Advance Journal of Food Science and Technology 6(12): 1318-1323, 2014
DOI:10.19026/ajfst.6.203
ISSN: 2042-4868; e-ISSN: 2042-4876

Submitted: July 07, 2014 Accepted: September 13, 2014 Published: December 10, 2014

Research Article

Marketing Strategic Benefit-risk Analysis: Transgenic Poultry Food Supply Chain

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Abstract: In order to study the causes of marketing strategic benefit-risk of transgenic poultry food supply chain in china, we analyze the role that benefits and risks play in the formation of the decision-making process of transgenic poultry food participants. This study discusses the ways and strategies of transgenic poultry food supply chain from the following aspects: a), the food's safety concerning producers, marketing participants and consumers' risk behaviour at three stages of the transgenic poultry food supply chain. b), all these risks should be effectively managed in order to derive the utmost of benefits and avoid disruption or catastrophic economic consequences for all stages of the transgenic poultry food supply chain. c), the identification, analysis, determination and understanding of the benefit-risk trade-offs of market participants in transgenic poultry food market may help policy makers, financial analysts and marketers to make well informed and effective corporate marketing strategies in order to deal with highly uncertain and risky situations. We hope these can accelerate the construction of marketing strategic benefit-risk trade-offs of transgenic poultry food supply chain, promote sustained and rapid growth of transgenic poultry food industry in china.

Keywords: Benefit-risk trade-offs, marketing strategy, supply chain, transgenic poultry food

INTRODUCTION

The transgenic poultry food industry in china developed rapidly at the past decade. The strong growth is mainly due to higher disposable incomes, higher product prices, changing consumption trends caused by the faster pace of modern life, a wider varied of transgenic poultry foods, product quality and safety improvements. Over the five years through 2020, the transgenic poultry food industry revenue is expected to increase at an annualized 12.7%, with the rate of product innovation and promotion also accelerating (Costa-Font and Mossialos, 2007). In addition, manufacturers and marketing participants will increase investment in research and development of products and establishing sales corporate in Chinese counties, towns and some developed rural areas (Yu and Zhao, 2009).

Transgenic poultry food industry is undergoing structural changes in terms of internalisation, concentration and network relationships in china. The successive and intensive liberalisation of markets forces the poultry food industry to respond to rapid and radical changes in the marketplace through globalisation and large scale operations. Understanding market behaviour at different stages (e.g., production, marketing, consumption) of the poultry food supply chain is critical in formulating updated and well informed public economic policies, corporate investment and marketing strategies. Recent study in agribusiness economics and marketing has put the underlying decision making process of market participants in the spotlight. For instance, to study the preferences and choices of endusers, consumers in the transgenic poultry food supply chain in china, it is important to understand how they evaluate derived benefits and potential risks associated with transgenic poultry food consumption (Dowling, 2006). Hence, attention is centred on the trade-offs between benefit-risk behaviour of all participants (e.g., producers, market participants, consumers) engaged in the transgenic poultry food supply chain. The question that emerges is how one can evaluate the drivers of economic behaviour of all participants in light of benefit-risk trade-offs analysis in the transgenic poultry food domain. Failure to identify and evaluate the impact of benefits-risk on market behaviour, as well as the impact of factors driving the benefit-risk trade-offs associated with investments in transgenic poultry food production, marketing and consumption, may result in, for instance, a dramatic decrease in production, marketing and consumption of certain transgenic poultry food products. In turn, this decrease may have catastrophic economic consequences for the poultry food industry in china.

Throughout our analysis, we address issues related either to marketing strategic benefit-risk and their

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impact on the profitability of transgenic poultry food products the transgenic poultry food supply chain, or to consumer health risks and benefits caused by the impact of different market forces on the transgenic poultry food supply chains (Fischer and Frewer, 2008). For instance, there are certain benefits for producers (e.g., farmers) when prices increase, however, this may pose a risk to consumers.

Generally, we firstly discuss the role of risks and benefits and the impact that both concepts have on economic behaviour at different stages of the transgenic poultry food supply chain. Nextly, we briefly discuss the most common risk and benefit measures. Thirdly, we introduce a conceptual framework of benefit-risk trade-offs with respect to the transgenic poultry food supply chain. Respectively, we may develop the basis of a generic conceptualisation that may allow better prediction of all participants' behaviour in the transgenic poultry food markets. In turn, may provide answers as to how public policy-makers, industry managers and marketers in the transgenic poultry food supply chain can deal with different segments of all participants in highly uncertain and risky market environments. Moreover, knowing the drivers of benefit-risk trade-offs may provide insights into whether the solutions to market situations entailing high risk and uncertainty may rely on more drastic measures or marketing in more effective communication strategies.

We hope these can accelerate the construction of marketing strategic benefit-risk trade-offs of transgenic poultry food supply chain, promote sustained and rapid growth of transgenic poultry food industry in china.

MATERIALS AND METHODS

Risk is a critical factor of market behaviour in future of china. All participants accept a certain level of risk as necessary to achieve certain benefits. Particularly in transgenic poultry food marketing strategy management, there is a wide variety of research propositions on how risk preferences influence all participants' behaviour (Yu and Zhao, 2009). Therefore, we analysis the market behaviour of market participants that stand at the upstream, midstream and downstream stages of the transgenic poultry food supply chain: food producers, market participants and consumers.

Producers' risk behaviour at the upstream stages of the transgenic poultry food supply chain: Operational risky decisions of producers concerning the optimum level of poultry farm chemicals, use DNA transfection for many types of eukaryotic cells. Although, many important benefits (e.g., a net benefit in terms of farmer's income) are achieved by the use of poultry farm chemicals, some of these studies indicate that the optimum level of use of DNA transfection for many types of eukaryotic cells may entail a type of embryonic fibroblasts risk. That is, it may result in substantial DNA variation. Furtherly these studies seem to suggest that the aversion of farmers towards risk, which is explained by a set of socioeconomic variables, may be a key factor for the determination of the use of DNA transfection for many types of eukaryotic cells (Gaskell *et al*., 2004). Examples of socioeconomic variables are farmer's age, education, family structure, experience with farming and the dynamics of a farmer's social environment's structure, reputation, culture.

Moreover, risk-attitude in china is frequently cited as adeterminant for the adoption and utilisation of new technologies in day-to-day farm operations. Farmers' risk aversion causes slow adoption of new technologies. Then farmers' risk aversion and uncertainties about production have an impact on their decisions to adopt site specific technologies. And the risk preferences of farmers using certain risk-reducing inputs during the life-cycle of a production phase. Many studies explain the croprelated resource restrictions that farmers face and suggest that the choice of an optimal production level under these restrictions is, in most cases, influenced by farmers' risk preferences. In many countries farmers have the opportunity to reduce price risks, which affect their income by means of marketing arrangements (Amador *et al*., 2009). Various experts and scholars have conducted studies that deal directly with the attitudes of farmers towards income risk. These studies examine the effects of external environmental factors (e.g., policy changes, market volatility in periods of crisis), as well as farm specific characteristics (e.g., location of farm, size and decision making etc.), on producers' risk behaviour.

In a word, we emphasises how to ensure marketing success through the evaluation of benefit-risk trade-offs of producers at the upstream stages of the transgenic poultry food supply chain. Additionlly, people will pay more attention to product quality, safety and nutrition, the development of transgenic poultry storage and logistics will continue to contribute to the transgenic poultry food industry's development. However, producers' revenue growth rate in china is decreasing in future (Fig. 1).

Market participants' risk behaviour at the midstream stages of the transgenic poultry food supply chain: Studies show that risk attitude is the most important variable related to market participants' behaviour, both from a the oretical and empirical point of view. There is a large reflect in Marketing strategy, assuming that farmers can reduce price risk by off setting the cash value of inventories, growing poultry and processing commitments with futures contracts. Future market participants, which are an example of a risk-reducing market institution, are widely available in industry makes a distinction between risk and uncertainty (Amador *et al*., 2009). The risk refers to the situation where the decision-maker knows the probabilities associated with the possible consequences, while the uncertainty refers to the situations in which

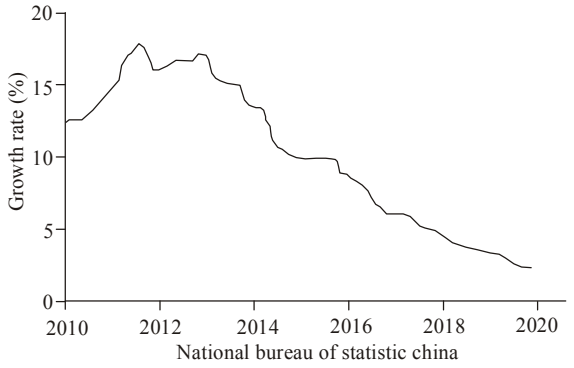

Fig. 1: Producers' revenue at the upstream stages of the transgenic poultry food supply chain

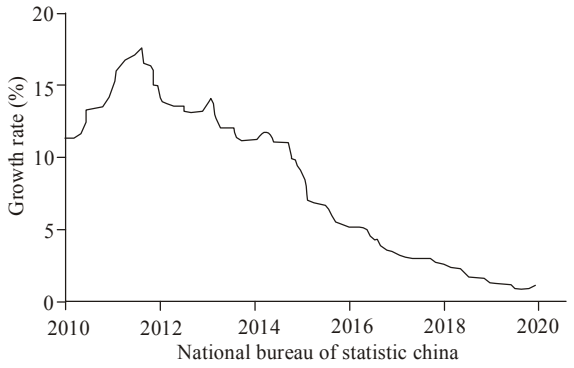

Fig. 2: Market participants' revenue at the midstream stages of the transgenic poultry food supply chain

these probabilities are not known. Consistent with marketing strategy, we use the term risk to mean uncertainty. The newly emerged market participants stresses the pivotal strategic relationships among marketing and finance in today's firms. It concentrates on how marketing actions drive shareholder value.

Market participants'risk behaviour into the separate components of risk attitude and risk perception seems to be useful in market and health-related domains, where in wide differences between attitudes and perceptions may occur (Xie *et al*., 2007). However, the risk behaviour from only one perspective: the likelihood of harm in defined circumstances; it does not account for the extent to which an individual market participant may take a risk that may cause harm to consumers' health. In addition, market participants' revenue growth rate in china is decreasing in future (Fig. 2).

Generally, it has a significant impact on the behaviour of market participants at the midstream stages of the transgenic poultry food supply chain in china.

Consumers' risk behaviour at the downstream stages of the transgenic poultry food supply chain: Consumers' risk behaviour is often investigated in terms of perceived risk. This concept imbeds two main dimensions:

- The perception of uncertainty
- The seriousness of adverse outcomes

Consumers' perceived risk may influence a variety of consumers' choices and often leads to risk handling activities. The more consumption of transgenic poultry food is made. Experts and scholars confirm this result and predict that the level of consumers' perceived risk, which is associated with foods, may be dependent on different psychological processes and is likely to be derived from deliberative information processing. Most theoretical and empirical consumer research in the transgenic poultry food domain that relies on the perceived risk approach has dealt with risks related to new and unfamiliar technologies such as sustainable food products, transgenic poultry food are derived from agrochemical practices and they are often the focus of consumer concern (Amador *et al*., 2009). Other studies in consumer risk have examined consumer risk reactions to food scares and consumers' reactions towards transgenic poultry food allergies.

However, following closely with research in other disciplines such as marketing and statistical decision theory, recent work on consumer behaviour elaborates a new risk approach that does not focus only on the specific framing of negative consequences. Specifically, it has been argued that the decisions of consumers can be better understood by decoupling their risk behaviour into the separate components: attitude and perception. Such an approach enables more robust conceptualisations and predictions of investment and consumption decisions in highly risky environments. Risk attitude is formed by one's predisposition to the content of the risk in a specific market situation and reflects a consumer's interpretation of this risk content in a consistent way (Hui *et al*., 2009). Risk perception is related to a second dimension. It may be formed on the basis of the consumer's own assessment of the chance to be exposed to the risk content associated with a particular market condition or inherent in a consumption-related risky situation. In addition, consumers' purchasing behavior growth rate in china is decreasing in future (Fig. 3).

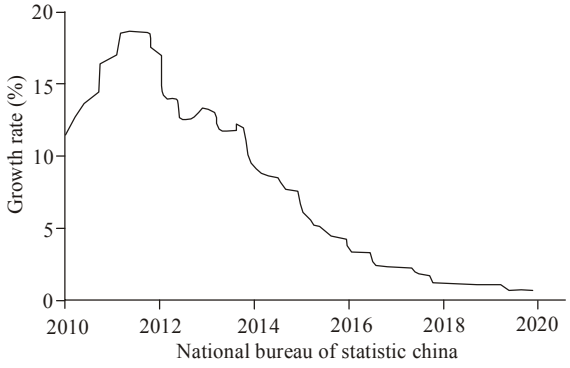

Fig. 3: Consumers' purchasing behavior at the downstream stages of the transgenic poultry food supply chain

Furthermore, it indicates the tight relationship of risk factors with the expected benefits that market participants attempt to derive through the consumer at the downstream stages of the transgenic poultry food supply chain in china.

RESULTS AND DISCUSSION

Over the five years through 2020, these benefits resemble the profit on capital investment that all participants (e.g., producers, market participants, consumers) make through handling of risk-bearing activities at the transgenic poultry food supply chain in china.

The benefits concept: In the previous section, we analysis several works in marketing strategy management and we showed that the extent of risk-taking activities of market participants in china affect their economic performance and hence their benefits. Traditionally, economics and finance theory support that all participants' benefits is derived from outcomes such as wealth, income and profit. Yet, research in marketing strategy regarding investing and consumption supports that market participants have two kinds of evaluation systems. firstly, it refers to how useful or beneficial the investment or consumption actionis. Secondly, it refers to the experiential affect associated with the investment and consumption. Recent research showed that both types of benefits, in different degrees, contribute to the overall goodness of investing and consuming (Shi *et al*., 2000). The two dimensions of benefits are neither mutually exclusive nor need to be evaluatively consistent.

Producers benefits: Quality attributes are the functional and psychological benefits or consequences provided by the producers. In that sense, quality attributes are unobservable prior to consumption. On the contrary, quality cues are the informational stimuli related to the quality of the transgenic poultry food and can be ascertained by the consumer through her senses prior to consumption. Quality cues are categorised as either intrinsic or extrinsic (Liu *et al*., 2007). Intrinsic cues often refer to product features such as colour, aroma, taste, among others, while extrinsiccues are related to the product but are not physically part of it. Hence, one may argue that extrinsic cues are more associated with utilitarian benefits and intrinsic cues with hedonic benefits. Both sets of cues may act as signalling mechanisms for product quality through effective communication efforts at the producing stages of the transgenic poultry food supply chain in china.

Market participants benefits: Nowadays, there is a plethora of studies in marketing strategy which account for both dimensions of benefits considered by the market participants (Hui *et al*., 2009). Of course, one may realise the potential benefits of such human sensory and hedonic responses: frequent selection of better liked foods, including, for instance, sweetening and fats, which are offered at large portion sizes at many marketing spots, may act as significant market and economic benefits through effective integration of market efforts at the marketing stages of the transgenic poultry food supply chain in china.

Consumers benefits: In transgenic poultry food market the attitudes and perceptions of consumers towards perceived benefits before, during and after the consumption of food items are based on their quality judgments about specific revealed or hidden benefits derived through consumption (Xie *et al*., 2007). These judgements depend on the perceptions, needs and goals of the consumer and formulate what is called perceived quality, which emphasise the perceived ability of a product to provide satisfaction through effective promotion efforts at the consumption stages of the transgenic poultry food supply chain in china.

In the transgenic poultry food supply chain based on benefit-risk trade-offs, three major approaches is conceptualised and measured affects our understanding of decision-making under risk, it is important to understand the validity of risk attitude and benefit measures.

Trade-offs at the producing stages of the transgenic poultry food supply chain in china:

Implication 1: Suppose that risk attitude drives the benefit-risk behaviour of individuals regarding the consumption of a likely harmful product. This would suggest that policy makers and managers will have to focus on eliminating the risk content involved in a particular situation using strategies such as partial/total product recall or elimination of the product in the food supply chain in china.

Implication 2: Here, we present the procedures for measuring the decision-maker's risk attitude. The relevance of these producing criteria has been identified in the transgenic poultry food production (Amador *et al*., 2009).

Trade-offs at the marketing stages of the transgenic poultry food supply chain in china: We should briefly mention here that many decision of risk-attitude provide one way for choosing suitable forms.

Implication 1: Suppose that the perceived hedonic benefits drive the benefit-risk behaviour of individuals during a product harm crisis in china. In such a case, industry managers and marketers will have to focus on signalling the product's quality through the promotions of its intrinsic cues. Several scholars have claimed that

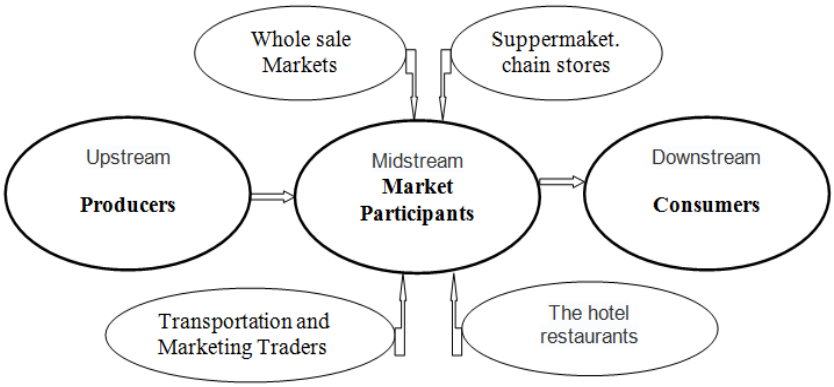

Fig. 4: Mode of the transgenic poultry food supply chain based on benefit-risk trade-offs

attitude and perception formations as well as change are driven by exposure to episodic events occurring in transgenic poultry food of dynamic market environments.

Implication 2: Suppose that perceived utilitarian benefits (e.g., price, brand-name) drive the benefit-risk behaviour of individuals during a product-harm crisis. This would suggest that managers and marketers in china will have to focus on ways that enhance the promotion of the suspected food item by signalling its quality through the use of extrinsic cues such as country of origin or nutrition related certification, label information, good price, among others.

Implication 3: One of the most commonly used techniques to measure risk attitudes rooted in the expected utility framework is the Certainty Equivalence technique for benefit-risks trade-offs in china.

Trade-offs at the consumption stages of the transgenic poultry food supply chain in china: We provide further insights into the consumption stages of consumer risk behaviour.

Implication 1: Suppose that risk perception drives the benefit-risk behaviour of individuals regarding consumption of a likely harmful transgenic poultry food. This would suggest that policy makers and marketers will have to focus on effectively communicating the ‘‘true’’ level of risk and thus the ‘‘true’’ probabilities of being exposed to risk content (e.g., conducting a fatal, or less severe, disease through the consumption of a harmful product).

Implication 2: Not only risk attitude and risk perception drive consumer risk behaviour, but also their interaction. The interaction between risk attitude and risk perception reflects that relatively risk-averse consumers may engage in behaviour that reduces risk and that this becomes more prominent as consumer perceives relatively more risk (Fischer and De Vries, 2008).

Implication 3: There are various specifications of food function that often give similar measures of goodness of fit to elicit utility points.

Marketing Strategy theory suggests that the most common drivers of attitude and perception formations over time are those related to the levels of the knowledge that individuals acquire and trust in information provided by governmental agencies and industry, respectively. Therefore, we propose Mode of the transgenic poultry food supply chain based on benefit-risk trade-offs (Fig. 4).

Information workflow management:

Work handling system monitoring: The transgenic poultry food supply chain system must monitor the status of each stage in the primary and secondary handling system.

Direct and indirect numerical management: The transgenic poultry food supply chain in which a number of data are managed by a computer through direct ang indirect connection.

Utilization reports: Summarize the utilization of all participants of the transgenic poultry food supply chain system.

Financial management reports: Summarize monthly, quarterly, annual reports of financial statements from the transgenic poultry food supply chain system.

Production management reports: Summarize monthly, quarterly, annual reports of production from the transgenic poultry food supply chain system.

Marketing management reports: Summarize monthly, quarterly, annual reports of market from the transgenic poultry food supply chain system.

Status reports: Instantaneous report of the present conditions of the transgenic poultry food supply chain.

Consumption data base: Collection of independent data bases, Centralized data base, Interfaced data base, Distributed data base.

In the long term, all successful participants encourage creative thinking and turn ideas into commercially viable products or services time and time again. Marketing strategy Based on the transgenic poultry food supply chain system will effectively achieve the strategic vision and goal of benefit-risk trade-offs in china.

CONCLUSION

The identification and evaluation of the factors that drive the benefit-risk trade-offs of all participants (e.g., food producers, market participants and consumers) in china are important issues in business economics and marketing strategy. The dominant paradigm that economists, financial analysts and marketers mostly rely on their evaluations regarding the benefit-risk trade-offs of all participants is the expected utility model. Many measurement methods rooted in psychometrics are also utilised. After reviewing the importance and impact of benefit-risk trade-offs on all participants' decisions as well as measurement methods and techniques that allows us to address this importance and the factors influencing this trade-off in marketing strategic benefit-risk, we propose a new research framework. This framework relies on the decoupling of benefit and risk components. By decoupling benefit-risk behaviour of all participants into different components and examining their impact on the economic behaviour, a more robust conceptualisation and prediction of all participants' reactions may be possible. This study offers interesting avenues for future research. Predicting and understanding the benefit-risk behaviour of all participants in china may be particularly critical for public policy-makers, financial analysts and marketers who need to understand behaviour at different stages of the transgenic poultry food supply chain (e.g., production, marketing and consumption).

ACKNOWLEDGMENT

This study was financially supported by the Humanities and Social Sciences project of Department of Education of Hubei Province (No.2012G221), the Social Sciences project of Huangshi Academy of Social Sciences (No.2012SSK08), Hubei Polytechnic University, also thank the reviewers for their detailed comments and suggestions that improved the quality and presentation of this study.

REFERENCES

Amador, C., J.P. Emond and C.N.N. Maria, 2009. Application of RFID technologies in the temperature mapping of the pineapple supply chain [J]. Sens. Instrumen. Food Qual. Safe., 3(1): 26-33.

Costa-Font, J. and E. Mossialos, 2007. Are perceptions of risks and benefits of genetically modified food (in) dependent? Food Qual. Prefer., 18: 173-182.

Dowling, G.R., 2006. Perceived risk: The concept and its measurement. Psychol. Market., 3: 193-210.

Fischer, A.R.H. and P.W. De Vries, 2008. Everyday behaviour and everyday risk: an exploration how people respond to frequently encountered risks. Health Risk Soc., 10: 324-389.

Fischer, A.R.H. and L.J. Frewer, 2009. Consumer familiarity with foods and the perception of risks and benefits. Food Qual. Prefer., 20: 576-585.

Gaskell, G., N. Alum, W. Wagner, N. Kornberger, H. Torgensern, J. Hampel and J. Barbes, 2004. GM foods and the misperception or risk perception. Risk Anal., 24: 185- 194.

Hui, S.K., P.S. Fader and E.T. Bradlow, 2009. Path data in marketing: An integrative framework and prospectus for model building. Market. Sci., 28: 320-335.

Liu, D., F. Lv and X. Ye, 2007. The research progress of food intelligent packaging system [J]. J. Agr. Eng., 23(8): 286-290.

Shi, S., J. Zhang *et al*., 2000. Research on the stages of enterprise informationization technology [J]. Manag. Informat. Syst., 2000(6): 53-55.

Xie, D., L. Meichao and D.H. Liu, 2007. The application of radio frequency identification technology in the food production and circulation [J]. Cereal. Oil. Process., 8: 121-123.

Yu, X.H. and G.Q. Zhao, 2009. Review of agricultural growth in China. Econ. Theory Econ. Manage., 4: 68-73.