Research paper

Drivers for the Willingness of Small and Medium Enterprise in Implementing Halal Supply Chain Management

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Abstract

This study investigates the role of consumer concern, supplier readiness, and government initiative in determining the willingness of halal SME to deploy halal SCM. The hypotheses were assessed by using mail survey conducted in Malaysia in 2017. The empirical data use 172 data obtained from small and medium enterprise. Reliability and validity of the item is assessed through Cronbach alpha and factor analysis. To test the hypotheses, structural equation modelling by partial least square was adopted. The study finds that consumer concern plays a crucial role in determining the willingness to implement halal SCM. The supplier readiness can play important role in influencing halal SME to implement halal SCM. Finally, this study revealed that the important of government initiatives is significantly influenced halal SME to implement halal SCM in the operational activity.

Keywords: *Halal; halal management; halal supply chain management; Malaysia; small and medium enterprise.*

1. Introduction

External pressure such as consumer and non-government organization (NGO) have been driving firms and government to turn towards including small and medium enterprises (SMEs) in the halal awareness program of entire supply chain for two important reason. First reason due to these actions is the halal integrity issue across the supply chain (SC). For instance, in 2015, a Cadbury Malaysia facing an issue which their product is found contaminated with the illegal (*haram*) substance, which bring a huge loss for the company in term of the brands and firm performance. These issues revealed that most of the manufacturing firm did not deploy the halal supply chain management (SCM) in the production process. The contaminated issue caused by cross-contamination during the logistic process. Secondly, a SC base as well as industrial park might involve SMEs. For instance, it is reported that majority of halal firm consists of SME [1]. Thus, it is important to involved halal SME in achieving the target of Malaysia as global halal-hub [2].

Over the past decades, the importance of halal SCM has emerge as one of the important elements of the halal and SC strategy. The halal SCM encompassed a wide range of practice from halal procurement to manufacturing, logistic, and consumer [3], [4]. Seen from halal perspective, it is difficult to achieve a goal of halal SCM without the involvement of SC partner. Generally speaking, it is salience to include all the stakeholder (consumer, supplier, and government) in the halal SCM process.

However, the author seen very few researches focuses on the issue of what motivate halal SME to deploy in halal SCM. An increasing number of halal SCM studies have dealt with the consumerism [3]–[7]. In addition, most of the scholarly works have mainly focused on large size of halal firms however, they paid less attention to halal SME. The author can say that this study investigate to what extent the role of external stakeholder influence halal SME to deploy halal SCM. Our research question can be specified to what are the significant factors for the willingness of halal SME to deploy halal SCM in the operational activity.

To answer the research question, the author referred to several present literatures in the field of halal management, small enterprise, and supply chain management. These previous studies are employed and integrated to develop the research framework.

The structure of this paper is organized as follows. In the next section, based on the literature review of halal SCM, halal management, and SMEs management, we defined the research framework and subsequent hypothesis. Succeeding the third section is research methodology. The author presents the empirical analyses, finding, and discussion of this study in the fourth section of this article. Finally, in the last section, the author highlights implication from the result and the research limitation with the future research direction.

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2. Conceptualization and hypothesis

Based on the extant literature of halal SCM and halal management, we can eloquent prompting driver for halal SME willingness to participate and deploys halal SCM with three important categories which is government, supplier, and consumer. Although, other variable may consider as a driver for halal SME willingness to participate in halal SCM, the author limited this model to the succeeding important driver to this question.

2.1. Consumer concern

Larger halal firm increasing more energy, resources, and time in developing the development program to enhance the capabilities of the supplier and logistic partner in the context of halal practise because they realize it is impossible for them to deploy the halal SCM without collaborative effort among supply chain partner. The consumer concern regarding the halal integrity of the product has led the halal SME firm striving to improve halal practise, such as set up the halal supplier development and assessment program. The halal supplier assessment program includes evaluation of quality of incoming raw material in the context of halal requirement, as well as provision activity such as providing the training and seminar to the halal supplier. Besides that, information sharing throughout the supply chain is also vital for the success of halal SCM [8], [9].

Undoubtedly, consumer which is end user in the supply chain, are the most influential and vital stakeholder for the halal SME and supplier. Thus, a little change in consumer concern towards halal integrity such as proper packaging, good manufacturing practise, and halal logo accreditation will directly affect the halal policy of the firm and supplier. Actually, halal SME can expect a positive outcome from the requested changes as per emphasized by extant literature, the innovation requested by consumer will likely alleviate the firm performance to enhance the value for consumer [10], [11]. All these arguments bring about the first hypothesis;
H1 : Consumer concern have a significant influence on the willingness of halal SME to deploy halal SCM in the operational activity.

2.2 Government initiative

Government role in determining the success of SMEs is getting the attention of researchers over the past decades. As global halal product demands are increasing over the past year, many countries such as United Kingdom (UK), Japan, Korea, and China are likely putting a great attention and effort towards the implementation of regional halal certification regulation for the export product [5]. For instance, Malaysia government has introduced a statutory body such as Halal Development Council (HDC) to help halal industries player in term of training and consultation, and Department of Islamic Development Malaysia (JAKIM) as a body to regulate the halal principle. Apart from this, Malaysian government has initiate to introduce the first halal standard in the world through Standard and Industrial Research Institute of Malaysia (SIRIM). The HDC and JAKIM focus on developing the best practices of halal SCM and bringing the procedure of halal practices in industry through handbook and manual [12]
Government initiatives can be classified into direct and indirect support. Direct support of government includes the technical and financial assistance, while indirect support includes but not limited to tax exemption, infrastructure development such as regional halal hub, and online platform for halal SME to market their product. However, question still exists to what extent the government initiatives are playing a role in determine the willingness of halal SME to deploy halal SCM practice [1], [2], [9]. According to above discussion, the following hypothesis is raised
H2: government initiative has a positive and significant influence on the willingness of halal SME to deploy halal SCM.

2.3 Supplier readiness

The effort of halal SME to deploy halal SM requires many changes and time for halal supplier; therefore, the boldness towards the halal SCM initiative to deploy halal SCM may diverge depending on their distinctive [13] and It is difficult to cooperate with business partner to deploy any innovation such as halal SM in the firm's activity [14]. . Granting halal supplier tend to be inattentive in dealing with halal integrity issue and facing lack of knowledge and resources [15], [16]
It is highlighted that the variation in halal strategy is depending on the firm's resource availability and the managerial understanding of halal issues [1], [9], [17], [18]. Similarly, the willingness of halal SME to participate in halal SCM is likely inclined to halal supplier characteristic which refers to the supplier readiness in this study. The supplier readiness can be assessed by multiple indicator such as manager for halal awareness, cross-firm information sharing, human and financial resources. Initially, manager are responsible to determine the external challenge and deploy internal resources [19]. Second, a discussion regarding the supplier capabilities facilitate the inter-firm information sharing across the supply chain process. For instance, the deployment off radio frequency identification (RFID) in halal manufacturing and logistic service potentially provides a real-time information flow between halal SME firm and supplier to track and trace the product and consequently improved the halal integrity of the product [20], [21]. Third, a sequence of changes including taking part in halal SCM probably require a large amount of fund, and also the expertise [22].
The mentioned actor plays a vital role in indicating and emerging the halal SCM strategies in SME. All of these arguments led to the following hypothesis:
H3: the supplier readiness is positively and significantly affect the willingness of halal SME to deploy halal SCM.
From all of these discussions, and succeeding hypothesis, this study suggests the research model of the study regarding the willingness of halal SME in adopting the halal SCM in firm's operational activity (Figure 1)

3. Methodology

3.1. Sample selection

Consistent with the objective of this research, small and medium size of halal manufacturing were sampled. A Malaysian SME sample of 280 halal manufacturing out of which 50 to 200 employees [23] was drawn out from the Halal Development Council (HDC)

(*www.hdcglobal.com.my*). This study chose halal SME that aware of at least the Malaysian government initiative programme which are currently available. These approaches has limited the finding's generalizability [24]. The model and verdict should not be generalized. On the other hand, the sample restriction can empower the finding [25] as emphasized, it is difficult to revealed the finding in a restricted variance sample than a large variance [26].

The data of the study were collected using a structured questionnaire and mailed to top-level executives of the halal firm. Majority of the respondent involves in this study are from executives level which represent 56 percent of the total respondent, followed by manager (22 percent), senior manager (12 percent), and chief executive and director (10 percent). To boost response from respondent, the initial mail was followed up by reminder phone call. A total of 172 responses (61.4 percent response rate) which consider as acceptable for the supply chain research [27], [28]. Besides that, the sample size of 172 is surpassed the recommended threshold value to provide the robust result by structural equation modelling by partial least square (SEM-PLS) [29]–[31]. Table 2 represent the summary of the respondent's demographic involved in this study.

Furthermore, the response of the survey was assessed for non-response bias between early and late response. The response was divided into two group which includes early responses and late responses after the reminder phone call. The author randomly selects six items from the questionnaire and assessed the t-test. The result of the t-test yields no significant different among the random selected item.

Table 1 Demographic Data of Respondent

	Frequencies	Percentage (%)
Gender		
Male	75	44
Female	97	56
Age		
20-29	59	34
30-39	48	28
40-49	35	20
Above 50	30	17
Position		
Executive	96	56
Manager	38	22
Senior Manager	21	12
Director/CEO	17	10
Industries		
Food and Beverage (F&B)	112	65
Pharmaceutical	35	20
Logistic	20	12
Other	5	3

3.2. Measurement and variable

The instrument of the study is adapted from the extant literature to test the proposed hypothesis. The initial draft consists of four sections compromising 24 measurable items which divided into five sections. The first section consists of respondent demographic data. The second, third, and fourth section represent the government initiative, consumer concern, and supplier readiness measured by six, four, and seven items respectively. Finally, for the dependent variable, HSME willingness is measured by five measurable items. It is highlighted that the minimum measurement item for each variable is three to ensure the satisfactory internal reliability [30], [32], [33] All the item is measured by five point Likert scale (1=strongly disagree; 2=disagree; 3=neutral; 4=agree; 5=strongly agree) [34].

Additionally, the size of firm's employee is set as a control variable in this study. Size of firm's employee is an important control variable to highlight more halal reactiveness from lesser one. Moreover, this control variable is in line with the objective of this study in which to determine the drivers of HSME in halal supply chain management.

The initial measurement item was pretested by two academic expert in supply chain management and three industrial practise to augment the readability and content validity [35]–[37]. It is highlighted that the content validity is the degree in which measurement items sufficiently represent the interest phenomenon by an expert [24], [38]. Accordingly. The measurement item was improved in term of paraphrasing to improve the clarities of the questions.

4. Analysis and discussion

This study employed SEM-PLS to test the developed hypothesis. It is highlighted that SEM-PLS is an competent multivariate method to simultaneously test the relationship of the variable in the proposed model [39]. Moreover, PLS is suitable analytical approaches in this study because of its properties that does not distress with normality distribution, the sample size, and complexity of the model [40]–[42].

The discriminant validity of the model is assessed by the factor analysis [43]. The factor analysis shows that 3 item (G1, SUPP1, and HSME2) having a low factor loading (<0.6) [42], [44], [45], thus the item has been removed from further analysis. Thus, resulted four constructed has been labelled for the further analysis named government initiative (G2, G3, G4, G5), consumer concern (CC1, CC2, CC3, CC4, CC5) supplier readiness (SUPP2, SUPP3, SUPP4) and HSME willingness (HSME1, HSME3, HSME4, HSME5, HSME6).

Consequently, the convergent validity of the model is measured by the value of average variance extracted (AVE) [46], [47]. It is emphasized that convergent validity is an assessment of to what extent the measurement item portray the analogous conception of covenant [48]. The result of convergent validity shows the AVE value is surpassed the cut-off in which above 0.5 [49]–[51]. Additionally, the reliability of the item has been assessed by the Cronbach alpha (α) [33], [52] and composite reliability (CR) value [51], [53] in which the suggested value is 0.7 and 0.8 respectively [29], [30], [42], [54]. Table 2 below shows the validity and reliability of the measurement model.

Table 2 Validity and Reliability of Measurement Model

Item	Factor loading	Cronbach α	AVE	CR
G1	0.413	0.78	0.621	0.868
G2	0.771			
G3	0.762			
G4	0.822			
G5	0.796			
CC1	0.835	0.81	0.702	0.922
CC2	0.844			
CC3	0.851			
CC4	0.862			
CC5	0.796			
SUPP1	0.471	0.77	0.573	0.801
SUPP2	0.725			
SUPP3	0.758			
SUPP4	0.787			
HSME1	0.850	0.85	0.691	0.918
HSME2	0.398			
HSME3	0.812			
HSME4	0.843			
HSME5	0.825			
HSME5	0.799			

Consequently, it is crucial to assess the discriminant validity of the measurement model. Thus, in this stud, the Fornell-Lacker [50] criterion and Heterotrait-monotrait (HTMT) [51], [55] ratio is employed to asses the discriminant validity. Fornell-Lacker criterion is emphasized that the value of square root AVE must be greater than the inter-construct correlation [31] while the HTMT ratio is less than the threshold value of 0.9 [51], [53]. Table 3 shows the discriminant validity of the measurement model wherein the diagonal value represents the square root of AVE.

Table 3 Discriminant Validity of Measurement Model

	GI	CC	SUPP	HSME
GI	0.902			
CC	0.535	0.803		
SUPP	0.753	0.690	0.800	
HSME	0.733	0.596	0.713	0.841

4.1 Path model assessment

It is crucial to assessed the multicollinearity issue in the proposed model [56]. Multicollinearity in the model is defined when two or more construct are having a linear relationship [30], [31], [57] in which measured by Variance Inflation Factor (VIF). Multicollinearity assessment of the model shows that the value of VIF is less than the threshold value (< 5.0) [58]. The VIF value in Table 4 demonstrate that multicollinearity issue is not occur in the model.

Table 4 Multicollinearity Assessment **(VIF)**

	VIF
GI	2.311
CC	1.917
SUPP	3.160

Consequently, the path assessment has been taken place. Bootstrapping technique with subsample of 5000 is employed with 172 sample size to assess the significant of the model [30], [31], [59]. The path coefficient value indicates significant relationship of proposed hypothesis (H1, H2, H3). The value of path coefficient as show in Table 5.

Table 5 Path Coefficient of Structural Model

			β	T-statistic	R^2	Sig.
HSME	←----	CC	0.78	4.119	0.54	0.001
HSME	←----	GI	0.64	2.017	0.49	0.001
HSME	←----	SUPP	0.68	2.191	0.51	0.001

The study portrays a positive and significant ($p<0.5$) relationship of government initiative towards halal SME readiness to partake in halal SCM in which reflect the H1 with normal cut-off p-value of $p<0.05$ (one-tailed); however, the relationship of government initiatives is not supported according to the current research with the cut-off p-value of $p<0.001$ [13], [27], [60]. Meanwhile, halal SME readiness in implementing halal SCM is significantly impacted by consumer concern and supplier readiness in which reflect H2 and H3 respectively at $p<0.001$. the result of this study can be generally concluded that overall latent construct proposed in this study having a positive and significant relationship towards halal SME readiness in implementing halal SCM. Besides that, the incremental variance value (R^2) of the proposed model is statistically significant at 68.5% ($R^2=0.685$, $p<0.001$)

Firstly, the result re-confirmed that government initiatives is solid evidence which driving halal SME to participate in halal SCM. This finding is in line with extant literature which emphasize that government initiatives is playing a crucial role in driving SME firm to sustain their operation [23], [61]. Direct or indirect of government initiatives played as an external sources of knowledge, funding, and also in term of workforce [13]. Moreover, in the context of developing country, government initiative is a catalyst to motivate the participation of SME in innovation strategy such as halal SCM. For instance, in Malaysia, there are several government initiatives program has been introduced such as tax exemption, workshop, training, and financial support for halal SMEs to improve their firm performance by

implementing halal SCM [2], [9], [62]. Additionally, free external assistance such as halal management and certification system has been provided by external bodies such as halal development council (HDC) and Department of Islamic Development Malaysia (JAKIM) through government subsidy, thus, reassuring halal SME supplier to take part in halal SCM initiative. More government initiatives is expected by halal SME supplier such as funding opportunity for halal diffusion program, halal benchmarking, and regional hub for knowledge, market opportunity, and information. The result of this study advised that the government initiatives is linear proportional to the halal SME willingness to adopt halal SCM.

Second, the halal supplier readiness is directly related and significant impacts halal SME willingness to implement halal SCM in the firm's operation activity. It is contrary to our expectancy that disparity of possessions and aptitudes is not having a significant effect to the halal SME readiness to implement halal SCM. The result of this study also portrayed that a firm's resource- based-view which opposed that variation in a firm performance can be described by the possession of resources and capabilities [13], [63]. Besides that, a strong theoretical underpinning is provided by this study in answering the different level of halal SCM implementation and subsequently affect the firm's performance. For instance, information sharing, supplier development program, and human resource development in managing halal product is an precursor for practical halal management [1], [3], [5], [16]. Additionally, halal SCM is known by extant literature as relatively new and advance invention in halal management activity [2], [64], [65]. Partaking in innovation concept in the context of halal SCM require firm to initiate more practical stance in halal management. Based on this perceptive, it can be summarized that the halal SME willingness to participate in halal SCM is highly depends on the halal supplier readiness. This is consistent with extant literature which emphasized that a positive relationship between supplier readiness and SME willingness [15], [66], [67] and firm performance [68], [69].

Third, result of this study shows that consumer concern is playing a crucial role in determine the willingness of halal SME to deploy halal SCM in the firm's operational activity. This result is very consistent with the previous study which emphasize that consumer role is crucial in determining the firm's performance [70], [71]. For example, Kumar and Rahman [28] mentioned that buyer-supplier relationship is having noteworthy impact on SME operational direction by providing upstream and downstream information management. On the other hand, the result of this study is refutes the finding of Carr and Pearson [15] which highlighted that supplier did not have a direct and significant effect to the SME firm performance. However, the result of the study can be contribute to the data collection method in which employed purposive sampling to enrich the required information from the targeted respondent. The consumer pressure towards halal integrity of the whole production including logistic, manufacturing, and procurement of the halal product drive halal SME to improve halal management system in the firm [3], [5], [72].

Finally, this study opted to controlled two variable which known having an impact to the adoption of halal SCM in SME. As predicted, it is proved that firm's age did not play a role in determining the willingness of SME to participate in halal SCM. The other control variable is firm size, which known having an impact in influence halal SMEs to deploys halal SCM. It is highlighted that bigger firms are more willing to participate in halal SCM due to availability of resources in term of funding and knowledge availability. Even though it is proved that halal SCM possibly can alleviate the SMEs firm performance, however, financial, and human resources were required to initiate an innovation in SME which halal SCM in this context. The model of this study conceivably apply to other SME in developing country with high Muslim population whose economies growth depend on on the SMEs such as Indonesia, Afghanistan, Turkey, and Pakistan. For example, the awareness of the muslim in Indonesia has led the government to introduced halal standard practice and halal enforcement bodies to monitor the halal integrity of the product [73].

5. Conclusions

Much effort and attention has been given by SME and government to the importance of halal SCM, which are involving inter-firm collaboration to alleviate the firm performance. However, these initiatives will success if all parties involved in the supply chain and strive to implement the halal SCM in their operational activities. This study examines what drivers that enable halal SME to participate in halal SCM.

The result of this study shows that the willingness of halal SME to participate in halal SCM are dependent on three significant factor which are consumer concern, government initiatives, and supplier readiness. Halal supplier, consumer, and government who want to improve the halal firm performance all over the supply chain can attain from this study. First, in line with our expectation, consumer concern motivates halal SME to participate in halal SCM. SME firm which are under consumer pressure and being provided with halal support from government and supplier are more likely to participate to implement halal SCM. Second, this study revealed that halal supplier with high level of readiness in term of financial, workforce, and technical knowledge are having higher influential factor which can determine the willingness of halal SME to deploy halal SCM in their operation. Even though, halal suppliers having difficulty in term of resources, they are compulsory to put an extra effort to increase their level of readiness to implement halal SCM due to the urgency of halal demands from the end-user. It is recommended that manager plays an important role to create an awareness throughout the firm regarding the importance of halal integrity in the firm operational activity. Third, this study discovered the important of government initiatives having a significant effect in determining the willingness of halal SME to deploy halal SCM. Thus, government should motivate and encourage the halal SME to deploy a halal SCM to protect the halal integrity throughout the supply chain. Direct and indirect initiatives of government such as financial assistant and coordinating the market respectively are strongly recommended.

Finally, by providing the limitation of this study are the sample size used in this study is obtained from HDC directory, so it probably may not represent the specific type of halal industries. The fact that low response rate of this study potentially formed ground of bias. Moreover, the purposive sampling technique of this study limits the generalisability of the model and in future, a random sampling technique should be considered to enhance the generalisability of the proposed model.

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