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Sustainable supply chain management - the influence of local stakeholder expectations in China's agri-food industry

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Abstract

Multinational food processing corporations are facing rapid growth in emerging markets like China and a concurrent need for sustainable supply chain management (SSCM). These firms attempt to address supply risk and threat to the triple bottom line (TBL) through managing suppliers and inputs, and at the same time need to overcome the uncertainty raised by the unfamiliar host environment. An exploratory qualitative case study of two multinational food processing corporations in China, finds their SSCM practices are impacted by the nature of the raw material inputs as well as local stakeholder expectations. In particular, government policy and media attention seems to influence the direction and choice of SSCM activities engaged in by the focal firms. Furthermore, the discussion also suggests a possible permanent effect may occur as stakeholder expectations and host country institutions evolve. The implication of this study is that food processors preparing to enter emerging markets should be aware that local stakeholder expectations may affect operations significantly more than previously expected. As such, these firms need to carefully evaluate their operations in the host market and seek balance between SSCM practices and local stakeholder expectations. This study extends existing research on SSCM, exploring practices among the agri-food industry in a developing economy, and points out a theoretical extension to the existing sustainable purchasing portfolio matrix.

Keywords: China, food processing, relational-based contracting, sustainability,

1. Introduction

The world has entered an era characterised by rapidly growing demand for food, declining resource availability and rising volatility (WEF, 2011). Recognising the need for more sustainable production, leading corporations in food processing have begun to implement supply chain management strategies targeting improved environmental, social and economic performance (Pullman *et al.*, 2009; WEF, 2011). A growing interest in sustainable food products among consumers in developed markets creates opportunities for such firms, and likewise the threat of public criticism for those with perceived deficiencies (Maloni and Brown, 2006; Pullman *et al.*, 2009).

At the same time, multinational food processing corporations are also experiencing rapid growth in emerging markets like China, where the evolving needs of consumers have contributed to a dynamic retail food sector (Ahmed, 2011). Conditions contributing to the strategic importance of sustainability in developed markets are not necessarily the same throughout the world, and may therefore pose a challenge for sustainable supply chain management (SSCM) strategies (Senge *et al.*, 2009). Despite remarkable change, China's agri-food sector remains underdeveloped and highly fragmented (Zhang and Aramyan, 2009). With an evolving regulatory environment, such conditions have contributed to a series of food safety scandals that have eroded consumer trust in basic food safety (Roth *et al.*, 2008), while affordability remains a constant concern for average consumers who spend more than a third of household income on food (China Daily, 2011). Therefore, multinational food processing corporations aiming to develop SSCM strategies in China must consider not only the technical issues, but also the economic, social and political context, that impacts stakeholder expectations and the value associated with sustainability practices (Feller *et al.*, 2006; Roth *et al.*, 2008; Trienekens, 2011).

While there is growing interest in the field of SSCM (Seuring, 2011) studies have largely been focused on cross-sector analysis (Carter and Easton, 2011) and developed domestic markets (Pagell and Wu, 2009). As a result, there is room for more concise findings necessary to understand the unique social and environmental issues related to sourcing activities in the agri-food sector, particularly in developing markets. Multinational food processors are increasingly entering emerging markets to provide services to long-term end customers, e.g., KFC and McDonald's, as well as to use as a base for their own global operations. Multinational food processors aiming to practice SSCM in a foreign setting not only face a lack of knowledge of the host market, but also differences in regulatory institutions. Although literature on purchasing portfolios and supply chain management has greatly contributed to our understanding of supply risk, little attention has been given to sustainable supply chain activities in an emerging market setting and the role of a host government and its regulatory institutions.

This study draws on exploratory case studies of two multinational food processors in China, Hormel Foods and McCain Foods, to demonstrate how the firms address supply risk through SSCM practices. The findings show how the corporations need to balance the expectations of different stakeholders, the role of regulatory institutions, and how media exposure may influence supply risk for multinational food processors in China. In other words, the more expectations stakeholders have for a specific agri-food input, the less supply risk these multinational food processors appear to face. In turn, stakeholder expectations appear to be able to impact a focal firm's SSCM practices.

The findings of this study challenge the Sustainable Purchasing Portfolio Matrix model (SPPM) proposed by Pagell and colleagues (Pagell *et al.*, 2010). In an emerging market, the host government and regulatory institutions appear to play a much stronger role in influencing supply risk. Thus it is necessary to consider the dimension of institutions when discussing the Sustainable Purchasing Portfolio Matrix in an international setting. This research sheds light on the SSCM practices of multinational food processors in an emerging market, and therefore contributes to the existing base of literature exploring sustainability in food supply chains (Maloni and Brown, 2006; Pullman *et al.*, 2009; Smith, 2008).

2. Literature Review

Sustainable supply chain management and stakeholder expectations

There is a growing interest in the field of sustainable supply chain management (SSCM) among both industry and academia (Carter and Easton, 2011; Seuring, 2011). Among the diverse interpretations of the SSCM concept, Elkington's (1998) Triple Bottom Line (TBL) that includes economic, social and environmental performance is commonly seen as a central notion that can help organisations to operationalise sustainable development (Carter and Rogers, 2008; Seuring and Müller, 2008). The TBL concept requires firms to avoid social and environmental initiatives that pose a threat to long-term economic stability. Pagell and colleagues adopt TBL in their Sustainable Purchasing Portfolio Matrix (SPPM) to replace the dimension of profit impact in Kraljic's (1983) original model (Figure 1), thus growing stakeholder expectations for sustainability performance are included in the SPPM (Pagell *et al.*, 2010: 68).

Figure 1. The Sustainable Purchasing Portfolio Matrix

SPPM's horizontal dimension is assigned to supply risk, which refers to the "availability, number of suppliers, competitive demand, make-or-buy opportunities and storage risk and substitution possibilities" (Kraljic, 1983: 112). Therefore according to the SPPM, the strategy a firm chooses to handle their supplier and source items is a function of the threat to TBL and supply risk. Five strategies are available for firms to manage purchasing of materials including strategic, strategic commodity, transitional commodity, true commodity, non-critical, and bottleneck inputs. For instance, an input will be considered strategic if it contains high supply risk and poses a threat to a firm's economic, social and environmental performance. Pagell *et al.* (2010) further suggest a short-term transitional period may occur when stakeholders dramatically change expectations on the attribute and their relative emphasis of the supply chain and lead to information asymmetries. As such, supply-base continuity practices or relationship-specific investments supporting fundamental differences

in environmental and social performance may help firms to secure long-term competitive advantage (*ibid*).

Therefore, the SPPM leaves rooms for stakeholder expectations to play a role in sustainable supply chain management. However, the role of stakeholder influence in the model is not entirely clear. It is difficult to tell from the model which stakeholder may exert more or less influence on the focal firms. Stakeholders are defined as “any group or individual who can affect or is affected by the achievement of the firm’s objectives (Freeman, 1984: 25). However, not every stakeholder is equal and has the same influence on the focal firm. Frooman (1999) and Sharma and Henriques (2005) suggest that stakeholders can be categorised into four different categories based on their resource interdependency with the focal firms (Pfeffer and Salancik, 1978). Thus, stakeholders from different categories will have an impact on focal firm’s activities in various ways. In comparison to Non-Governmental Organisations (NGOs), stakeholders such as customers may have direct influence on focal firm’s use of a resource as they hold higher resource interdependence with focal firms.

SSCM in the agri-food sector of developing markets

In an international setting, host market stakeholders can have a significant impact on a foreign firm’s SSCM practices. Firms perceive great uncertainty when entering foreign markets due to a lack of experience with the host market (Johanson and Wiedersheim-Paul, 1975; Johanson and Vahlne, 1977). In addition to a very different set of formal and informal rules, markets with different levels of economic and societal development may present strong challenges as a result of the institutional distance between the host and home market (Kostova, 1999; Kostova and Zaheer, 1999). Firms entering new markets may feel particularly vulnerable when the host market is in transition and has weak institutions (Boisot and Child, 1996; Peng, 2003; Tsang and Yip, 2007; Tsui-Auch and Möllering, 2010). It can be argued that foreign firms may be even more exposed to stakeholder influences and need to accommodate isomorphic pressure from the host market.

Furthermore, the agri-food industry in developing markets can present a complex context for sustainable supply chain management (Krause *et al.*, 2009). Consumers from developing countries spend a larger portion of income on food, and the governments in these countries have treated food security as a strategic issue. Riots from Haiti to Bangladesh to Egypt were witnessed between 2005 and 2008 when prices of staple crops such as wheat, rice and corn rose dramatically. By mid-2009, 33 countries were facing alarming food shortages and most of the world’s citizens were feeling the shortage (Cribb, 2010). The existing literature offers very little insight into how stakeholder expectations in developing countries impact the operations of multinational food processors, and even less in terms of their SSCM practices.

As a provider of products necessary for human survival, actions of the agri-food industry are highly visible and basic issues such as food quality, safety, and cost capture wide public attention (Maloni and Brown, 2006; Pullman *et al.*, 2009). The concept of sustainability in the food sector is further complicated by a growing set of social and environmental performance issues (Aiking and de Boer, 2004). The discussion of CSR in the food chain highlights extensive environmental impacts relating to preservation of natural resources and ecosystems as well as the broad range of social issues tied to working conditions and the nature of the products produced for consumption (Maloni and Brown, 2006). This complex range of social and environmental issues results in inevitable trade-offs, which pose a

challenge for food processors to market products as ‘delivered to you through a (more) sustainable supply chain’ (Smith, 2008: 852).

Lastly, food processors must also consider the practical issues linked to context. Common challenges faced in emerging markets include weak legal enforcement and a lack of knowledge, educated labour, technology, infrastructure and capital required to invest in SSCM (Osinga and Hofstede, 2006; Roth *et al.*, 2008; Trienekens, 2011). In addition, local stakeholder expectations can influence the type of SSCM practices a firm chooses to engage in. For example, consumers in China have expressed their concerns with the quality of food after being haunted by a string of serious food safety issues in recent years. Hence, food security and safety are primary concerns and may therefore supersede expectations for sustainability performance (Aiking and de Boer, 2004). Although multinational food processors seem to generally enjoy a better reputation and are considered more credible than their local counterparts, they may also face strong scrutiny when local stakeholders learn they have been treated differently than in other markets (Figure 2). Therefore it is necessary to understand the institutional environment including the official regulatory environment, common business practices and the unwritten rules governing everyday life (Trienekens, 2011).

Figure 2. The hypothesised relationship between local stakeholder expectations and the Sustainable Supply Chain Management practices of multinational food processors

The research gap in the SSCM literature prompts the need for an investigation into the relation between multinational food processors’ SSCM practices and host market stakeholder expectations. The question is how and to what extent, do local stakeholder expectations influence the SSCM practices of multinational food processors in an emerging market? The local stakeholders in focus are the host government and media. Although suppliers and customers are considered to be two crucial stakeholders (Sharma and Henriques, 2005), they are already included in the supply risk and economic dimensions of the TBL respectively, while host government and the local media have been largely left out of the discussion. This research hypothesises that local stakeholder expectations in developing markets will not only influence whether a multinational food processor practices SSCM, but also the types of activities these firms adopt (Figure 2).

3. Method

This study aims to investigate how multinational food processors practice sustainable supply chain management (SSCM) in developing markets, in this case China, and how these SSCM activities may be influenced by local stakeholder expectations. As this has been a rather unexplored area for sustainable supply chain management studies, an exploratory, qualitative case-study approach is warranted for collecting in-depth information to fill the research gap (Yin, 2003). In addition, a case-study approach is also considered valuable for handling

complexity and supporting a holistic view of reality in the study of phenomena and processes (Gummeson, 2006; Rynes and Gephart, 2004; Saunders *et al.*, 2007). This is particularly relevant for the study undertaken because as a developing market, China poses great challenges to multinational food processors entering the market. These challenges stem from unfamiliarity with the local environment and differences in culture, society and institutions between home and host markets. Furthermore, China has undergone a dramatic transition in political and economic systems, and these changes have given rise to an extremely dynamic market. A qualitative case-study approach has therefore allowed the researchers to take into consideration the context and reach a more robust conclusion (Eisenhardt, 1989).

The case-study approach has also been widely employed among supply chain researchers. Pagell and Wu's 2009 paper focused on ten case firms and their sustainable supply chain activities, making important theoretical contributions. In another spectrum, Dubois and Fredriksson (2008) employed a longitudinal single-case design to gather insight into coexisting cooperative and competitive behaviours between suppliers and proposed that triadic sourcing can provide advantages for buyer firms. Their study has interactively combined empirical evidence with theoretical conceptualisation and has strong implications for scientific development (Dubois and Araujo, 2007; Dubois and Gadde, 2002). Furthermore, case study can also contribute to a growing accumulation of repeated studies aiming to achieve more profound findings (Yin, 2003). Therefore, the examination of two multinational food processors in China and their supply chain management practices in this study, fits well with the tradition of using case studies to explore a less known phenomenon and contribute to the development of theory.

Selecting case studies

This study follows the rationale of Pagell and Wu (2009: 40) in choosing to learn from SSCM leaders that are "ahead of their industry" in these practices. Employing a theoretical sampling approach, case firms were purposely chosen to reflect the theoretical arguments being investigated (Eisenhardt, 1989). The multinational food processors in this study hold international recognition for their sustainable supply chain practices and have operations in China. Through a review of corporate websites, food industry publications, business media, and formal and informal research requests, two case firms were identified and confirmed including Hormel China and McCain China. Descriptions of these firms can be found in Table 1.

Table 1. Description of case firms

	Hormel	McCain
Descriptions	US-based processor of branded meat products (ham, bacon, sausages, etc.)	Canada-based global frozen food processor of French fries and a wide range of other frozen food products
Global operation	40 production facilities and subsidiaries worldwide	53 production facilities and sales to 130 countries worldwide
China subsidiary	Beijing Joint Venture 1997 Shanghai Joint Venture 1998	Sales office in 1997 (Shanghai) Processing facility 2005 (Harbin)
Key customers	KFC and McDonald's	KFC and McDonald's
Key product in China	Ham, bacon and sausages	French fries
Key input	Pork	Potatoes (a long, super thin skin variety, different from what Chinese have traditionally grown)

Recognition in China	10 best employers in China	Received awards from government yearly for meeting 100 percent of governmental requirements
Recognition globally	In 2010, Dow Jones Sustainability Index (DJSI World) recognised Hormel as “among the world’s top 10 per cent most sustainable companies based on economic, environmental and social criteria.”	A member of the SAI Platform. In 2010, McCain’s first global social responsibility report won best annual report at CSR Awards. In 2009, McCain Foods won environmental leadership award.

Both companies are global leaders in food processing with established reputations for SSCM practices and operations in China’s food processing sector. They entered China in the same era, which makes their China experience more comparable. These two companies can also be considered as extreme cases as they are clearly the leaders in the industry. As such, their operations can provide context-specific insights and serve to contribute to the discussion of broader theory (Yin, 2003).

Data collection on case firms

Semi-structured, face-to-face interviews were conducted with representatives of the two case firms between March and April 2010. Face-to-face interviews are considered a standard research method for collecting primary, qualitative data (Saunders *et al.*, 2007). It is also an appropriate strategy for overcoming potential social and cultural resistance to postal or telephone surveys in a society characterised by high collectivism and power distance (Hofstede, 1980). Use of semi-structured interviews proved valuable given the exploratory nature of this research (Flick, 2006) and the need to address supply chain differences of case subjects (Pagell and Wu, 2009).

This study adopted a strategy to interview key informants of the firms, e.g., General Manager. Previous studies report that internal hierarchy is a prominent feature in Chinese business organisations and key informants like senior managers hold greater responsibility, they can normally control information flow within the company, and they are in a better position to provide knowledge of strategy related activities (Yeung, 1995). The newness of the SSCM phenomenon in China’s food processing sector means the initiation and control of this type of activities will largely be held by senior managers. Thus, a key informant interview strategy is considered suitable for research on SSCM in a China context.

Interviews with senior managers in each case firm lasted between 60 and 120 minutes. With agreement from both informants, the interviews were conducted in English and recorded. While a separate interview with a frontline team member in McCain China was permitted, a similar level interview could not be secured in the case of Hormel China. To overcome the potential respondent bias associated with relying on data from a single interview, an extra interview was made with the associate director of a large-scale pork product distributor with extensive knowledge of China’s pork supply chain. While this strategy may not be an ideal, researchers have noticed that conducting case research in China requires certain flexibility, which does not compromise the quality of the data but offers challenges in revealing sources (Tan and Nojonen, 2011).

Triangulation is based on secondary data about the case companies and their industries, as well as a few additional interviews with academics and industry professionals. Annual reports and press releases (both English and Chinese) were collected to cross-reference with the

primary data collected from the interviews with key informants. Additional interviews secured with two academics from China's top agricultural university and four professionals in related service industries, improved the understanding of context and sustainability issues in China's food processing sector, supporting triangulation and ensuring the reliability of data gathered in case studies (Yin, 2003). Gold (2012) agrees that the use of experts can enhance the richness of the data and support triangulation, while Perry (1998) sees additional interviews as particularly beneficial in addressing the bias issue associated with obtaining accurate data when doing research in China. A complete list and description of interviewees can be found in the Appendix.

Case narratives to illustrate the activities of these two firms were constructed based on the primary and secondary data. The activities of these two firms were placed in temporal order so as to reflect the time dimension. Case narratives are valuable as they can provide researchers contextual insight into the operations of the firms and how their activities relate to the environment (Stake, 1995; 2005). Furthermore, a coding process was conducted after constructing the case narratives, allowing the analysis to be more systematic. Categorisation and pattern matching are based on the sustainability practices previously identified by Pagell and Wu (2009). Pattern matching processes increase the internal reliability of the study and allow future researchers to replicate the study and findings.

Data collection on stakeholder expectations

This study uses secondary data available over the Internet in order to understand stakeholder expectations regarding the focal firms' inputs; i.e. pork for Hormel China and potatoes for McCain China. In line with promises made when joining the world trade organisation, the Chinese government has encouraged transparency by establishing a rather comprehensive public database of laws and regulations. A key word search was performed on the main government portal (<http://www.gov.cn/>) to locate policy or position papers that document its position and the attention given to these specific agri-food products. The number of policies addressing pork and potatoes was recorded and the policies were studied so as to understand the government's intention in issuing them. To support understanding of media expectations, a keyword search was conducted for news articles using China's biggest search engine (<http://www.baidu.com.cn>). A specific provider of news was specified, (<http://People.com.cn>), as it is the online version of the largest newspaper in China (People's Daily). This paper also presents an authorised version of news, which increases the reliability of the source. Results were manually checked and read to ensure that news articles were in fact related to either the pork or potato processing industries.

Searches for government documents and media articles were performed in Chinese, in order to enhance the credibility of the study. The beginning of the time frame for the media search was set to April 2009 providing two years of observations, while the search for government documents was set from 2000, when the database was established. An end time frame of April 2011 was established for both searches, corresponding to the period during which interviews were conducted.

4. Case studies: The sustainable supply chain management practices of Hormel and McCain in China

A brief overview of China's agri-food market establishes the general context in which the two food processing corporations studied are operating. Following this background, case companies are introduced and findings of the case studies are presented and analysed.

Contextual background

Multinational food processing corporations have been drawn by the enormous growth potential of emerging markets like China, where the evolving needs of its consumers contribute to a dynamic retail food sector experiencing double-digit growth (Ahmed, 2011). Foreign supermarkets like Walmart compete alongside large domestic retailers with stores in 124 cities, however the market remains highly fragmented and a clear leader has yet to emerge (The Economist, 2011). Similar development in the fast food sector has seen chains like KFC grow continuously, currently with 3,000 restaurants in 650 cities and a new location opening every day (Stavish, 2011). However agri-food supply chains have struggled to evolve at the same pace and pose significant challenges for these industries (The Economist, 2011).

Despite undergoing remarkable changes, China's agri-food sector is still characterized by low levels of development and small-scale farms, as more than four-fifths of the country's 675 million rural residents (The Economist, 2011) work plots averaging 0.66 ha in size (Chen *et al.*, 2011: 583). A period of centrally planned agriculture that ended only 30 years ago has left small producers lacking financial resources, modern agricultural know-how, and efficient links into commercial supply chains (The Economist, 2011; Zhang and Aramyan, 2009). Underdevelopment and fragmentation at the producer level are mirrored throughout the food chain and have spurred intense competition, limiting profitability and a long-term perspective (China Daily, 2010; Roth *et al.*, 2008). Such conditions have in turn contributed to a string of contamination scandals, putting basic food quality and safety at risk (Roth *et al.*, 2008; Zheng and Buckley, 2011). Although China's government has implemented new regulations and initiatives to tackle these problems, reliable enforcement remains an issue (Johnson and Hofman, 2004; LaFraniere, 2011; Roth *et al.*, 2008).

Consumers who are worried about basic food safety have a general lack of trust in quality claims and certifications (Tan, 2007; Xinhua, 2011b) and reliable enforcement of official quality regulations is considered necessary to support a positive change (Roth *et al.*, 2008). Furthermore, in spite of China's impressive economic growth, 87% of urban residents still have household incomes below USD 5,000 per year, of which 35.7% is spent on food (China Daily, 2011; The Economist, 2011). Under these conditions, consumers prioritise food safety and affordability (The Economist, 2011) and remain relatively unfamiliar with sustainability concepts (Welford and Frost, 2006).

Food safety and affordability are also primary concerns for government stakeholders who aim to promote stable, economic growth and development across the country, while simultaneously considering the income needs of the millions of rural producers engaged in the chain (Fu, 2005; Tan, 2007; Zhou, 2011).

Case studies

The companies covered in this study include two North American food processors, engaged in global markets and recognised for sustainability practices that exceed industry performance. Although the two firms produce for similar markets in China, distinct differences are observed in their supply chains for key inputs and the approach taken to managing sustainability issues.

Hormel China

Hormel Foods is a processor of branded meat products, recognised by the Dow Jones Sustainability Index (DJSI) in 2010 and 2011 as among the world's top 10% most sustainable

companies, for efforts including establishment of ‘corporate responsibility standards for suppliers in addition to existing quality and safety standards’ (Hormel Foods, 2011). The company’s China operations include two joint ventures (JV) that manufacture ‘western’ processed meat products for modern retailers and the food service sector in China.

Hormel China’s primary input is pork, which make up 60% of its locally purchased raw materials. While its Beijing JV does processing and can also handle slaughtering on a small scale, the majority of Hormel China’s meat inputs are sourced on contract from other slaughtering plants in China. Hormel China’s Shanghai JV focuses on processing and product development in an R&D centre that was opened in 2008.

Pork is the most widely consumed meat in China and rising living standards have led to increased consumption (Han *et al.*, 2007). There are approximately 67 million hog farmers in China (He, 2011), with varying estimates indicating up to 80% of these are small, backyard producers (Han *et al.*, 2007: 3; Osinga *et al.*, 2010: 6). At present, there are approximately 3,700 modern slaughterhouses in China, yet together they only account for only 18% of the total market (China Daily, 2010). Manual and semi-mechanized slaughterhouses that process less than 100 hogs per day serve the remaining 82% of the market (China Daily, 2010; Osinga *et al.*, 2010: 9). The fragmented nature of the market is evident as the ten largest meat processors in China together control less than 10% of the market (China Daily, 2010). Extreme fragmentation has been a known challenge for managing quality in the pork supply chain, even for processors like Shuanghui, (China’s largest and most modern hog slaughtering and processing company) which was the subject of a Clenbuterol-tainted pork scandal in March 2011 (Xinhua, 2011a).

Hormel China has established standards for its suppliers governing food safety. These standards are monitored through annual audits and regular product testing in both the suppliers’ and Hormel’s own facilities. Safety incentive programs for its in-house employees have also been established including safety committees, monthly employee training programs and monitoring systems for injury free days. In support of this objective, Hormel China requires employees to use personal protective equipment that exceeds government regulations and in 2007 the company’s Shanghai unit was named one of the top 10 employers in China. Furthermore, Hormel China has also taken internal measures to achieve reductions in packaging, water and power use, although it has not yet implemented such measures outside of its own factories.

Even though Hormel China’s products are sold directly to Chinese consumers through modern retailers such as Carrefour and Metro, food industry customers including hotels and quick service restaurants like KFC, Pizza Hut and McDonald’s play a much stronger role in its sales and marketing. Hormel China considers itself as a niche market player, since most Chinese consumers are not yet accustomed to ‘western’ processed meats.

McCain China

McCain Foods is a processor of French fries and frozen food products. As a member of the SAI (Sustainable Agriculture Initiative) Platform, ‘a food industry organization aiming to support the development of sustainable agriculture, involving stakeholders of the food chain’ (SAI Platform, 2011), McCain demonstrates commitment to developing sustainable agriculture worldwide. Its 2009 Global CSR Report announced plans to develop a Supplier Code of Conduct including social and environmental practices (McCain Foods, 2009).

McCain China is a wholly owned foreign subsidiary, with a sales office in Shanghai and a corporate farm and production base in Harbin.

McCain China's primary input is potatoes. Although China is the world's largest potato producer (Jansky *et al.*, 2009), the potato variety used by McCain is unique and not commonly grown by Chinese farmers. Long and uniformly shaped, it has extra thin skin and a colour and taste that make it ideal for processing. As traditional potato varieties and growing practices in China were not conducive to its requirements, McCain established its own farm in 2005. Throughout the years, McCain China's corporate farm remains as a base for production and training, allowing it to introduce the variety and add contract growers to its supply chain.

McCain China introduces not only new seed varieties and modern farming technology, but also new growing techniques and farming practices. In the beginning, the company spent a couple of years working with existing potato growers and studied their existing methods, but the hardpan soil developed through years of shallow cultivation restricted efficient use of water and nutrients and subsequently resulted in inconsistent production quality and yields. McCain China developed a trial farm project after recognizing the need to demonstrate the new technology and convince Chinese growers of its value. Tractors and ploughs were brought in to deal with the hardpan and automate the planting and harvest, and modern irrigation systems were also introduced to overcome the dry conditions in the region. McCain also dispatched an agricultural team to Harbin to establish a seed multiplier unit and introduce varieties best suited to the specific growing conditions.

Additional support provided by McCain China to their growers comes in a number of forms. First of all, the company commits to long-term purchasing contracts with growers who demonstrate a dedication to this business, offering stability and the financial reassurance necessary to take on long-term land leases and other costly commitments. Growers also receive price premiums for growing according to McCain's production standards, which supports profitability. To assist with volatility and rising prices of inputs such as fertilizer and chemicals, McCain assists long-term growers by providing loans that can be repaid at the end of the season when payment is received. Furthermore, to address the challenge growers have to attract and retain competent talent, McCain China hires employees ranging from machine operators to technicians and agronomists, providing training for up to three years on its demonstration farm, before offering them for hire by its growers. Additionally, McCain has implemented its global GAP (Good Agricultural Practice) program in China, which aims to train farmers to grow potatoes wisely and with respect for the environment (soil, water and air) and people. A key factor affecting both is chemical usage and growers and their employees receive safety equipment and training on application, while the program specifies European standards restricting and testing for residues of over 300 toxic chemicals.

McCain China's frozen potato products are primarily sold to multinational quick service food restaurants in China, including KFC and McDonald's. These companies remain McCain's main customers wherever it operates, and they have strict global requirements for the safety and quality of potato products produced by McCain.

5. Analysis and Discussion: How local stakeholder expectations influence the sustainable supply chain management practices of Hormel and McCain in China

Supply risk

The assessment of supply risk associated with key inputs used by case food processors was made according to factors introduced in the Kraljic (1983: 112) model on which the Sustainable Purchasing Portfolio Matrix is based. The analysis (illustrated in Table 2) is conducted on five dimensions including the availability of supply, the number of suppliers, the competitive demands, make or buy opportunities, and lastly the logistical or storage risks.

Table 2. Supply risk associated with key inputs used by Hormel and McCain in China

	Hormel – high quality pork	McCain – specialty potatoes
Availability	China is the world's largest pork producer with approx. 67 million hog farmers, and 3,700 modern slaughterhouses. The risk of not having available input is low.	China is the world's largest potato producer, but growers need training/supervision in Good Agricultural Practices (GAP) required to grow according to food service industry standards. The risk of not having sufficient volumes of these special potatoes is relatively high.
	Risk: Low	Risk: High
Number of Suppliers	Large number of suppliers and slaughterhouses located across the country.	Due to varietal and quality requirements, there are few growers with the capital, know-how, equipment and land required to economically grow these potatoes. McCain continuously invests to develop new and existing suppliers and has challenge to retain growers facing high costs and attractive alternative investments.
	Risk: Low	Risk: High
Competitive Demand	As even the top 10 processors control less than 10% of the market, the volume Hormel China requires relative to the whole supply of pork in China is relatively low.	Fast food and snack food sectors growing rapidly - McCain and other processors challenged to secure sufficient supply to meet demand. Fast rising food prices have also given potato growers option to sell directly to the market when table potato price is higher than McCain's contract rate.
	Risk: Low	Risk: High
Make or Buy Opportunities	Contracts/ spot market prevail as pork is widely available from large base of small producers. Little incentive and too costly to internalise supply chain, as limited vertical coordination throughout the industry.	McCain China introduced the special potato varieties, beginning with its demonstration farm and gradually added contract growers to increase supply. Internalising supply chain would tie up vast amounts of capital due to high land-rental and equipment costs, leaving 'make' a costly solution.
	Risk: Low	Risk: High

Logistics or Storage Risks	Costly to store frozen product but supply readily available year-round in locations close to production.	Potatoes harvested once/year in McCain's processing region. Bulk and perishability prevent long distance shipping and storage.
	Risk: Low	Risk: High
Overall	Relatively low	Relatively high

As seen in Table 2, the supply risk for pork inputs sourced by Hormel China is relatively low, given that product is available year round from a large and highly competitive base of supplier. However in the case of McCain China, the special variety of potatoes they process are only available from a limited number of growers with the knowledge and resources necessary to grow them, making its supply risk relatively high.

Threat to Triple Bottom Line

The analysis of sustainable supply chain practices in case firms is based on the practices identified by Pagell and Wu (2009). However, not all of these are found in the data collected for this study, therefore only those practices that appear in at least one case firm are presented. Furthermore, Elkington's (1999) definition of the triple bottom line (TBL) was considered when constructing the categories of sustainable supply chain management practices, as can be seen in Table 3.

The two case firms communicate management efforts in all three dimensions of the TBL. Hormel China and McCain China both demonstrate performance in the social dimension, actively developing sustainability concepts and commitment internally. However looking closely at the economic and environmental dimensions, differences in management practices are more visible. McCain China works closely with its suppliers to develop capacity and help mitigate their risks, which in general contributes to supplier continuity. Similar practices are not observed in the operations of Hormel China. Likewise McCain China makes significant efforts to develop its own certification for growers who are trained and monitored according to the company's GAP program that addresses soil and water management and the usage of chemical inputs. Hormel China, on the other hand faces a huge and fragmented market where traceability and efforts to certify environmental behaviour appear to be virtually impossible.

Table 3. Hormel's and McCain's sustainable supply chain management practices in China

		Hormel	McCain
Social	Proactive stance/ Organisational commitment	Y	Y
	Touchstone value	Y	Y
	Maintains and/ or build culture formally	Y	Y
	Integrate environmental efforts into the entire organisation	Y	Y
	Sustainability as part of daily conversation	Limited	Y
	Sustainability fit in business model	Y	Y
	Commitment to employees	Y	Y
Economic	Supplier selection	Limited	Y
	Collaborate with suppliers	N	Y
	Reducing supplier risk	N	Y
	Supplier development	N	Y
	Buy on total cost not price	N/A	Y
	Transparency	N	Y

Environmental	Continuity of suppliers	N	Y
	Collaborate with customers	N/A	Y
	Supplier certification	Limited	Y
	Traceability	N	Y
	De-commoditise input	N	Y
	Developed own certification	Y	Y
Overall	Local chain	Y	Y
		Medium	High

In the case of McCain China, the practices targeting improved TBL sustainability performance in the upstream of its supply chain are closely interlinked and directly support the economic sustainability of its business. Although this may be contributed to the fact that McCain China has had to build its whole supply chain from scratch as the special variety of potatoes used are not available from average Chinese growers, the company has remained committed to supporting suppliers even as they and the supply base have grown significantly. On the contrary, given the highly fragmented and underdeveloped nature of the pork supply chain, Hormel China sees its system of contract specifications, verified by parallel product testing and audits, as the most appropriate means of managing the sustainability issues.

Based on the analysis of SSCM practices in these two firms, there appears to be a difference in how they manage potential threats to the TBL. McCain China has taken a broader approach that includes a wide range of practices supporting social, economic, and environmental sustainability. The implementation of the GAP program clearly contributes greatly to McCain China's holistic approach and proactive management of TBL threats. This proactive approach appears to have paid off in 2010 when rapid inflation in food commodities in China sent the price for standard table potatoes above McCain's contract rates in just a short period of time. While some growers broke contract and sold into the retail market, most growers chose to honour commitments which can be credited to the mutually beneficial relationships that McCain believes have been nurtured through its GAP practices and commitments. On the other hand, Hormel China's SSCM practices are more reactive and demonstrate a defensive approach to managing potential threats to the TBL. The company places great emphasis on employee development in order to build a strong committed organisation from within. It also adopts a rigorous system of checks for quality and chemical residues in the pork it sources, at both suppliers' plants and in its own facilities. These activities can be seen to contribute to Hormel China's organisational strength and capability in handling potential quality issues in pork inputs.

Local stakeholder expectations

The local stakeholder expectations assessed are a combination of the government and media attention given to the raw material inputs used by the two case firms, i.e., pork and potatoes. Specifically, this study looks at what the Chinese government has included in its policy papers, what Chinese governmental news have has focused on, and what the Chinese media has reported in relation to pork and potatoes. Table 4 shows a summary of the data collected.

Table 4. Local stakeholder expectations regarding pork and potatoes

	Pork		Potatoes	
	No.	Subcategory	No.	Subcategory
Governmental policy (specific)	5	(1) Subsidy (1) Insurance (1) Slaughterhouse regulation (1) Industry development (1) Stable supply	0	N/A
Governmental policy (general)	14	(6) Quality & safety (5) Price & supply (1) Logistic (1) Storage (1) Consumption	18	(9) Grower & local economy (3) Foreign direct investment (2) Subsidy (1) Processing (1) Logistic (1) Farm machinery (1) Regional development
Governmental news	152	(130) Price & supply (14) Quality & safety (2) Traceability (2) Industry & processing (1) Import & export (1) Miscellaneous	15	(10) Grower & local economy (3) Misc. (e.g. conference) (1) Potato industry (1) Int'l cooperation
Media news	212	(56) Quality & safety (40) Price & supply (29) Quality & slaughterhouse (24) Grower (21) Shuanghui* (19) Regulatory supervision (15) Supply chain (6) Traceability (1) Import & export (1) Miscellaneous	121	(68) Grower & local economy (31) Potato processing industry (9) Price & supply (8) Miscellaneous (4) Subsidy (1) Import & export

* Shuanghui is China's largest pork processor and was caught in a scandal involving the discovery of the illegal additive Clenbuterol in its products in March 2011 (Xinhua, 2011a).

As seen in Table 4, there is a clear difference between the views Chinese government and media have on pork and potatoes. Not only does pork receive much stronger attention from local stakeholders than potatoes, the interests are also clearly different. Pork has largely been discussed in terms of quality and safety issues, as well as price and supply stability. On the other hand, policies and discussions related to potatoes have generally related to farmer welfare and how this crop may help to develop local economies.

The different concerns and perspectives local stakeholders have regarding pork and potato production and processing are not surprising, as these inputs clearly play very different roles in Chinese society. While pork and potatoes are both important elements of the Chinese diet, rising standards of living have dramatically increased consumption of meat, in particular pork. China is the world's largest consumer of pork. It is much loved in Chinese cuisine and the consumption of pork is an important sign of status for those climbing out of poverty. Thus, it is easy to see why the government has focused on keeping the supply and price of pork as stable possible. At the same time, high profile scandals involving the safety and quality of pork products in recent years have aroused public concern and exposed the whole pork supply

chain to scrutiny, even bringing regulatory bodies under closer supervision. In comparison, the humble potato producer in China has not attracted as much attention from government or from media. Potatoes are not as key a staple as pork and producing potatoes in China is still seen largely as a way for villages to become more prosperous, although the scale of the industry is nowhere near as large and important as that of the pork production industry. Little has been publically discussed in terms of quality issues and production challenges are less related to politics or market management, but rather that of ensuring the delivery of contracted quantities.

The relationship between local stakeholder expectations and SSCM practices

Aiming to understand how sustainable supply chain management (SSCM) strategies are being developed in China's food processing sector, this study has investigated the practices of two multinational food processors, Hormel China and McCain China, both with a common customer base and strong records of SSCM performance at the corporate level. The diverging picture of sustainability practices in the China operations of these two firms is partially understood through analysis of the *supply risk* and *threat to TBL* dimensions employed in Kraljic (1983) and Pagell and Wu (2009) respectively. Furthermore, stakeholder expectations in the local market have also been analysed, with rather distinct expectations found for pork and potatoes. The question that remains to be answered then is: How and to what extent, do local stakeholder expectations influence the SSCM practices of multinational food processors in an emerging market?

The analysis of supply risk and threat to TBL in the cases of Hormel China and McCain China shows that SSCM practices have been developed very differently in these two focal firms. Mapping out their practices using the Sustainable Purchasing Portfolio Matrix (Pagell *et al.*, 2010), Hormel China can be seen to treat pork largely as a commodity while McCain China actively engages with its suppliers, treating potatoes as more of a strategic input (Figure 3). It may almost seem counter-intuitive to consider pork inputs as less strategic than potatoes, particularly in a market like China where pork is such a key element in the diet. However in the case of McCain China, the potatoes it uses are a special variety and the limited number of growers with the knowledge and resources to grow them according to required standards, has a significant impact on supply risk, leading McCain China to make conscious investments in its suppliers.

Figure 3. Sustainable Purchasing Portfolio Matrix analysis of Hormel and McCain in China

This study shows that, in the context of a developing market like China, the SSCM practices of multinational food processors are much influenced by the expectations of local

stakeholders in terms of both direction and content. Both government and media stakeholders, have strong expectations regarding the quality and price stability of pork. In contrast, key concerns regarding the potato industry focus on whether growers are being taken care of and how growing potatoes can support the development of rural economies. When entering a new market, foreign firms are normally less resourceful than in their home markets. They also suffer from information asymmetry and the perceived local stakeholder expectations may be amplified. Thus, it is understandable that they may choose activities in line with what the locals expect. *When in China, do as the Chinese expect us to do.*

Hence, what can be seen in the results of this study is that Hormel China has focused its sustainability efforts on making sure the quality of its pork products are up to expectations. It does not need to expand the sustainability initiatives to other actors in the supply chain as the responsibility for this has largely been placed on the authorities. Not only does the Chinese government actively monitor the stability of supply and price of pork in the market, Chinese authorities have also been subject to media pressure to ensure product quality throughout the entire supply chain from producers to consumers.

In comparison, McCain China's sustainability activities have expanded outside the boundaries of the firm and focused on working with growers. It is evident that the variety and growing practices for potatoes used by McCain are unique, making it necessary to build the supply chain from scratch. However, the quality of potatoes has received much less public attention and concerns have rather evolved around the role of the potato industry in helping local farmers to grow in prosperity and develop the local economy. In other words, local stakeholder expectations focus on potato growers, rather than the humble potato itself. McCain China indeed aims most of its sustainability efforts towards helping local farmers, offering them long-term contracts with price premiums, training and many other forms of support. As official regulatory guidelines do not meet the company's standards, McCain China has also had to implement stringent guidelines for growing potatoes and tests for chemical residues.

The discussion of this study points out a possible extension to the Sustainable Purchasing Portfolio Matrix (SSPM) developed in Pagell *et al.*'s 2010 study, highlighting that the expectations of local stakeholders may have a strong impact on the choice of SSCM practices a firm engages in. This may be particularly so in the context of the agri-food sector in a developing market where institutions are still evolving. Companies like Hormel China focus on addressing the primary concerns of stakeholders regarding quality, safety and price of pork. Where stakeholder expectations for a product like potatoes are low, official guidelines may be limited leaving firms like McCain China to address TBL requirements through extensive engagement with its suppliers. In doing so they also align with the expectations of government in developing the potato sector.

When local stakeholder expectations evolve

Local stakeholder expectations are prone to change and the change may be temporary in response to a particular issue, or it may be a permanent shift. Pagell *et al.* (2010) have discussed the transitional phase during which stakeholders may dramatically change their expectations and relative emphasis on an attribute of a firm's supply chain. Firms encountering these changes may temporarily increase their commitment to, and engagement with suppliers of the affected input, addressing the related information asymmetry in the market, or continue the more active involvement where this creates long-term strategic benefits.

Although not the aim of this study, empirical findings include a few changes in stakeholder expectations during the two-year time frame observed. The increased frequency of media reports on pork safety issues is one of these. Although this issue was noted in media reports throughout the period from 2009 to 2011, it gradually became more intense, building up to an apex when pork from Shuanghui, China's biggest pork processor was found contaminated with the illegal additive Clenbuterol. A big scandal like this may trigger the type of transitional phase addressed by Pagell and colleagues, however the affected firms need to understand whether it is going to be temporal, or involve a shift to a new normal. Does the safety of pork have the potential to become a permanent problem in a developing market like China that may eventually lead to the threat of supply risk?

A similar, but slightly different situation can also be observed in the potato production and processing industry. Most of the government policy papers encouraging potato growing and processing as a means of spurring development of local economies were issued from 2008 onwards. In particular, in a 2009 policy paper addressing the difficult situation many farmers faced after the onset of the world financial crisis, the central government announced its decision to provide subsidies of 100 RMB (roughly \$15 USD) for every mu (1 ha = 15 mu) of seed potatoes grown (State Council, 2009). How may this specific emphasis on potatoes, which had never before received such support by the Central government affect potato processing firms and their SSCM practices?

It could be argued that more permanent changes may come out from these temporary transitions. Developing markets are often characterised by weak institutional structures, particularly in relation to the agri-food sector. Resulting food safety incidents will inevitably occur and receive media attention. When this happens, the government will be expected to show that it has control, through legal enforcement and at times also by changing existing regulations. Thus, a high profile scandal may induce permanent shifts in regulatory institutions that totally change the rules of the game. Unfortunately these questions are outside the scope of this current study, and leave opportunity for research employing a longitudinal design to observe how the SSCM practices of firms change when stakeholder expectations are evolving. Studies explicitly including a time dimension can probably focus on the transitional phase described by Pagell *et al.* (2010) to understand conditions under which it is truly temporal, or has the potential to lead to a permanent shift in the market structure which the focal firms have to adapt to.

6. Conclusions

In an increasingly global agri-food industry, where much of the opportunity for future growth is expected to occur in emerging markets like China, multinational food processors making commitments to sustainable supply chain management (SSCM) strategies need to understand the contextual factors that impact their ability to do so. While conditions appear to not yet support the broad introduction of SSCM in China, opportunities may exist to learn through initiating such practices with suppliers of strategic inputs.

This study has focused on the SSCM practices of multinational food processing corporations in an emerging market, in this case China, and how they may have been influenced by local stakeholder expectations. Findings from an exploratory qualitative case study suggest the SSCM practices of firms entering these markets are not purely dependent on the type of food input used; instead, their SSCM practices will also be significantly influenced by the expectations of local stakeholders. As existing SSCM research has largely been cross-sector

focused and involved operations of firms where suppliers and/or end users are situated in developed markets, this study therefore contributes to the discussion on SSCM specifically in the agri-food sector of an emerging market context.

The implication of this study is that firms should be more aware of the influence the expectations of local stakeholders may have on their SSCM practices when entering emerging markets. Although multinational food processing corporations are normally considered to be resourceful, and possess advanced knowledge of SSCM, these advantages may or may not be realised when facing a totally different host environment, which the firms may find unfamiliar. The expectations and demands of local stakeholders, in particular host governments and media, can influence and shift the choice of SSCM activities made by firms entering the market. Firms need to carefully evaluate their operation and the host environment, and understand local expectations when establishing SSCM strategies.

This study has taken a holistic view towards investigating the SSCM practices of focal firms, and the corresponding expectations of stakeholders, which prove useful in understanding the choice and potential impact of SSCM strategies. Although access to data was limited in one focal firm, it was strengthened by complementary data collected from industry experts. Use of government policy papers and media news articles to construct the expectations of these two key stakeholders has proven to be fruitful in bringing out information regarding the context in which the focal firms operate.

Furthermore, while this study produces useful insights that allow for comparison to existing studies and literature, opportunities for future research remain, as exploratory case studies like this are limited in terms of potential to generalise findings. Studies including large samples may help to establish causality between local stakeholder expectations and focal firms' SSCM practices. In addition, research comparing the SSCM practices of a multinational firm's subsidiaries in both developed and developing markets may provide additional insights into how these entities respond to their local environments. Future studies may also investigate the supply chains of Chinese domestic food processors to expand insights into the potential for SSCM practices to improve quality and reduce costs due to food safety hazards and related liabilities.

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Appendix: List of interviewees included in this study

Interviewee	Position	Interview date	Interview duration
Guo, Woody	General Manager China (now former), Hormel Foods International Corporation	2011-03-18	60 mins
Wang, Rengui	Agriculture Manager, McCain Foods Limited China	2011-04-03	120 mins
Chen, Allen	Agronomy Manager, McCain Foods Limited China	2001-03-15	60 mins
Mi, Zengyu	Associate Professor, Department of Economics, China Agricultural University	2011-03-21	120 mins
Chen, Honghua	Associate Professor, Department of Economics, China Agricultural University	2011-03-21	120 mins * Professors Mi and Chen were interviewed together
Industry Expert A	Associate Director, Wholesale meat trader in Shanghai	2011-03-04	60 mins
Industry Expert B	Investment Consultant, Venture capital firm in Shanghai with agricultural investments	2011-03-13	60 mins
Industry Expert C	General Manager, Consulting firm engaged in research for World Bank development projects	2011-03-15	120 mins
Industry Expert D	Senior Consultant, Market entry consultancy supporting investment in China's agriculture sector	2011-03-22	90 mins