Japanese Food Supply Chain Management Issues in Malaysia: Secrets Reveal

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***Abstract*— There is an equivocal claim that Japanese companies are better at managing their supply chains. Yet, little is known about the Japanese supply chain, particularly the food supply chain. Using a qualitative approach, twenty interviews with supply chain managers were conducted. Evidence suggests that a short and simple structure is a platform of the food supply chain and there exists a different level of integration along the chain. There are five main risks attached along the chain and the companies employ various practices to mitigate those risks. Conclusions are presented along with limitations and future research directions.**

***Keywords*—** *Food supply chain, supply chain management, Japanese companies, Malaysia, food industry.*

1. Introduction

Supply chain management refers to the approaches employed to efficiently integrate all parties involved in the chain so that the final products could be delivered at the right time and with the right quality [1]. Effective supply chain management gives businesses a competitive advantage in the sense of reducing development and procurement costs, spur innovation and accelerate product development [2]. Although supply chain management is a critical element to operational efficiency, only a few companies engage in an extensive or advanced supply chain management practices [3,4]. This could be possibly due partly to the lack of knowledge as to how to achieve supply chain management excellence [5].This is especially problematic given the limited amount of literature which specifically reveals the best practices to help better understand supply chain excellence. Thus, the focus of this paper is on explicating four exploratory empirical findings which are part of a research effort to explore supply chain management practices in the Japanese food and beverage companies operating in Malaysia.

The Japanese companies were chosen because Japan is known as the supply chain superpower [6]. One of the reasons is that Japanese companies are well known and closely attached to the Just in Time (JIT) philosophy, and researchers argue that JIT is the basis of supply chain management [7]. Therefore, there is an equivocal claim that Japanese companies are better at managing their supply chains. Yet, little is known about the Japanese food supply chain. In addition, almost all (83%) Japanese food and beverage companies in Malaysia are halal certified [8] and Malaysia is very concern about halal compliance in the production of food products. The Malaysian Halal Standard MS1500:2004 is established to provide general guidelines regarding the production, preparation, handling and storage of halal foods [9].

The common objective of having a good supply chain for every company is to create value in terms of quality, cost and speed to the end customers [10,11]. Nevertheless, each supply chain may vary greatly from one industry to another [12,13]. The vulnerability of food supply chain is greater compared to other industry due to the nature of food products which are sensitive to temperature and deteriorate easily. Contaminations of raw materials would bring about serious consequences endangering both consumers and company image, thus, intensified the need for having an efficient food supply chain.

To advance the literature on food supply chain management, this study makes three contributions. First, although Japan is claimed to be a supply chain superpower [6] and a few of Japanese food corporations like Ajinomoto, Morinaga and Meiji were listed in the world's top 100 food producing and processing companies [14] , the Japanese food supply chain is almost virtually unknown [15]. This study

offers insights into various supply chain management issues of the Japaneses food supply chain. Second, the majority of published research in the supply chain management is generally heavily weighted toward investigating this issue with firm performance [16,17]. For instance, Mohezar Ali [18] explores the impact of information technology (IT) integration on the performance of Malaysian food supply chains. In contrast, this study reveals the actual practices employed by the Japanese food and beverage companies in achieving the supply chain management efficiency. Hence, this study provides practical implications to supply chain managers in the food industry to evaluate their current supply chain management practices. Finally, most of the previous studies use data from the western countries [19,20], thus, limits the understanding of food supply chain in the western context. This study expands the frontier by utilizing data from Malaysia, a country located in the South East Asia region.

This paper is structured as follows. The following section provides a brief review of literature about the Malaysian food industry, supply chain management, supply chain integration and supply chain risk management, respectively. The research methodology employed is then described. Next, the findings of this study are presented and discussed. Finally, the paper ends with conclusions and describes the limitations and future research directions.

2. Literature review

2.1 An overview of the food industry in Malaysia

The development of the food industry in the developing countries may be viewed as strategic in the sense of providing sources of revenue as well as generating employment. The food industry contributes about 10 to 30 percent of developing country's wealth and generates approximately 15 to 50 percent employment opportunities[21]. The percentage of food processing exports escalate from 6.6 percent in 1991 to 10.6 percent in 2006; reflecting a significant contribution of the food industry to the economy of developing countries [22]. In fact, it is expected that to meet the need of the population growth in the developing countries, the food industry needs to boost its production in the estimated range of 70% to 100% by the year 2050 [23].

In Malaysia, the significant influence of the food processing industry to the economy is evidenced by the government policies to support the development of this industry. The first Industrial Master Plan 1986-1995 laid the foundation for the growth of the manufacturing sector. The Master Plan emphasised on the promotion of the resource-based industries. The food processing industry was identified as the top priority for development because this industry is strongly linked to other sectors of the Malaysian economy [24]. It was reported that local production of food rose to approximately 4.2% per annum. However, the increment failed to match domestic demand and resulted in rising imports, especially during 1990 to 1995. During this period, Malaysia experienced a persistent food trade imbalance; the demand for food items has risen faster than the supply [25].

The Second Industrial Master Plan 1996- 2005 was launched to accelerate growth of the manufacturing sector. During this period, the main focus was to chart in the policies and strategies to transform the manufacturing sector into a resilient, broad based and international competitive sector. Despite the increasing contribution of the food processing industry to the country's total manufacturing output from 6.1% in 1996 to 9.9% in the year 2000, Malaysia remain as a net importer. The rising imports were caused by the increasing demand from the downstream processing of primary and food products [26].

Currently, in the Third Industrial Master Plan 2006-2020, the government expects the food industry to expand its capacity and enhance its competitiveness to meet domestic demand as well as increase the level of exports. The food processing industry is planned to be one of the major contributors of export earnings during this period. The production of food commodities is expected to grow at an average rate of 7.6% per year. This could be achieved through advancement in human resource and technology, enhance research & development, produce and export high value added and niche products and maintain the quality standards [27].

Nevertheless, the Malaysian food industry is still struggling to meet the government's expectation because the industry is dominated by small and medium enterprises. The food industry remains shrouded by problems such as utilizing sub-standard grades of raw materials and traditional technologies as well as having low product innovation. Thus, exposing the best practices of supply chain

management is deemed necessary in order to improve the current competitiveness of the industry.

2.2 Managing a supply chain

Supply chain refers to a network of all parties involved in the production and delivery of products or services to end customers [28]. As such, the management of supply chain involves handling various activities, which include integration of supply chain members, alignment of both internal and external supply chain activities, creation of a competitive and responsive supply chain, and satisfaction of customers according to their needs. Therefore, the management of supply chain becomes very complicated as it involves various parties in the chain as well as dealing with the complexity of the business itself. The current competitive business environment and global market place, where customers are more demanding to have better and cheaper products, expect more product varieties and faster delivery further complicate the management issue of the supply chain [29,30]. Ability to have a well managed supply chain may allow businesses to gain competitive advantage [30].

Cross-functional and cross enterprise integration [31], effective management regarding the flow of physical goods [32] and employing the outsourcing strategy [33, 34] are among the suggestions made by scholars in order to improve the management of supply chain. The suggested methods are claimed to benefit businesses in terms of reducing costs and enhancing flexibility which eventually may lead to improve firm's performance. Earlier, Abell [35] argues that in order to achieve supply chain management excellence, activities of all parties in the chain need to be aligned with company strategy and correspond with organizational structure, processes, culture, incentives and people.

In a similar vein, Ayers [36] posits five important elements in implementing supply chain management. First, companies need to have a strategic design of supply chain in order to benefit the competitive advantage of having and managing the chain. This includes innovative ideas to incorporate customers' tastes and preferences in the production of the final products. Secondly, companies must have the ability to implement collaborative relationships. This concern with aligning and coordinating inter-organisational activities so that people in the organisation strive towards achieving the organisation's goal. Thirdly, companies need to establish supply chain partnerships. This includes building a close relationship between departments in the organisation as well as suppliers or parties outside the chain. The next important element is that the effective management of supply chain information. Companies must ensure that information could flow smoothly along the supply chain. On top of that, each party in the chain must be able to retrieve and disseminate information effectively. Finally, the supply chain should concern with cost reduction because this is one of the main improvement targets of managing the supply chain. The supply chain activities should be monitored closely so that the cost of production could be controlled without discriminating the quality of the final products.

2.2

Supply chain integration

One of the ways to improve the management of the supply chain is through integration. In fact, supply chain integration has been posited by many scholars as a key to achieve supply chain management excellence [37,38]. A well integrated supply chain may help companies to experience a seamless flow of receiving raw materials from suppliers till delivering the final products to customers. Subsequently, companies' performance would be improved through revenue enhancement, cost reduction and increase operational flexibility [39].

An integrated supply chain may help to tie the whole network together and thus help to reduce perennial supply chain challenges [40]. Integration of the supply chain could take place at both strategic and operational levels [4, 28]. For instance, the integration helps improve a poor demand management as well as enhance customer and supplier relationships. As such, the internal process activities and external linkages with suppliers and customers could be handled in a more structured manner. The integration would definitely help to locate businesses in a more competitive position and improve customer satisfaction [41].

The current globalization era increases demand for product variety and at the same time reduce product life cycle. Supply chain integration is the

solution to these issues because it enables products to be designed faster without compromising the quality and costs [42]. Supply chain integration is claimed to help control the cost of production [43]; costs can be minimised through establishing consistent and predictable demand and supply pattern[44]. Some companies may integrate extensively with all parties in the chain while others may decide to have a relatively low level of integration. Nevertheless, all supply chains are integrated to a certain extent. Having a long term relationship, open communications, mutual benefits and trust as well as sharing risk and rewards among parties in the supply chain network are among the various forms of integration [5].

There appears to be various ways to describe the integration processes in the literature. Stevens [45] and Giménez and Ventura[46] suggest that firms first integrate internally (coordinating supply, production and distribution), and then extend the integration to its supply chain members. On the other hand, Scott and Westbrook [47] suggested three stages in achieving an integrated supply chain. The stages are: (i) the mapping stage, to analyze lead times and inventory levels throughout the supply chain, and thus indicate the current competitive advantage of the chain and potential improvements; (ii) a positioning stage, to identify opportunities for collaborative activities between chain members and (iii) a selection of action stage, to increase the competitiveness of the chain. Alternatively, Frohlich& Westbrook [16] examine the arcs of integration. They classified supply chain strategies into various types based on the different arcs of integration. They found that the widest arcs of integration had the strongest association with performance improvement.

The development of an integrated supply chain requires the management of material flow to be viewed from three perspectives; strategic, tactical and operational [45]. At each level, the use of facilities, people, finance and systems must be co-ordinated and harmonized as a whole. Indeed, there are so many operational and strategic facets of integration in supply chain management [45]. Any given implementation can take an infinite variety of forms, progress through radically different stages, and result in several different outcomes. Yet, the methodologies and frameworks for effective supply chain and sustainable supply chain performance evaluation and benchmarking are not well advanced in the literature. As a consequence, there is a consensus that there is no "proven path" in implementing supply chain integration.

2.3 Managing risk in the supply chain

Literally, risk refers to the occurrence of unexpected events. Christopher and Lee [48] define risk as the "effect of external events such as wars, strikes or terrorist attacks and impact of changes in business strategy". In a similar vein, operational contingencies, natural hazards such as earthquakes and political instability is classified as risk [49]. Chopra and Sodhi [50] classify risk into nine categories i.e. disruptions, delays, systems, forecast, intellectual property, procurement, receivables, inventory and capacity. Thus, there appear to be no consensus in the definition and the categorisation of risk. Nevertheless, the word risk and uncertainty are commonly used interchangeably in the literature. In a broad term risk could be referred as negative outcomes after the impact of certain events.

Supply chain risk management refers to the ability of the business to manage uncertainty of demand, supply and costs attach along the supply chain [51]. Risk identification, evaluation and mitigation are the three basic processes involve in supply chain risk management [52]. A good coordination of all parties in the supply chain is one of the critical success factors in implementing those processes. However, due to the unique and distinctive nature of each supply chain, there is no single solution in managing the risks attach along the supply chain. A common approach applied by business is to have a contingency plan with the aim to prepare for any possibilities of disruptions. Continuous supplier assessment, development and maintenance of alternatives capacities, mirrored and back up information systems as well as specific emergency response plans are among the methods used in the contingency planning [53]. Despite the need to provide guidelines in mitigating risks along supply chain, there is a dearth of research focusing in this aspect [54]. Hence, this study is an attempt to fill this gap.

3. Methodology

3.1 Sample

The companies were randomly selected based on the Japan External Trade Organizations (JETRO) listing. There are currently eighteen (18) Japanese food and beverage manufacturers operating in Malaysia. These companies represent 2.5% of the total Japanese manufacturing companies in Malaysia. Six companies are located in Johor, followed by five companies in Selangor. There are three companies in Penang whilst Kuala Lumpur and Perak have two companies each. These companies involved in producing food and beverage such as herbs, spices, additional flavourings, bread, pastries, vitamin beverages, powdered drinks and flour. In total ten (10) companies (56%) agreed to take part in this research project.

3.2 Data collection

A total of twenty (20) interviews with the supply chain managers working in ten (10) randomly selected Japanese food and beverage companies in Malaysia was conducted using semi-structured interview approach. Semi-structured interviews involve gathering rich and multi- layered information allowing a few prepared questions to form the skeleton of the interview, whilst allowing additional questions to emerge during the interview process [55].

Semi-structured interviews forms (guides) were designed after an extensive literature review on many aspects of the supply chain and its performance (see Appendix 1). The guide essentially captures the obstacles that food companies experience when attempting supply chain management practices and how they deal with the challenges. As a means to assess validity, the semi-structured interview guide was reviewed by two experts based on their experience in supply chain management in Malaysia: an academic from Malaysia's public university and someone who works in the industry. The reviewers were requested to uncover any flaws in the survey form design and provide comments on the suitability and clarity of the questions. Feedback from the reviewing process was incorporated into a revised survey form. This validity procedure is considered sufficient to establish the survey's clarity and reliability. According to Stenbacka [56] the concept of reliability is irrelevant when judging the quality of qualitative research. If a qualitative study is discussed with reliability as a criterion, the outcome is that a study is substandard. In other study, Lincoln and Guba [57] stated that demonstrating validity in a qualitative approach is sufficient to establish the study's reliability.

Respondents for the interview ranging from middle managers to senior managers from various related departments such as supply chain, logistics and production that deal directly with supply chain processes. In recruiting respondents, the general managers of Japanese food companies were contacted by email. Information letters that stated the objectives of this study and outlined the types of information needed were sent to them. Based on this information letter, the general managers or through their secretary appointed the most suitable respondents who have experience and knowledge regarding supply chain management. When permission was granted by the general managers, the respondents were then contacted individually and provided with semi-structured interview forms before the face to face interview sessions were conducted.

In this regards, the key informants for this study can be considered as expert spokeperson in their field. In terms of 'how many' key informant is sufficient, Glesne [58] emphasized that when expert interviews are planned, the number of experts in the field may be very limited, so that is sometimes difficult to think of more than ten interviews. Any number of experts is sufficient as long as it able to generate enough in-depth data that can illuminate patterns, concepts, categories, properties, and dimensions of the given phenomena [59]. Some studies suggest six respondents [60, p.225], in between five to 25 (Creswell, 2013) or 10 and 30 interviews for phenomenology research design [59, 61]. Therefore, the number of interviews for this study is deemed appropriate because the interviews were conducted with people who are considered experts in the field and able to generate more than enough in-depth data.

All participants gave permission for the interview session to be recorded by a digital recorder. Although a total of twenty interviews appear to be relatively small, this number is deemed appropriate because the interviews were conducted with people who are considered experts in the field [58]. All interviewees demonstrated a high level of professionalism in their understanding about supply chain management issues in their companies.

On average, two managers involved for each interview session and the interview lasted between 1 hour and 1 hour 30 minutes. Each interview was conducted by two researchers and the principal researcher participated in all interviews. Interviews were tape-recorded and transcribed in their entirety. As a means of supporting and corroborating interview data, added information was collected from secondary data sources such as company reports and other material that companies were willing to share. This was done as a means of triangulation in order to increase reliability and internal validity of research findings [62].

3.3 Data analysis

Thematic analysis based on an interpretive approach was employed [63]. The analysis involves encoding qualitative data in the search for patterns and themes that help explain social phenomena [64]. The process of data analysis was aided with the use of NVivo10, a software used to analyze qualitative data. Themes are developed through the careful iterative and reflexive examination and re-examination of the raw interview data.

Following standard practice of qualitative research [65],first, a close reading of the transcripts was undertaken to become familiar with the content and to gain an understanding of the details in the text. Then, each transcript was entered into Nvivo software to assist with content analysis and initial codes were generated across the corpus of interview data, based on the actual words or terms used by the interviewees using a system of "in vivo" coding or coding taken directly from the participants' discourse [66]. By the end of this first step, first-order codes were derived.

The second step of the process (Appendix 2) was to examine the first-order codes for relationships between and among the passages in order to assemble them into first-order themes [67]. Next, analysis was carried out to look for links and relationships among first-order themes so that they could be collapsed into distinct clusters [68], or second-order themes. Finally, the second-order themes were organized into final themes that reflect the overarching dimensions merging from the data.

3.4 Rigour and trustworthiness of the data

A final step in the inductive approach requires an assessment of the trustworthiness. In general, data robustness were ascertained through the corroboration of interview data with information derived from secondary data sources. As a means to assess validity, the researchers independently made the coding process and compared the findings with the initial results. Should there be any observed discrepancies; the researchers collaborate to resolve the anomalies. On top of that, selected findings of this study were also presented at international conferences and a university research colloquium. The feedback provided through these forums was utilised to improve critical reflection on assumptions and inferences made.

4. Findings

4.1 The structure of the Japanese food supply chain

The analysis reveals the Japanese food and beverage companies operated based on a short and simple supply chain structure. This is explicitly expressed by the following managers;

*"We have simple procedures.....from procurement till finished products...all very simple...a fast flow".....*Manager 1.

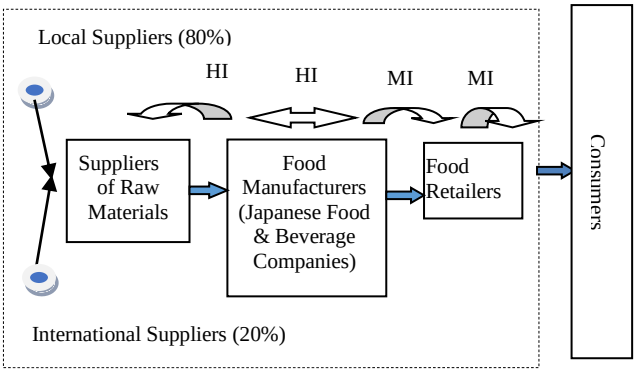
*"Everything very simple...from supplier till completed product...managing the flow is the main issue".....*Manager 8.

In general, the interviewees ascertain the structure, particularly the length of the chain may have a significant impact on the flow of materials as well as information through the entire supply chain. A short and simple structure helps the supply chain to stay agile and lean in the effort to reduce costs, increase revenue and minimise assets. For instance, Manager 13 mentioned that *"we ensure that the non value added is cut out….reduce cost…we have fast flow…more can be delivered to our customers".* On the other hand, a long chain may expose the company to a higher occurrence of miscommunication among the chain partners and complicate the material handling processes as Manager 9 claimed *" we try to make it simple….simple and short is better…avoid communication breakdown"*.

As for the main players in the supply chain, the analysis identifies that short and simple structure consists of suppliers of raw materials, food

manufacturers, food retailers and finally the end consumers. Figure 1 illustrates the main players in the Japanese food supply chain. Suppliers refer to the supply chain members who provide raw materials to the food manufacturer. The Japanese food and beverage companies act as the food manufacturer in this chain. They handle the production process, product development and responsible for the quality of food products that reach the end consumers. Retailers refer to the supply chain members who sell the food products directly to the end consumers. Finally, the end consumers are the end users of the food products. The main unique element of the Japanese food supply chain as compared to other typical food supply chain is that food distributors are not included as the main actor in the chain. Acknowledging the nature of food products which are sensitive to temperature and deteriorate easily, a short structure is chosen to ensure that the final products reach the end consumers at the right time with the right quantity and quality.

When asked about the sources of raw materials, the interviewees reveal almost all (80%) of the main raw materials are supplied by local suppliers and the remaining 20% are imported from overseas. Proximity to suppliers could help maintain the quality of raw materials because it could reduce the risk of being contaminated [69]. The simple and short structure is one of the key elements in achieving a time-efficient food supply chain.



Note: HI= Highly integrated, MI= Moderately integrated

Figure 1 : Japanese food supply chain

Another outstanding element derived from the analysis is about the integration level. Aligned with Flynn et al [38] and Christopher [37],most interviewees expressed their agreement about the importance of implementing supply chain integration, specifically in an attempt to achieve supply chain management excellence. For example, Manager 1 confirmed that information technology are utilised to ensure that all departments are fully integrated; " *all person in charged will know if they are any changes to the orders, they can check through computers, we keep everything online".*

As such, supply chain integration helps companies to integrate process activities internally as well as integrating externally with customers and suppliers. In a similar vein, Storey et al. [40] posits an integrated supply chain may help to tie the whole network together, which could eventually help to reduce perennial supply chain challenges such as poor demand management and forecasting as well as inadequate formation of customer and supplier relationships. The literature describes that supply chain integration may enhance the performance of the business [39]. The integration could be in the form of having a long-term relationship,open communications, mutual benefits and trust and shared risk and rewards.

In the case of the Japanese food supply chain, all parties involved in the chain are either highly or moderately integrated with each other (Figure 1). As such, the Japanese food and beverage companies could be considered to have reached a "full information sharing" level with their suppliers. At this level, the suppliers and other parties in the chain not only receive actual orders from the companies, but also furnish with other information such as production status, transportation availability and demand data [70]. As a result, all parties in the chain work together in a harmonious way and help repress any uncertainties.

Due to a high level of integration which stimulate in-depth understanding in doing business, they manage to do business based on mutual agreement. Official contract is not a mandatory aspect to engage all parties in doing business with each other. In fact, there are parties in the chain which have been working together for more than 16 years without having any contract. To quote one of the interviewees (Manager 2), *"no signed contract...mutual agreement...we have been working with some for more than 16 years".* Only recently, a few companies started to have a legally binding contract with parties in the chain just to fulfil the corporate governance procedures. This is quite an achievement because information sharing is often claimed to be a generic cure for supply chain ailments [1].

4.2 The main risks attach along the supply chain

The perishable nature of the food products coupled with the complexity to manage the whole chain expose the food supply chain to numerous risks. Given the magnitude of supply chain risk exposure, earlier identification of those risks could help companies to limit the impact of supply chain disruptions.

Based on the data from semi-structured interview, various risks were identified and then be aggregated into several main risks. There are the production, purchase price, halal requirement, demand and procurement risk. These risks originate from various areas such as supply, demand, process and legal requirement. Although supply chain risks cannot be eradicated, the risks could be identified, assessed, quantified and mitigated [71]. Hence, managing these risks is the prime concern of the Japanese companies because any breakdown in the food supply chain would bring about serious consequences endangering both consumers and company image.

Production risk

As illustrated in Appendix 2, in general, most managers in Japanese food companies state that the production risk relates to issues such as machine breakdown, shortage of production operators, limited storage space, maintaining the quality of packaging as well as the end products. The production risks affect the company's internal ability to deliver good quality products to the consumers. The Japanese Management styles were identified to be the critical success factor of managing the production risks. For example, employment of Just in Time (JIT) philosophy in the production process and planning help to mitigate the limited storage space. In addition, production operators are trained to master various skills so as they could apply their multi-skilling ability when needed. Application of good manufacturing practices such as the 5S methodology (Seiri, Seiton, Seiso, Seiketsu and Shitsuke) becomes a daily routine for all workers. The 5S method helps to organize a work space in a clean, efficient and safe manner which could enhance productivity, visual management and ensure standardized operational practices.

"*We have been greatly benefited from 5S assistance. By implementing 5S, we not only have a better working environment, but we have increased our productivity. Our sales are better than before implementing 5S. It also reduces accident in workplace as all the raw materials have been arranged properly"……*.Manager 14.

Purchase price risk

Despite of ordering most of the raw materials from local suppliers, the Japanese food supply chain is not totally free the purchase price risk. The purchase price risk concerns with the price volatility of raw materials and foreign exchange fluctuations. Both may have a great negative impact on the production cost which eventually put the companies in an uncompetitive profit margin position compared to their competitors.

The ill-effects of the purchase price risk are controlled through the use of price and quantity lock strategy, as disclosed by one of the interviewees (Manager 6) "*no doubt price hike is our problem...but so far we managed to come into terms with our suppliers...they normally give time and use old price".* This strategy refers to the mutual understanding between the Japanese food and beverage companies and the suppliers regarding the use of the quoted price when the order of the raw materials was first made. Should there be drastic adverse changes in the price of raw materials; the suppliers may allow the Japanese companies a few months to adjust their production plans accordingly before implementing the new price. Alternatively, the suppliers may continue charging the first quoted price up to the maximum amount of quantity that have been locked or agreed earlier. Although having an official contract specifying the quoted price is the best way to control this risk, most of the companies choose not to have it and believe that a long term and close relationship with suppliers is the main reason that enable them to benefit from the price and the quantity lock strategy.

Halal requirement risk

Another main risk attached to the food supply chain is the need to meet the Halal requirement. Malaysia is very concern about halal compliance in the production of food products. The Malaysian Halal Standard MS 1500:20004 is established to provide general guidelines regarding the production, preparation, handling and storage of halal food [9].

Halal certification provides assurance to the Muslim consumers that production of the food products conforms to Syariah law. As for the non-Muslim, halal certification may reflect the quality of the products because halal certified products need to comply with good manufacturing practices (GMP) and good hygiene practices (GHP).

Acknowledging the importance of this issue, upholding to the standard set by JAKIM (Department of Islamic Development) as well as other quality standard setter such as ISO9000 and ASQUA is vital to the Japanese food and beverage companies. The companies must always ensure that the suppliers of raw materials will only supply halal goods or have halal confirmation certificates. Besides following procedures set up in the Malaysian Halal Certification Manual, the companies have frequent meetings with Jakim to get updated with current halal issues. One of the interviewees (Manager 10) claimed *"Jakim recognised our company.... they benchmarked us for halal certification... we have a good reputation...they respond to our queries".*

Demand risk

Demand risk is an external risk faced by any supply chain in any industry. It is commonly caused by unpredictable changes of consumer demand. Demand volatility as well as poor internal coordination and communication across functions are the two main drivers for this risk. Ability to execute forecasting process accurately and frequent updates and communication across functions plays an important role in mitigating this risk. In addition, efficient monitoring of material flows (delivery and sales) and information flows (demand forecasts, production schedules and inventory level information) may suppress the potential occurrence of this risk. All these preventive actions are carried out by utilizing information technology (IT) support environment along the supply chain. For instance, any forecast, which is inevitably inaccurate, inventory and sales databases for all relevant departments will be interconnected to allow adjustments. Therefore, affected parties could react quickly to any disruptions incidents along the supply chain. This is explicitly articulated by these managers;

*"All computerised system...very highly integrated in ordering raw material in helping us to determine the required quantity".....*Manager 11.

*"We are operating in a fully (80%) computerised environment...we used the SAP system to manage our inventory...we also have computerised system to help monitor our production process".....*Manager 18.

"*All computerised systems, very highly integrated in ordering raw material, thus helps us to determine the required quantity*"...Manager 10.

Procurement risk

High quality food products can be produced only from high quality raw materials. Therefore, sustaining the quality of raw materials is one of the main risks in the Japanese food supply chain. For this reason, close cooperation and understanding between the food manufacturers, particularly the procurement department and the supplier of raw materials is a mandatory requirement. Due to the perishable nature of the raw materials, the microbiological quality of the raw materials needs to be controlled. As a result, the procurement department needs to have a high level of integration with the suppliers of raw materials because the qualities of raw materials need to be continuously evaluated. As for the Japanese food companies in this study, rapid communication with suppliers are done through internet linkages. This mechanism helps to reduce time, cost and stimulate an effective communication and consequently enhance relationships with suppliers.

Another important issue to note is that, in all cases, the raw materials must meet the hygienic requirement and free from any kinds of contamination. In order to have control over the raw material supply as well as to build closer relationships and mutual understanding with the suppliers, the Japanese food and beverage companies ensure that they pay their suppliers on time. Often, there are only few loyal suppliers in the Japanese food supply chain.

*"We communicate with them daily.... phone, emails.... very important to update them with what we want" .....*Manager 20.

"Raw material is very important...the quality...the suppliers know we always communicate with them...almost daily" .....Manager 4.

While supply chain risk tends to paralyze most supply chains, the Japanese food and beverage companies able to break the risk spiral and restore the confidence of having a time efficient to all parties involved in the chain. The aforementioned supply

chain management issues allow the Japanese food companies to enjoy supply chain management excellence by enabling them to deliver the right food product in the right quantity and in the right condition with the right documentation to the right place at the right time at the right price.

5. Conclusion

This research successfully revealed the valuable insights into the Japanese food supply chain. Understanding comprehensively supply chain management issues may help companies to evaluate their current supply chain management practices and benchmark them with the Japanese companies which is known as the supply chain superpower [6].The main limitation of this study is that the financial performance of the Japanese food and beverage companies that might be necessary to exploit were not studied. This is an area for future research. Practically, the findings of this study could act as guidelines for other food companies in an attempt to achieve an excellent supply chain management which may act as a strategic tool to improve their level of competitiveness in the industry. Last but not least, the findings of this research contribute to the knowledge in the field of supply chain management by providing a simple yet encompassing description of the Japanese food supply chain.

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APPENDICES

Appendix 1:Interview questions for semi-structured interview

Supply chains integration by Japanese food and beverages manufacturers in Malaysia?
In general, how do you see the current practice of supply chain integration for food industries in Malaysia? Can you describe characteristics/form of relationship across the supply chain integration i.e linkage of your companies with suppliers and customers. What are the attributes that make the internal supply chain successful (and fail), particularly for Japanese food industries? To what extent do you think that level of internal integration in Malaysia will help to increase (or might affect) productivity of Japanese companies in Malaysia? What are the aspects that need to integrate at different level of production and who to integrate with?
Barriers in supply chain integration
What are the obstacles that firms in food industries are facing in their journeys to achieve network integration? What are the most common/what are the specific problem in food industries in practicing supply chain integration? Can you describe in detail are the challenges faced by your company in supply chain integration, i.e during each stage of the integration – raw material management, production process, distribution. What are the problem that your company are facing to integrate with all partners across the supply chain? What type of advise/services/linkages do you need in the future?
Risk mitigation in the food supply chain by of Japanese food and beverage manufacturers operating in Malaysia
In general, what are the risks that directly or indirectly affect the efficiency and effectiveness of the supply chain in food industry in Malaysia? Is your supply chain at risk of failure? Are your existing supply chain strategies increasing that risk? What are the reasons/factors that contribute to supply chain failure? How severe will the events affect your company? What are the three events that you think gives the most negative impact to your supply chain? What are the practices taken by your company to reduce the risks of such events? If a risk were to materialise, what can be done to minimise its impact? What are the strategies to deal with the problem? What forms of government interventions are needed to enhance innovations in supply chains affecting Malaysian companies?How much should the firm invest given the risky nature of the operation? Explain steps taken to implement the "best practice" in mitigating risks of such events. How does the "best practice" help to mitigate risks in the supply chain of your company? In your opinion, how successful is the current practice(s) employed by your company in mitigating the risks of such events?

Appendix 2: Sample of data structure and emergent themes for production risk