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Research on factors affecting brand image strategies of agricultural science and technology enterprises

Xing Li[1,2] and Tain-Fung Wu[2]

[1]*Long Dong University, Qing Yang City, Gansu, China*
[2]*Asia University, Taichung City, Taiwan, PRC*

ABSTRACT

Through literature analysis, factors affecting corporate brand image strategy were divided into two categories: dynamic capabilities and market orientation in order to explore the impact and effect of different factors on the implementation of corporate brand image strategies. Taking the quantitative questionnaire data of 36 agricultural high-tech enterprises in Gansu Province as samples this paper made empirical analysis by 13 observed variables and three latent variables, which showed: 1. the dynamic capabilities of agricultural high-tech SMEs play a positive role in promoting corporate brand image strategy; 2. the market orientation of agricultural high-tech SMEs plays a positive role in promoting corporate brand image strategy; 3. there is mutual influence between the dynamic capabilities and the market orientation of agricultural high-tech SMEs. Hence, it was concluded that the agricultural high-tech SMEs brand image strategies are mostly influenced by market orientation, followed by dynamic capabilities.

Key words: Agricultural; Strategy; Brand image strategy; Factor analysis

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INTRODUCTION

Western China's agricultural science and technology enterprises have entered the Warring States Period in terms of brand marketing. It is of great significance for agricultural enterprises to choose a brand marketing strategy that can upgrade the marketing performance. At this stage there have been some research results showing the relations between corporate marketing strategy, especially brand marketing, and corporate success in maintaining a competitive advantage, but these studies only focus on the marketing performance of the brand marketing strategies taken by enterprises, i.e. the "results", and there are very limited studies on the "antecedents" leading to agricultural enterprises adopting brand marketing strategies, i.e. factors affecting brand marketing strategy and their acting mechanisms and pathways, and so on.

A field survey by Horizon China, etc. on the sales conditions of Gansus characteristic agricultural products in the nationwide market showed that Gansus characteristic agricultural products have several problems in brand image such as low consumer awareness, low marketing level, low marketing capabilities, indicating that Gansus characteristic agricultural products are in urgent needs to enhance the level of brand marketing. Based on preliminary studies, this paper explored and analyzed factors affecting corporate brand image strategy and their acting mechanisms and pathways and selected an appropriate brand marketing strategy for enterprises, providing reference for enterprises to enhance the level in the application of brand marketing strategies.

RESEARCH DESIGN

1. Structure

The current academic studies of corporate brand marketing strategy are somewhat inclined to qualitative analysis, but qualitative analysis lacks credibility because of the lack of support by quantitative data analysis, and there is

some differentiation and subjectivity. The research herein made a fuzzy search October 7, 2014 of all the relevant literature (2000-2013) at "wos", "jcr", "EI", "Chinese Journal Database", "China's Proceeding Paper Full-text Database", and "Chinas Theses and Dissertations Database" using "factors affecting corporate brand image strategy" as the research theme and found 1211 copies of foreign literature and 92 copies of Chinese literature, and after excluding literature in relatively low relevance, got more than a dozen papers relevant to the research subject which were then analyzed to find out all the factors affecting corporate brand image strategy. By collation the research found that these factors can be broadly summarized into two categories, namely, enterprises dynamic capabilities or resources or strategic capabilities and enterprises market orientation; in addition, the review of foreign literature showed that many scholars consider that there are a large number of factors affecting the corporate brand marketing, but many feature particularity. In this end, this paper sorted and analyzed factors affecting the brand marketing of agricultural science and technology enterprises, suggesting that factors that affect the brand marketing of agricultural science and technology enterprises mainly include resource capacity, market orientation, business environment, and product type, in which the impact of dynamic capabilities and market orientation on the brand marketing strategy of agricultural science and technology enterprises is universal, but the impact of others such as business environment and product type is particular, which vary with different industries and different regions of enterprises. This paper studied the impact of corporate strategic capabilities composed of dynamic capabilities and market orientation on corporate brand marketing strategy [8] and summarized two categories of the important factors affecting corporate brand image strategy, namely, corporate dynamic capabilities and corporate market orientation.

2. Definition and quantification of data variables

Corporate brand image strategy: Combined with Shen Pengyi et al. studies on brand marketing theories, studies of the selection and measurement of variables in brand image strategy, and studies of brand image, this paper evaluated corporate brand image strategy from three aspects of functional image, experiential image and symbolic image, and designed related questions for survey.

Corporate dynamic capabilities: There are many studies on the definition and measurement of corporate dynamic capabilities. The measurement of dynamic capabilities with reference to the definition of dynamic capabilities by Teece who raised the concept of corporate dynamic capabilities is more representative. This paper with reference to the above point of view evaluated corporate dynamic capabilities from six aspects of strategic adjustment, organizational routine transformation, market information search capabilities, understanding of consumer needs, gathering and analysis of competitors information, understanding of the market environment and development trends of product technology, and designed related questions for survey.

Table 1 .Variables of the Structural Model

	Latent variables	Observed variables
Endogenous latent variables	Agricultural science and technology enterprises brand image strategies	Functional image, experiential image, and symbolic image
Exogenous latent variable	Agricultural science and technology enterprises dynamic capabilities	Strategic adjustment, organizational routine transformation, market information search capabilities, understanding of consumer needs, gathering and analysis of competitors information, understanding of the market environment and development trends of product technology
	Agricultural science and technology enterprises market orientation	Customer orientation, competitor orientation, market information processing, and functional coordination.

Corporate market orientation: Many studies on the relations between market orientation and corporate marketing performance have found that corporate market orientation has an important influence on corporate marketing performance. Some scholars have also developed a measurement scale of market orientation. This paper, drawing on Ding Yus research results that the market orientation of agricultural science and technology companies is mainly reflected in customer orientation, competitor orientation, market information processing, and coordination of functions, etc. as well as the studies by Slater, SF, Narver, J.C. and Kohli, AK, Jaworski, B.J., divided market orientation into four aspects of customer orientation, competitor orientation, market information processing and

coordination of functions, and designed related questions for survey.

RESEARCH HYPOTHESIS AND THEORETICAL MODEL

1. Theoretical Model

Factors affecting corporate brand image strategy were analyzed and measured from two aspects of corporate dynamic capabilities and market orientation to establish a model of factors affecting corporate brand image strategy, including 13 measured variables and three latent variables (see Table 1).

2. Hypothesis

Based on the analysis above, in order to measure the impact of corporate dynamic capabilities and market orientation on corporate implementation and upgrade of the brand image strategy, the following assumptions were proposed:

H1: Agricultural enterprises dynamic capabilities play a positive role in promoting corporate brand image strategy;
H2: Agricultural enterprises market orientation plays a positive role in promoting corporate brand image strategy;
H3: There is mutual influence between the dynamic capabilities and the market orientation of agricultural enterprises.

DATA ANALYSIS AND SEM ANALYSIS

1. Data Analysis

Objects of this research are agricultural high-tech SMEs. Longdong area is Gansus main producing area of agricultural products, but because of the marketing weakness Gansus agricultural resources are not fully converted into competitive advantages [7]. Therefore, this paper focused on the brand image strategies taken by agricultural high-tech SMEs in Gansu. From Gansu 2012 Directory of Agricultural Enterprises, 36 agricultural high-tech SMEs were selected by the criteria identified by relevant science and technology administrations in Gansu; because of no access to the annual output value of enterprises, enterprises with 100 or below employees were taken as samples for SMEs. The 36 enterprises are mainly engaged in fruit and vegetable processing, dried fruit processing and sales and processing of forest products. They each selected eight employees from departments of strategic planning, production, and marketing, totaling 288 employees, to answer the questionnaire. Based on 13 measured variables and Likert scale, the five-option questionnaire was designed where each option was scored. 288 copies of questionnaire were distributed, and ultimately 210 valid copies were obtained. The results of correlation analysis of the latent variables (Table 2) showed that the correlation coefficient of the main variables was significant at the level of $p < 0.01$, indicating a good correlation between the variables that facilitates the further analysis.

Table 2. Correlation Analysis of Latent Variables

	Dynamic capabilities	Market orientation	Brand image strategy
Dynamic capabilities	1		
Market orientation	0.645**	1	
Brand image strategy	0.512**	0.781**	1
Mean	5.137	5.21	5.03
Variance	0.647	0.61	0.64

*Note: ** indicates significance at the level of p <0.001*

The overall credibility of the questionnaire was analyzed using Cronbachs alpha. The Cronbachs alpha was 0.764, indicating a high confidence of the questionnaire. The effect of data was tested with the validity analysis and by the measurement software the KMO value of each latent variable was obtained that was almost all greater than 0.5. Bartletts Test of Sphericity results showed that the level of significance was zero, less than 0.1, indicating that the latent variables had a better degree of response to the structure of questionnaire (see Table 3).

Table 3. Validity Test of Latent Variables

variables	Brand image strategies of agricultural enterprises	agricultural enterprises dynamic capabilities	agricultural enterprises market orientation
KMO	0.553	0.686	0.725

Reliability and validity analysis showed a reasonable choice of variables herein, thus a SEM model could be used to analyze factors affecting agricultural high-tech SMEs brand image strategies.

2. The model estimation results

AMOS 20 was used to make path analysis of the model of agricultural enterprises brand marketing strategies and marketing performance in order to test the hypotheses proposed and to test the significance of the model parameters, i.e. to test the statistical significance of the path coefficients (regression coefficients between latent variables) and load factors (regression coefficients between latent variables and measured variables). The results showed the models fitting correlation indices:

First, reliabilities of the items were measured using Cronbach's .Nunnally and Bernstein (1994) suggest that Cronbach's that exceeds.70 is evidence of reliability of the measures. The Cronbach's alpha coefficients ranged between .77 and .93, suggesting reliabilities of the measures.The Bartlett's test of sphericitywith a value of 7836 (p b .001) and KaiserMeyerOlkin statistic of .91 (N.6) indicate that the data are suitable to identify factor dimensions. Then, all measures were subjected to Principal Components Analysiswith the varimax rotation procedure. In order to check for evidence of discriminant validity,we compared the correlation in each construct against the alpha coefficients representing its correlation with other factors. The result shows that the alpha coefficients in each construct exceed the correlation coefficient with other factors, suggesting evidence of discriminant validity (Gaski & Nevin, 1985). We also conducted the Harman's one-factor test to examine evidence of discriminant validity.The result shows that any one general factor does not account for the majority of the covariance among the measures (Lee, Kim, Son, & Lee,2011; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Lastly, we performed a chi-square difference test to further check for evidence of discriminant validity of the measures using confirmatory factor analysis.The test examines whether the model constraining the measures to be the same is significantly different from the unconstrained model. If the chi-square differences are significant, the evidence of discriminant validity is indicated (Rust, Moorman, & Dickson, 2002). The test result supported the evidence of discriminant validity among the constructs.Because each construct was measured with many items and the sample size was relatively small for testing a complex model, we used the following well-established procedure to measure the overall model based on prior research (Bagozzi & Heatherton, 1994; Lee, Lee,Lee, & Babin, 2008; Sherman, Mathur, & Smith, 1997).Multiple items to measure each construct were split into two groups to create two indicators for the construct. The scores of all items used for each indicator were summed, and that sum was used as the respective indicator. This partial disaggregation approach for structural equation modeling(SEM) allows overcoming limitations of total aggregation approach or partial aggregation approach where unique dimension of the construct may be obscured. The structural error terms for the behavioral variables (three types of pro-environmental behavior) were allowed to correlate to each other, but not to any other structural error term. Maximumlikelihood estimates were used tomeasure various parameters proposed in the model.

2 was 212.075 (the smaller evaluation criterion, the better), df was 108, 2/df was 1.964 (evaluation criterion less than 3), RMSEA was 0.032 (evaluation criterion <0.05), GFI was 0.923 (evaluation criterion > 0.9), CFI was 0.921 (the closer the evaluation criterion is to 1, the better), indicating that the models fitting indices achieved the SEM model requirements and there was a better degree of fitting between the model and the sample data. The path coefficient of corporate dynamic capabilities to brand image strategy was 0.40 and was significant at the level of p <0.1, thereby confirming the H1; the path coefficient of market orientation to brand image strategy was 0.65 and was significant at the level of p <0.1, thereby confirming H2; the path coefficient of dynamic capabilities to market orientation was 0.55 and was significant at the level of p <0.1, thereby confirming the H3.

CONCLUSION

Conclusion

This paper delved into the impact of corporate dynamic capabilities and market orientation on corporate brand image strategy. On the basis of literature analysis and theoretical studies this paper proposed assumptions of relations between corporate dynamic capabilities, market orientation and corporate brand image strategy and developed a measurement scale to make empirical analysis of the data obtained from a questionnaire survey of 36 agricultural high-tech SMEs in Gansu Province. The results showed that agricultural high-tech SMEs dynamic capabilities play a positive role in promoting the corporate brand image strategy; agricultural high-tech SMEs market orientation play a positive role in promoting the corporate brand image strategy; and there is mutual influence between agricultural high-tech SMEs dynamic capabilities and market orientation.

Discussion

Many scholars have focused on the marketing performance of corporate applications of brand marketing strategy, i.e. the "results", but failed to elaborate the "antecedents" leading to enterprises adopting brand marketing strategy, i.e. factors affecting the brand marketing strategy and their acting mechanisms and pathways.

The dynamic capabilities of enterprises emphasize the integration of enterprise resources on a strategic level,

observing changes in the market and adjusting the market and strategies accordingly, which enables companies to better adapt to the rapidly changing environment, so corporate dynamic capabilities are better able to make up for the shortage of market orientation. Therefore, agricultural high-tech SMEs in the practice of brand image marketing should organically combine dynamic capabilities and market orientation, which helps them choose the right brand image strategy, thereby enabling companies to obtain and maintain long-term competitive advantages in marketing. In particular, for the apple growing enterprises in Qingyang, Gansu Province, it is essential to create a brand.

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