The Management of Perceived Risk: 
A Multi-tier Case Study of a UK Retail Beef Supply Chain

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1. INTRODUCTION
Competitive pressures, together with regulatory and industry responses to a series of food safety and quality issues during the 1980’s, have impacted on contractual relationships within the UK beef industry, resulting in the development of co-ordinated supply chains between retailers, processors and farmers (Fearne, 1998). The introduction of the 1990 Food Safety Act and the consequent ‘due diligence and reasonable precautions’ defence, together with the Consumer Protection Act 1987 (Part 1) and the Beef Labeling Scheme have driven both industry-led and proprietary assurance schemes which attempt to increase information in order to reduce the risks associated with safety and quality issues. Vertical sector schemes such as Farm Assured British Beef and Lamb (FABBL) together with horizontal schemes which link sector level schemes, such as the British Farm Standard, attempt to increase information along the supply chain. In addition, public monitoring and inspection activities, such as mandatory inspections by the Meat Hygiene Service (MHS) at the processor level, result in the publication of Hygiene Assessment Scores (HAS) scores.

1 The Beef Labeling Scheme requires compulsory labeling of specified information, and third party verification together with approval of voluntary labeling of other claims such as origin, characteristics and production method.
2 It is an offence under the 1990 Food Safety Act to sell food that is not of the nature, substance or quality demanded by the purchaser, or falsely or misleadingly labeled or presented. Part 1 of the Consumer Protection Act 1987 introduces strict liability on producers, importers and own-branders for death, personal injury, loss or damage to private property caused by defective products.
3 Farm level schemes require adherence to standards covering items such as animal welfare, feed composition and storage, housing and handling facilities, medicines and veterinary treatment, movement records, livestock loading and transport.
4 The system was developed as an objective, risk-based method of assessing hygiene standards, with premises assessed against performance criteria covering all significant aspects of production each weighted according to their relative risk. The HAS score ranges between 0-100, with highest scores indicating better performance.
Retail fresh meat sales in the UK are almost exclusively ‘own brand’ and the need to maintain consistent quality has become paramount in the fight for consumer loyalty between the major multiples. The drive for more consistent eating quality has become a competitive strategy amongst retailers to gain market share, and has led to various attempts at marketing differentiated quality beef products through co-ordinated supply chains. However, the structure of the UK retailing sector is such that market power is also a feature, with multiple retailers able to impose their requirements very effectively on the supply chain (Northen, 2000). Co-ordinated supply chains require members not only to belong to industry-led assurance schemes, but also to meet the additional costs of complying with proprietary safety and quality requirements for own brand beef products. However, the economic benefits resulting from the success of own brands is offset by an increase in the level of risk for those retailers who invest in differentiated quality beef products. The more detailed their requirements and instructions to their upstream suppliers, the more they are held responsible for the safety and quality of the end product by both regulators and consumers.

Contractual arrangements between parties along the supply chain have changed over time, as consumers delegate beef safety and quality to retailers, and retailers become de facto manufacturers of own brand beef products. By delegating the task upstream, to the processor and farmers, the need for control and information is paramount in order to protect the retailers’ reputation and market share.

From the above, it can be assumed that the cost of meeting safety and quality requirements for fresh beef products has increased at every level in the supply chain, and that there will be a consequential trade-off between incurring such costs and the perceived risks associated with product failure (Henson and Northen 1998). The focus of the Transaction Cost Economics literature (Hobbs 1995; Bredahl and Holleran, 1997; Henson and Northen, 1998) concentrates on the costs associated with meeting safety and quality requirements. The reality is that benefits accrue to supply chain members, to varying degrees, as a result of actions taken to reduce perceived risk and an alternative approach is required which accommodates the trade off between the costs and the
perceived benefits associated with product success for all stakeholders in the supply chain.

This paper contributes to the supply chain literature in three ways. It offers an alternative approach to the traditional Transaction Cost Economics view of information asymmetry in supply chains; presents a robust supply chain research methodology, and submits empirical evidence of the perceived risks, associated management strategies and benefits for all members, including consumers, of a retail co-ordinated supply chain for fresh beef. The paper is presented in four parts. The first section establishes the theoretical framework. The chosen research methodology is described in section two, and the results of the supply chain case study are then presented in section three. The final part draws some conclusions and presents recommendations for further research.

2. **THEORETICAL FRAMEWORK**

The theoretical framework (Figure 1.) views the co-ordinated supply chain for own brand beef products as a series of principal-agent dyadic relationships, in which the contractual terms are influenced not just by individual goals, but by the previous dyad and by the perception of risk associated with the beef product category and the specific ‘own brand’ product. In particular, it is proposed that it is the level of perceived risk, rather than objective risk, which will determine both the contractual terms and the nature of incentives designed to induce both parties to act co-operatively. If perceived risk exceeds the acceptable degree, then this triggers the motivation for risk reducing behaviour, either by increasing certainty through information handling, and/or reducing the consequences. The following sub-sections explain and discuss the basis of the theoretical model, namely Principal-Agent theory and Perceived Risk theory.

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5 Consisting of consumers, retailer, processor and farmers.
2.1 Principal Agent Theory

Agency relationships, in which the achievement of one individual’s goals depends upon the action of another, pervade every aspect of social and economic co-operative activities, and the extent of the literature reflects the universal appeal of Principal Agent Theory for both sociologists and economists.

Principal Agent Theory is concerned with situations in which one party, namely the principal, requires a second party, namely the agent, to undertake an action on the principal’s behalf. The dyadic approach of the theory is concerned with the design and form of the contract which ensures that the agent will act in the best interests of the principal, and that the overall costs to the agency relationship of ensuring such behaviour are minimised, given differing risk preferences, environmental uncertainty and information asymmetry.
Moral Hazard, or *hidden action*\(^6\), is usually associated with post-contractual problems that emerge after a principal and agent have engaged in a relationship. When a principal has only limited information regarding the agent’s behaviour, the principal has two options. One is to discover the agent’s behaviour by investing in information systems, which will limit the opportunity for shirking and reveal the agent’s behaviour to the principal (behaviour-based contract). The other is to contract on the outcomes of the agent’s behaviour (outcome-based contract), which has the benefit of aligning the agent’s objectives with the principal’s, but at the price of transferring risk to the agent (Eisenhardt 1989). Bearing in mind that outcomes are a function of both effort and uncertainty, this strategy will result in some risk shifting to the agent as the agent may receive a low return regardless of how much effort is expended. Both strategies will involve additional costs; the cost of the information systems, and the cost of measuring outcomes and transferring risk to the agent. Under these conditions, an agent will require additional incentives to take on the increased risk entailed in an outcome-based contract (Hendry 1997).

Most of the literature assumes that a principal is risk neutral, whilst an agent is typically risk-averse\(^7\). According to Agency Theory, we would expect to see behaviour based contracts in the UK beef industry when agents are risk averse and principals risk neutral, when outcome uncertainty is high, and when the task is easily prespecified, observed and evaluated. Again, according to the theory, we would expect to see outcome based contracts when principals are more risk averse, agents less risk averse, when outcomes are easily measured, when goal conflict between principal and agent is minimal and during the early stage of relationships between principal and agent. However, Principal Agent theory is only concerned with contractual arrangements between the dyad, and does not take account of supply chain behaviour. In addition, the perfect markets assumption behind the theory ignores issues of power and resource differentials, (Perrow, 1985) places the origin of the term moral hazard in the insurance literature, in particular fire and health.  

\(^6\) Risk aversion has variously been described as a preference for a sure thing over a gamble (Besanko, Dranove et al. 1996), or security rather than adventure (Bergen, Dutta et al. 1992). Large firms who are able to spread risks either through the manufacture of a large product range, or through the purchase of
and assumes that agents have a choice in accepting contractual terms, including bearing the cost of monitoring. Contractual provisions between principals and agents in the UK beef industry display elements of both outcome based (e.g. product quantity, deadweight grades, conformation, and fat level) and behaviour based contracts (e.g. personal relationships, audits, monitoring, third party accreditation), the relative importance of which have changed over time. Consumers, acting as principals, have also increasingly demanded more information on the behaviour of their agents, the retailers. Clearly, there is a need for a complementary perspective in order to expand Principal Agent theory in order to better accommodate and explain consumer and organisational behaviour.

2.2 Perceived Risk Theory
One such complementary perspective is Perceived Risk\(^8\) Theory, initially used by marketing researchers to understand the effect on consumer behaviour of making purchase decisions under conditions of imperfect information (Bauer 1967).

2.2.1 Consumers
Cox (1967), and Cunningham (1967) first described perceived risk as comprising two components: uncertainty and adverse consequences. Both the probability and outcome of each purchase event is uncertain, which is a different perspective from the economic view of risk, which implies that a decision maker has \textit{a priori} knowledge of both the consequences of alternatives and their probabilities of occurrence (Dowling, 1986). Other researchers note that risk perception is shaped more by the severity of the consequences than the probability of occurrence (Slovic \textit{et al}, 1980, Mitchell, 1998, Yeung and Morris, 2001). Under certain circumstances, some consumers are more likely to be affected by the size of the consequence rather than the probability, with many appearing to disregard the probability altogether (Diamond, 1988, Mitchell, 1998). The observation that risk

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\(^8\) For a comprehensive literature review on models of perceived risk, see Mitchell, 1999, and for consumer risk reducing strategies (brands, price, reference groups, reputation, past experience, packaging etc) see Mitchell and McGoldrick, 1996.
perception is shaped more by the severity of the consequences than by the probability of occurrence is reiterated by Yeung and Morris (2001), who review the literature stream associated with Slovic et al (1980). Risk is viewed as having a set of characteristics, the nature of which can explain public reactions, and that such characteristics can be grouped into three antecedent factors or attributes, namely ‘dread’, ‘unknown’ and ‘number of people exposed to the risk’. Yeung and Morris explain that food safety risk is particularly associated with the ‘dread’ factor, as consumers associate greater risk with circumstances and practices which they perceive are controlled by others; if they think they are not well informed and their right to free choice is compromised; if the risk is involuntary, and if a series of hazardous events close in time or space occurs.

In addition to the two principal determinants of perceived risk - uncertainty and adverse consequences - researchers have proposed that the consequences from a purchase can be divided into various types of loss: namely, performance, physical, financial, psychosocial, time etc. (Mitchell, 1998); or functional, psychological, social and monetary (Dowling and Staelin 1994). In the case of beef, performance risk can be defined as expected sensory attributes such as taste and tenderness and financial risk relates to value for money. Physical risk relates to the possible danger or harm to the individual, or others, due to food safety or nutritional attributes; whereas time risk is associated with product availability and preparation time. Psychosocial risk is associated with the possible loss of self-image or social embarrassment relating to process attributes, such as animal welfare standards and the effect on the environment from production methods. The overall level of perceived risk is viewed as the sum of the attributes’ perceived risk levels, with the degree of risk perceived varying by individual consumer, depending on the person, the product, the situation and the culture. If perceived risk exceeds the tolerable degree of the individual\(^9\), then this triggers the motivation for risk-reducing behaviour.

Perceived risk can be reduced through increasing certainty and/or reducing the consequences, and seeking information is one such strategy. Information can both

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\(^9\) Consumer or organisation.
increase certainty and reduce possible adverse consequences. Sources of information can be classified as either Marketer dominated communication channels, Consumer dominated channels and Neutral information sources (Cox 1967). As an example, the existence of a money-back guarantee, product exchange or warranty can be viewed as post-purchase risk reducing strategies, the aim of which is to reduce the consequences of an unsatisfactory purchase. However, they can also be viewed as pre-purchase risk reducing strategies if the consumer seeks out the information prior to purchase and takes the promise of compensation into account when making the purchase decision.

Other researchers have developed Perceived Risk Theory by describing overall perceived risk as composed of two classes of risk - alternatively described as inherent risk and handled risk (Bettman 1973; Dunn, Murphy and Skelly, 1986;) or product category risk and product-specific risk (Dowling and Staelin, 1994). Product category risk (PCR), or inherent risk, describes the perception of risk associated with a particular category. Product Specific Risk (PSR), or handled risk, is specific to the item being considered, with different products in a category associated with varying degrees of perceived risk. Total or overall perceived risk for a specific product is therefore a combination of PCR (the fixed component) and PSR (the variable component).

2.2.2. Organisations

In addition to consumers, the impact of perceived risk on a purchase decision can be extended to business-to-business purchase situations (Mitchell, 1998). The Perceived Risk framework has been used to view the positioning strategies of food retailers in the UK (Mitchell 1998; Mitchell and Kiral 1999). In contrast to the above work, which concentrates on the effect of consumers’ perceptions of risk at the store level, theoretical debate on the possible impact on complete supply chains has only recently emerged (Zwart and Mollenkopf, 2000, Yeung and Morris 2001). However, to the authors’ knowledge, no theoretical framework or methodology has been developed to date to view the effect and nature of perceived risk associated with product safety and quality attributes at each point along a supply chain.
Mawson (1996) identifies that consumer goals and organisational goals differ, in that organisational demand, although derived from consumer demand, is more driven by objective elements such as product quality specification and consistency, while financial risks are generally much higher than those faced by consumers. As well as possible financial consequences, Mitchell (1998) identifies time loss as being appropriate when applying Perceived Risk theory to organisations, in particular the time required to investigate, recall and replace product in the event that organisational goals are not met. Therefore, the two risk components of uncertainty and adverse consequences are translated into two distinct types of organisational loss, namely financial and time, whereas consumers face additional types of loss. In addition, the latter is influenced by two further factors – risk tolerance and the level of wealth, both of which affect the acceptable level of risk. Risk tolerance may be viewed as a point along a continuum between risk averse and risk seeking, whereas wealth level impacts on the ability of an organisation or consumer to absorb a loss. The resultant perception of risk will then stimulate risk reducing strategies, such as increasing information and/or reducing the consequences, if the benefit, in terms of reducing perceived risk, is perceived to exceed the cost (see Figure 2).
3. METHODOLOGY
The case study methodology is considered to be appropriate in agri-food research because traditional market structures and relationships are being replaced by new organisational forms (Sterns, Schweikhardt and Peterson 1998; Westgren and Zering 1998). In addition, it is the preferred strategy when researching relatively new areas, where there is little prior experience and available theory to serve as a guide (Ghauri, Gronhaug and Kristianslund 1995). Case study research can consist of either qualitative or quantitative data, or both, incorporating multiple data collection methods including archived material, interviews, questionnaires and observations (Eisenhardt, 1989).

For the purpose of this study, a two-stage research plan was developed (see Figure 3.). The first stage was viewed as a ‘stage setting’ exercise, in order to gain a broad understanding of contractual relationships in the UK beef industry, including both public and private relationships and the interaction between them. As an initial step, exploratory
interviews were held with representatives of key industry stakeholders\textsuperscript{10} using a semi-structured interview guide, in order to gain an overview of the drivers and effects over time of changes in contractual relationships. The objective of these interviews was to obtain differing views regarding the risk associated with buying and selling beef, and the methods used to manage such risk. Following these interviews, a more detailed semi-structured interview guide was developed using constructs derived from the theoretical model, specifically organisational goals, perceived risk, contractual terms, and incentives between principal and agent. Interviews were then arranged with the meat buyer or technologist of key distribution outlets. The objective of these interviews was to test the suitability of the interview guide, to gain the co-operation of key players and to identify possible case studies of complete supply chains for own-brand beef products.

Figure 3

Supply Chain Case Study Methodology

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<tr>
<th>Stage One</th>
<th>Stage Two</th>
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<td>Industry Stakeholders</td>
<td>Retailer</td>
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<td>Key Players</td>
<td>* Interviews</td>
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<td>* Secondary data</td>
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Following the agreement of one retailer to participate in the supply chain research, the second step involved gaining the co-operation and agreement of the rest of the supply

chain; conducting face-to-face interviews using the same semi-structured questionnaire, and collecting secondary data. Finally, qualitative data was collected, through a series of focus groups with consumers of the own-brand beef product. Due to the request from supply chain members for anonymity, we have used pseudonyms when describing the retailer, processor and farmer’s group in the following case study results.

4. **CASE STUDY RESULTS**

4.1 **The Retailer**
Retailer A is one of the smaller food retailers in the UK, with stores situated mainly in town centre sites. It has consistently sought to increase market share through niche strategies, has a reputation for quality and choice, and a fairly narrow customer base, mainly ABC1’s, whose average spend per trip is above the national average. Research has shown that the company is heavily reliant on secondary shopping in that many shoppers visit for treats and special occasions rather than for everyday groceries.

Retailer A’s buying goals for fresh beef are determined by the organisational strategies adopted by the organisation in order to meet the needs of their particular customers, and in order to deliver a difference from their competitors. The risks associated with buying livestock and selling beef in general, or Product Category Risk, were identified as environmental uncertainty, such as the relatively long growing period for cattle, disease, climate, soil type, and weather conditions. In the opinion of Retailer A, the biggest risk in producing beef lay with the producers because beef production is such a long-term arrangement. A further risk was the need to add value to a commodity product. This was a particularly difficult task, because meat is the only raw material that is taken through a disassembly process, and then put back together in order to add value and improve returns for everyone in the supply chain.

In order to manage the risks associated with buying and selling beef, all producers have to be farm assured, which is viewed as the base standard. Beef producers must belong to
at least FABBL, FAWL or SQBLA\textsuperscript{11}. Those farmers who do not see the need for farm assurance are viewed as being unsuitable as suppliers. A high HAS score for a processor is seen as essential, as well as HACCP systems in place and membership of quality management systems such as ISO 9000.

Product Specific Risk is managed through personal and collaborative relationships with suppliers, with some trading relationships lasting twenty or twenty five years. Over the past five or six years, the importance of such relationships has increased because of recent food safety incidents. The dedicated or sole supplier arrangement is viewed as essential; Retailer A has two suppliers for beef, one for pork, two for lamb, one for bacon and three for sausages. Successful suppliers are mainly chosen on the basis of the quality of the management, followed by physical assets.

Processors and producers are regularly visited by experienced members of the Buying and Technology team, who are able to build up relationships and expertise over time, as the retailer does not have a policy of regularly moving buyers or technologists between departments. The retailer also organises informal visits for producers to visit stores, discussion groups, and undertakes presentations at National Farmers Union meetings.

Specifications are agreed between the retailer and their suppliers, which are then written and illustrated with photographs and graphics. There are no written contracts, with everything based on a gentleman’s agreement; two way communication is viewed as the key to progress, “it’s trying to help producers do it better, to help us do it better”. Positive incentives are offered to ensure suppliers meet their specification, and include the opportunity to develop and grow their share of the business; to access and build a market for both hindquarter and forequarter meats; to develop new products; to achieve a premium; and to become more consumer orientated. Retailer A has supported suppliers who have tried to introduce new products under manufacturer brands but tend to use processor labels to introduce new lines for speed or for testing, which, if successful, are

\textsuperscript{11} Farm Assured British Beef and Lamb; Scottish Quality Beef and Lamb Association, Farm Assured Welsh Lamb.
then translated into Retailer A’s own brand. Negative incentives include financial penalties which are incurred by those suppliers who do not meet the required specification if deliveries are late, for customer complaints, and for loss of sales due to supplier incompetence. Each incident is judged on an individual basis, but the ultimate penalty is viewed as reducing orders.

Following an informal dinner conversation between two senior managers during the late 1980’s, Product X was developed. At the time, retailers were using continental cattle with very low fat levels, high yields, but produced beef which was tasteless. It was seen as “a bit of a challenge”- to return to traditional breeds and values, develop maturation and production methods which would “guarantee tender” beef, and deliver a point of difference between Retailer A’s offering, and other retailer products. The relationship between Retailer A and Supplier B evolved from a previous long-standing business association, in which close personal relationships with the management team had been established. Retailer A had previously experienced supply problems in the past when using processors who also served the other, larger, UK retailers, and had not been able to develop a dedicated supplier arrangement because of the scale of their requirements. In 1997, the opportunity arose for the original management team to break away and buy a small, family owned farm and abattoir which they offered to Retailer A as a dedicated plant for their breed specific own-brand beef range, Product X.

4.2 The Processor
Supplier B have no other significant customers apart from Retailer A, and are responsible for about fifty per cent of their total beef business. The dedicated relationship is both breed specific and customer specific – Supplier B only produce Product X, which the main core business, some breed Y and organic beef, while Retailer A have no other suppliers for those particular products. Although Retailer A had no financial input into the development of the plant, both Retailer A and Supplier B collaborated and developed the management plan. In addition, during the first few weeks of opening, managers and technologists from Retailer A helped out on the production line at Supplier B in order to meet the Christmas period sales targets. The relationship is such that all staff at the
processing plant wear overalls bearing the name of Retailer A, and are encouraged to feel that they work for the retailer through regular visits to the nearest store, where they are given guided tours by the store manager. The plant was developed to the highest standards, is accredited to EFSIS\textsuperscript{12} independent third party standards, and the management take great pride in having the highest HAS score in the country.

Taking a principal agent perspective, the supplier acts as both the agent of the retailer, and the principal to the farmer group. Selling goals were identified as providing Retailer A with their specific requirements and guaranteeing consistency of supply. The worst possible scenario was considered to be ‘letting the customer down’. Buying goals for livestock were described as obtaining consistency, which is measured against fat class and conformation.

Product Category Risk was identified as disease, such as TB and foot and mouth, and the source as being on-farm, rather than at the point of slaughter. BSE was identified as the major risk. Such risks were managed through the specification: membership of FABBL or FAWL, cattle sired by a registered pedigree bull, a specified age range, traceability to holding of birth, grass based extensively reared. Risks could also occur elsewhere in the supply chain, for instance in the chill chain or during deliveries. Fire was also mentioned as one of the biggest risks associated with abattoirs. Such risks were managed by developing contingency plans – arrangements were in place for moving the entire management and production team to another abattoir, if necessary. Possible chill chain and delivery problems were minimised by using a small dedicated local haulier, who could react quickly when problems arose, and transship loads.

Product Specific Risk was identified as the peaks and troughs of supply, which are managed at both the retail level and farmer level. Production capacity is inelastic and therefore planning information is essential in order to either plan promotions or to push back supply by changing feeding regimes. Promotions are used at the retail level at times,

\textsuperscript{12} EFSIS is the leading UK third party inspection service, and combines inspections for HACCP, ISO 9000, the Beef Labeling Scheme and personnel and environmental standards. Accreditation is the highest level of compliance.
especially during the summer, but the costs are borne entirely by Retailer A and Supplier B, who take reduced margins, whereas the premium paid to producers is maintained. Supplier B feel that it is very important to offer producers security by maintaining premiums, because of the long cycle of production.

The scarcity of the breed means that there has to be a wide weight range in order to meet demand, but because the range is so wide, there is inevitably more size inconsistency - “we can’t actually get peas in a pod”. The breed grows slower than other commercial cattle, but if they are not produced in the right way, they tend to grow fat rather than muscle, and the farmer will be financially penalised. Farmers are therefore paid a premium because Breed X need looking after for a longer period of time, and require more care than other commercial breeds of cattle. Any animal must have the bull declared on the passport and on an additional declaration, but if there are any doubts, Supplier B will undertake DNA testing. One other risk would be if the market became flooded with Breed X cattle, in which case both Retailer A and Supplier B would lose their niche positioning, and farmers would lose their premiums.

Incentives for Supplier B to meet the requirements of Retailer A are described as the ability to plan and to grow the business in the long term. The capacity to sell both forequarter and hindquarter beef in balance was also an important incentive. In addition, Retailer A also encourage their manufacturing suppliers to use Supplier B to supply them with forequarter meat for Breed X prepared beef products. Financial incentives include prompt payment, which is made by EDI transfer from Retailer A on a weekly basis. Prices are only negotiated two or three times a year, with changes either up or down of approximately three per cent. Other major supermarkets will change the price weekly by around 0.6 per cent according to the market average. Prices are therefore very stable; if any changes are necessary, then it is discussed and agreed beforehand with both the farmers and Retailer A. Personal incentives were also viewed as being important, such as gentlemanly conduct from Retailer A and enjoying work – “we want to come to work, we enjoy it”.
4.3 The Producer Group

Producer Group C was founded in 1976 by a small group of farmers in the Worcestershire area, with the original aim of trading livestock. The organisation trades as a farmers’ co-operative, and now has an annual turnover of around £40 million from marketing cattle, sheep and pigs on behalf of its farmer members. The group employs fourteen fieldsmen, and deals with around 600-700 cattle, approximately 3,500 lamb and 8,000 pigs per week on average on behalf of 4,500 farmer members. In 1999, the group acquired two additional livestock marketing companies.

Producer Group C, a key player in the procurement of livestock, manages the administration associated with the supply of Breed X on behalf of Supplier B, for which they are paid a headage fee. There are approximately 700 farmers on the database, but there is a core of around 50 larger producers who supply cattle regularly, with a further 100 who supply on a more irregular basis. Smaller farmers make up the rest. The long term strategy of Supplier B is to use fewer, larger producers. Supplier B have procurement officers who visit farmers, but they view Producer Group C as being mainly responsible for on-farm visits and inspections. The positive incentive for Producer Group C to meet Supplier B’s specification is viewed as continued business. On the other hand, if they get it wrong, the ultimate penalty would be loss of orders.

Selling goals for the organisation are identified as obtaining the highest price for cattle within a secure market. Farmers are classed as both customers as well as suppliers. Producer Group C work with Supplier B to identify farmers within their membership who can supply them with the product they require. The group see their role as one of coordination, communicating their customers’ message, i.e. the abattoirs, up the supply chain to farmer members. Members who provide scheme cattle such as Breed X for Supplier B are viewed as much more market driven, working to specific requirements by using a particular bull for breeding.

The main risks associated with selling livestock, or Product Category Risk, are viewed as the environment, such as weather, disease and climate. A further risk is bad debt where
businesses go bankrupt. In order to help manage such risk, Producer Group C offer an insurance service for all stock bought from members’ farms. The insurance is designed to cover the value of the stock outstanding if an abattoir went bankrupt, and consists of 90% cover by insurance with the remaining ten per cent covered by a bad debt pool. All abattoirs have to be assessed by the insurance company before Producer Group C can trade with them. A further risk is the cost, and lack of, appropriate haulage. The number of farmer members was also identified as a risk to Producer Group C. Membership size has been affected by farmers leaving the agriculture industry, and therefore the costs per unit for the company have increased. In order to offset this, Producer Group C have invested in IT systems in order to help those farmers staying in the industry to become more efficient and better informed.

The relationship between Producer Group C and Supplier B began with supplying about twenty breed X cattle per week, but now average around 100 per week. The specification is set by Supplier B, and includes fat class, conformation, membership of a farm assurance scheme, the use of a registered bull from the database, and extensive rearing. Producer Group C monitor the performance of their suppliers through audits of membership of farm assurance schemes, internal audits on sire details, feeding systems, minimum farm holding and traceability, on farm visits by fieldsmen and staff of Supplier B. Producer Group C do have a relationship with Retailer A, but this mainly takes place via Supplier B. Members of Producer Group C have been to Retailer A open days, and have direct communication with buyers who have attended farm open days. In turn, Supplier B determine that Producer Group C are meeting their requirements by the quality of the delivered cattle – grades, weight, cleanliness, MHS scoring, meeting delivery schedules, quantity agreed, audits. The advantages of delivering market driven information to farmers, together with the use of on farm fieldsmen, is that very few cattle who do not meet the specification get through to Supplier B, and consequently farmers are not penalised financially. The relationship between Producer Group C and Supplier B is considered to be very involved, whereas the open relationship between Supplier B and Retailer A is considered unique amongst all of Producer Group C’s customers.
The positive incentives for farmers to meet the specification are mainly concerned with
the stable pricing strategy offered by Supplier B and Retailer A. The producer group felt
that this idea away the traditional ‘trading’ environment in which the focus is on
bargaining over price changes on a weekly basis. Prompt payment is a further incentive
as Supplier B pay Producer Group C who then pay their farmers within sixteen days.
Incentives for Producer Group C include the commission obtained from farmers, which
can then be ploughed back into the business in order to increase efficiency, and increase
market share. In addition, the security offered by having a precise market for stock, the
ability to forecast and manage stock numbers, and expertise gained from dealing with
Supplier B and Retailer A are also seen as positive incentives. Conversely, the negative
incentives were viewed as restrictions on company growth.

4.4 Consumers

Four focus groups were held during a two week period during April, 2001. Each focus
group consisted of purchasers of Product X from Retailer A, of mixed gender and age, recruited in-store from four Retailer A stores, located in the South of England. Initially,
twelve potential participants were recruited in store, to allow for any non-response on the
day of the focus group interviews: the final number of participants ranged from eight to
ten, which is considered an ideal size (Krueger and Casey, 2000).

Following a brief warm-up discussion about food shopping in general and participants’
perception of Retailer A, the discussion turned to Product Category Risk with respect to
beef. Not surprisingly, the risk mentioned most extensively by the discussants was BSE,
but in particular by those participants who had children or were concerned about other
people’s children. The concern was primarily with processed beef products, and for
those with older children, what their children ate out of the home. The reasons given were
the length of time for the disease to present itself, the difficulty in accurate diagnosis, the
specific effect on younger people, the uncertainty associated with the cause, and the
future extent and impact of nvCJD.

13 The majority of Retailer A’s customers have a relatively high socio-economic status.
Other risks associated with the beef category were the use of hormones and antibiotics, the poor standard of hygiene in supermarkets, the age of the animal before slaughter, and E-Coli. The health problems associated with cholesterol and the link with consumption of red meat were also a cause for concern for some, as was the nature and source of animal feed. Price was only mentioned by a few people in one of the groups as being an issue for concern when buying beef, but not at the expense of quality.

Thus, it is evident that credence attributes, such as food safety, nutritional and process attributes represent the main concerns associated with the beef category by consumers from Retailer A. As discussed in the literature, credence attributes are associated with higher levels of perceived risk because they are associated with lower levels of pre-purchase knowledge (Mitra, Reiss and Capella, 1999). The type of adverse consequences associated with such attributes can be classified as resulting in both physical loss, in terms of health, and psychosocial loss. From a perceived risk perspective, it would seem that the severity of the adverse consequences associated with BSE and the resultant physical risk, rather than the probability of occurrence, was an influencing factor on behaviour. It was also apparent that physical risk was also a concern, not just for participants, but for others, especially children and families with children. From the comments and attitudes of the participants, it would seem that BSE and nvCJD are particularly associated with the ‘dread factor’ as identified by Yeung and Morris (2001), and can therefore be classified as a Low Probability/High Consequences situation (Diamond, 1988).

One strategy available to consumers to reduce the perceived risk associated with beef is to increase information, and the four groups were specifically asked to describe what information they sought and from where. Most of the discussants were able to identify and discuss their sources of information although it became clear that some sources of information were not consciously viewed as such, but emerged during the course of the discussion.
Marketing dominated channels of information were identified, such as promotional material, symbols, packaging, sell-by dates, leaflets, special offers and promotions in stores. One group felt that more information, including the correct cut of meat and the best cooking time and method, should be provided on the front of prepacked beef rather than on the underside of the label, because consumers needed to know the information before purchase. In other words, these particular consumers were requesting that information currently available post purchase should be made available as pre-purchase information, in order to increase the certainty that the consequences of such a purchase would not result in one particular type of loss associated with perceived risk: time loss.

The groups also discussed Consumer/Personal channels of information, with most participants citing the butchery and counter staff as a valued source of help and advice, particularly with respect to recipes, preparation and cooking.

Past experiences were also considered as very important, while the opinions and expertise of family members was also identified as being valuable sources of information. In particular, the influence of older children on purchasing and consumption behaviour was highlighted, with some group members responding to their children’s knowledge and preferences.

Sources of information which could be classified as Neutral channels of information were identified as the media in general, newspapers, radio programmes, cookbooks, cookery television programmes and magazines, media personalities, and cookery classes. No mention was made of the internet. Significantly, after some discussion, it became obvious that many people did not listen to nor believe the information which came from government sources. A minority mentioned the Ministry of Agriculture as a source of information, no-one mentioned the Food Standards Agency, and one individual felt there was a need for an independent source of information, and suggested there might be a role for a Ministry for Food.
It became very clear that the provision of information was associated with strong feelings of confusion, mistrust, and concern, with most members of every group mentioning the need for clarity, or the provision of more information. Symbols and labels such as Freedom Food, Organic, British and the Farm Assured label were all discussed, with some participants expressing their bewilderment associated with the lack of understanding of such standards. Such bewilderment was expressed by both male and female participants, and across all age groups. From a Principal Agent perspective, such comments reveal the imperfect nature of systems designed to deliver information regarding both the state of nature and an agent’s actions.

Turning to Product Specific Risk, discussants were asked if they had ever experienced problems with the quality of Product A, and if so, what action had they taken. Most people had never experienced any problems with the quality of Product A, but two people did discuss occasions when they had been disappointed, but neither of them took the beef back to the shops, or complained to Retailer A. However, in the general discussion, people did discuss how they might react and why. Most people felt that their reactions would depend on the nature and severity of the problem, the timing of the problem, how much blame they apportioned to themselves, and whether they had the time to act. From a perceived risk perspective, it would appear that the adverse consequences associated with time loss was the most important factor influencing their behaviour.

Nobody felt that they would avoid buying Product A, or switch stores, if they were ever disappointed with the quality of the product and had to take it back or complain. However, some participants mentioned the willingness of Retailer A to refund or replace any disappointing items. From a perceived risk perspective, the availability of refunds or replacements can be viewed as a post purchase risk reduction strategy in that it reduces the adverse consequences of a purchase.

Finally, participants were asked to describe why they bought Product X from Retailer A. Buying goals included the flavour, safety, quality of the meat, consistency, reputation,
origin, purity, and hygiene standards. Other reasons included the service and friendship from the meat counter staff.

Other comments revealed the risk reducing strategies of some consumers, who reduced their perceived risk associated with the beef category by only purchasing Product X, because it increased the amount of certainty that the product would not fail, and in addition reduced the negative consequences.

Some people were able to express their feelings about their relationship with Retailer A, which enabled them to buy Product X, despite having concerns regarding beef in general. Trust and belief in the retailer were identified as being important determinants of product choice, and therefore, risk reducing behaviour. Moreover, some people only bought Product X beef from Retailer A, and would not buy beef from any other outlet. From a theoretical perspective, such consumers could be viewed as high risk perceivers, who would rather limit their choice set than risk possible disappointment, whilst others, possibly lower risk perceivers, would also buy beef from their local butchers or from other supermarkets.

5. CONCLUSIONS AND RECOMMENDATIONS

In the UK, the fight for market share and consequent quest for consumer loyalty has driven the development of differentiated ‘own brand’ quality beef products. The economic benefits derived from the success of such brands is tempered by the increase in the possible penalties imposed by both risk averse consumers and regulators in the event of product failure, as the consequences are not just confined to the product category but affect the overall retail brand. As such, the multiple retailers can be described as risk averse. According to Principal Agent Theory, a risk averse principal would prefer an outcome-based contract in which agents are rewarded purely on achieving specified outcomes. However, this theoretical perspective is clearly inadequate to explain empirical organisational behaviour within the beef supply chain, in which retailers have developed co-ordinated supply chains in an attempt to increase information regarding
product quality and safety. However, by including the effect of perceived risk, in which it is the size of the possible adverse consequences that influences behaviour, the result is different. Assuming that contracts can be placed along a continuum from purely outcome-based to purely behaviour-based, a risk averse principal will prefer a more behaviour-based contract because it will both increase certainty and reduce adverse consequences.

By examining perceived risk as a combination of both the perception of risk associated with the category and that associated with the product, regulatory and industry led initiatives which increase information can be viewed as targeting Product Category Risk. However, the higher perceived risk associated with developing a brand requires risk reducing strategies which also target Product Specific Risk, leading to the development of proprietary assurance schemes.

The research findings identify the importance of personal relationships along the co-ordinated supply chain. From the consumer behaviour literature, past research has demonstrated that on the whole, the higher the magnitude of perceived risk, the greater the importance of information search (Dowling and Staelin 1994) and in particular, personal sources of information in making the decision (Mitra, Reiss and Capella 1999). The findings from the consumer focus groups underline the importance of personal relationships (butchery and counter staff) and the high degree of trust that consumers place in the retailer. Moreover, the chain perspective of this case study underlines the importance of personal relationships in each dyad. In contrast, the considerable investment in ‘institutional’ risk reducing programmes, such as on-farm QA schemes have clearly been effective in reducing risk from a retailer perspective, but far less so in the eyes of the consumer. This suggests that scope exists to improve and extend the benefits from such schemes – an important finding given the resistance to their implementation amongst beef producers.

Agency theory has been criticised because incentives are virtually always expressed in monetary form, with no consideration of socially mediated rewards which eventually
have economic consequences (Arrow, 1985, Shaw and Gibbs, 1995). In addition, industry observers have criticised the price focus prevalent in the beef industry (Fearne, 1998, Rickard, 2000). The focus of Transaction Cost Economics is on the costs of supply chain behaviour, with little emphasis on the form and distribution of possible benefits. However, by using the theoretical framework, the case study findings, identify both short and long-term economic and personal incentives to meet contractual obligations which both satisfy organisational goals and reduce perceived risk at each point along the supply chain. From a supply chain perspective, if contractual terms between a Principal and Agent recognise the perceived risk at each point along the supply chain and offer incentives to overcome them, then the total costs for the supply chain associated with a conflict of interests are reduced. In particular, the additional monitoring and inspection costs associated with proprietary assurance schemes borne by the processor and farmers can be viewed as an investment which is then offset by the range of incentives offered from belonging to a co-ordinated supply chain, provided that the benefits are effectively communicated at the point of sale.

By examining co-ordinated supply chains as a series of Principal Agent relationships, the case study findings provide evidence that both the previous dyad and the perception of risk influence contractual terms, including the incentives. The development of own brand beef products can be viewed as a strategic reaction by retailers to consumers’ perceived risk associated with the beef category. Taking a marketing perspective, organisational goals are derived from customer needs, and therefore the specification and consequential contractual terms between retailer and processor, and processor and farmer, are designed to meet such goals and to reduce perceived risk.

If organisational behaviour is driven by perceived risk, then public policy should be focused on using limited resources to identify those firms who do not meet regulatory minimum standards, and increasing the penalties for non-compliance. In addition, regulators should review the distribution of the costs associated with public monitoring, given that the market offers greater incentives to meet food safety and quality standards.
From a theoretical perspective, it can be argued that the revised framework offers a more powerful model for viewing contractual relationships within a co-ordinated supply chain. The case study comprises the supply chain for one of the smaller, niche retailers and involves small volumes of a scarce product; therefore results cannot be generalised to other supply chains in the UK beef industry. However, the revised theoretical model together with the research findings provides a relatively rich hunting ground for further theoretical development and empirical research, the results of which can only add to our knowledge of supply chain behaviour.

References


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