

Collaborative Analysis and Research on Marketing Risk and Enterprise Growth

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Abstract. To measure the level of synergy between marketing analysis and business growth, the existing literature is used to analyse the two perspectives of marketing risk and business growth and explore the possible links between the two based on synergy theory. A marketing management system and a business growth system are developed. The marketing system is based on seven indicators: cash ratio, asset turnover ratio, gearing ratio, current ratio, fixed asset turnover ratio, and higher technology share. The enterprise growth system is based on the growth rate of net asset income, the ratio of main earnings, the synchronization rate of main income and main profit growth, the capital preservation and appreciation rate, and the retention rate of profit retention. Corporate growth is inseparable from deep resource integration, of which marketing risk is a key part and the study of whether there is a link between the two systems of existence through the quantification of indicators and synergistic analysis of the linkage between the two.

Keywords: Marketing risk; Enterprise growth; Synergy theory.

1. Introduction

The security problem of marketing has always been the focus of academic personnel and economists, and its micro background is the marketing crisis in the market and the marketing failure of the enterprise. The macro context of this question is the outbreak of the Asian financial crisis. A sound and safe marketing system can enable enterprises to survive the financial crisis. Enterprise growth is a phased process, and whether the enterprises' continuous growth is the fundamental standard to measure the value and ability of an enterprise.

At present, the research on marketing security issues mainly lies in three aspects: Tang Jinrong and other people discussed the market risk in the risk source, early warning and prevention and control research of the corporate bond market, and put forward the market risk early warning system and market structure early warning risk warning, market demand risk early warning, market competition risk early warning, enterprise survival risk early warning and other issues.[1] in the "Risk Source, Early Warning and Prevention, and Control Research." Yan Fang [2] discussed the methods of identification, Measurement, Control, and Treatment of Marketing Risk in the Analysis, Marketing Risk Transformation Mechanism, and Preventive Countermeasures in the Era of Big Data, and discussed the problems of customer credit risk, sales contract risk, loan recovery risk and personnel moral risk in the marketing process. Geng Yan [3] studied the risk early warning problem of enterprise marketing in "Marketing Innovation and Risk Management of Small and Medium-sized Enterprises" and expressed the natural risk of the marketing environment, enterprise competition risk, customer risk, supply risk, and third-party risk, and put forward the corresponding index system according to her research. Moreover, Chen Chunhua thinks that a continuous growth enterprise has eight characteristics: customer value orientation, strategic logic, continuous innovation, deep understanding of the environment, and cultivating the ability to match. Enterprise core team must have "leadership," sharing value chain, with globalization standards to judge the problem enterprises need to face, leaving the first direction of competition, focusing on product vitality and effective governance structure to ensure rational enterprise decision-making.

In the existing literature, the current literature research on the collaborative analysis of the marketing risk and the enterprise growth is not perfect, but controlling the marketing risk has a great

impact on the growth of the enterprise. This paper will first analyze the marketing risk according to the internal logical relationship between marketing risk and enterprise growth loopholes and build the marketing risk system, enterprise growth system, and their synergy model, respectively. It selects the data of certain regional companies for analysis and finally draws the conclusions and relevant policy suggestions.

2. Analysis of the synergistic effect between marketing risk and enterprise growth

Marketing risk refers to the process of marketing due to the limited environmental awareness of the complexity, versatility, and uncertainty of the enterprise environment, resulting in the designated strategy may lead to marketing failure due to cognitive deviation. From the macro level, enterprise growth increases the enterprise sales scale and the resources needed to survive and expand the business. From the micro-level, enterprises need to integrate their limited resources by constantly integrating their own internal structure and optimizing the system to develop their competitiveness to achieve growth.

From this level, when the enterprise is in integration and optimizing their internal resources, enterprises can control marketing risk by researching marketing risk according to the market demand, clearing their strategic position so that in the process of enterprise growth, more efficient integration of resources, avoiding marketing mistakes can enhance the enterprise growth more smoothly. The research in this paper is conducive to the continuous study of enterprise marketing risk-related impact and the development of enterprise growth system theory.

3. Co-model construction

3.1 Order parameter

This paper studies the marketing risk of the growth analysis and prediction, and the parameters of marketing risk and the degree of enterprise growth system, build the market risk and enterprise growth model based on small and medium-sized enterprises in big data technology, reveals the evolution law and trend of the system. Based on the synergy theory, marketing risk and enterprise growth are regarded as two different systems of different attributes and different substructures. The return rate of total assets, operating cash flow, and net profit is reflected in the enterprise growth of seven sequential parameters, including the "Growth Evaluation of the New Third Board Cultural Enterprises." Seven sequential parameters, including cash ratio, asset turnover ratio, asset-liability ratio and flow ratio, fixed asset turnover ratio, and their positive and negative indicators, among which Posi (+) ne (-)[4].

Specific data are shown in Table 1.

Table 1 Marketing risk and enterprise growth coordination index system

The system to which the index belongs.	name of index	Indicator code	Indicator positive and negative
Enterprise growth X	Profit retention rate	X1	Positive
	Operating cash flow	X2	Positive
	Net margin	X3	Positive
	Long-term liabilities	X4	negative
	Gross profit rate	X5	Positive
	The ratio of income as a percentage of sales	X6	Positive
	Accounts receivable	X7	Positive
Marketing risk Y	Cash ratio	Y1	Positive
	Asset turnover	Y2	Positive
	Asset-liability ratio	Y3	negative
	Current ratio	Y4	negative
	Fixed asset turnover	Y5	negative
	Inventory turnover ratio	Y6	negative
	The proportion of higher technology	Y7	Positive

3.1.1 Marketing risk system construction

Marketing risk refers to the enterprise in the marketing process due to environmental complexity, diversity, and uncertainty, and limited environmental awareness of the marketing strategy and strategy and market development change uncoordinated, which may lead to marketing activities, failure or fail to meet the common marketing goals of various risks. The existing literature divides marketing risks from different perspectives, and different divisions are suitable to solve different problems. For enterprises, marketing risk is essentially a possibility of loss, manifested in the uncertainty of whether the risk occurs, time, cause, potential loss, etc. The factors that cause marketing risks and affect their risk size mainly include environmental factors, information factors, business factors, and management factors. Environmental factors, information factors, and business factors are external causes of risk, while the marketing organization management factors are the internal cause.

Marketing management system refers to the general term of all kinds of monitoring methods and processes used in response to marketing risks and building marketing risks, correct enterprise decision-making, personnel management, process management of scattered risks and other levels, and actively manage risks, rather than simply avoiding and passive acceptance. It includes seven indicators, including cash ratio, asset turnover ratio, asset-liability ratio, flow ratio, fixed asset turnover ratio, and the ratio of higher technology.

3.1.2 Construction of the enterprise growth system

Enterprise growth is divided into internal and external levels. The first level refers to the interest of scale economy of the division of labor as the main inducement of enterprise growth. By enriching and improving the product or factor market, risks are reduced to promote the growth of enterprises. The second is the theory of pure internal cause growth, which emphasizes the role of management in the growth of enterprises and strengthening management to enhance competitiveness to promote the growth of enterprises. There is a financial evaluation system of enterprise growth ability. The system comprises six indicators, including the growth rate of net asset return, the main profit ratio, the synchronization rate of the main income and the main profit growth rate, the capital preservation and appreciation rate, and the profit retention rate.[5]

3.2 Model construction of the EWM

The basic principle of information theory improves the entropy method. Information is a measure of the degree of system order. Based on the definition of entropy, the greater the influence of the index on the comprehensive evaluation, the index does not function in the comprehensive evaluation. Therefore, the information entropy tool can be used to calculate the weight of each index to provide a basis for the comprehensive evaluation of multiple indicators.

Step1: Data Standardization Calculation:

In the formula, w_j is the weight for each order parameter. The entropy method was used to determine w_j . The entropy method is an objective empowerment method, which reflects the potential role of each index in the evaluation results under the condition of having the determined value. The basic principle is as follows: after standardizing the data, the proportion of the j th index in the i th sample was calculated.

$$u_{ij} = a_{ij} / \sum a_{ij} \quad (1)$$

Step2: The entropy of the j th evaluation index was calculated.

$$e_j = -k \sum u_{ij} \ln u_{ij}, k = 1 / \ln m \quad (2)$$

Step3: The entropy of the j th evaluation index was calculated.

$$g_i = 1 - e_i \quad (3)$$

Step4: Calculate the weight of the evaluation index.

$$m_i = g_i / \sum g_i \quad (4)$$

3.3 Subsystem synergy model

Treat the marketing risk system and the enterprise growth system as a composite system $S = \{ S_1, S_2 \}$, The S_1 is the marketing risk system subsystem, S_2 is a subsystem of the enterprise growth system. Consider the subsystem $S_j (j \in [1, 2])$, Let its order parameter be $e_j = (e_{j1}, e_{j2}, \dots, e_{jn})$, $\beta_{ji} \leq e_{ji} \leq \alpha_{ji}$, $n \geq 1, i=1, 2, \dots, n$, α_{ji} . β_{ji} is the critical value of e_{ji} when the system is stable.

Assume that $(e_{j1}, e_{j2}, \dots, e_{jn})$ is the positive index, the value of size is positively correlated with the order degree; $(e_{jl+1}, e_{jl+2}, \dots, e_{jn})$ is a reverse index. Moreover, the taking value is negatively correlated to the degree of system order. Based on the cooperativity theory, the contribution of the order parameter to the system can be calculated by "integrating" the various order parameter components. In this paper, linear weighting is used for integration. Namely, the system order degree $u_j(e_j)$ of the order parameter variable e_j is:

$$u_j(e_j) = \sum w_j u_j(e_{ji}), w_j \geq 0, \sum w_j = 1 \quad (5)$$

Then the system order degree $u_j(e_j)$ of the order parameter component e_{ji} of the subsystem S_j is:

$$u_j(e_{ji}) = \begin{cases} \frac{e_{ji} - \beta_{ji}}{\alpha_{ji} - \beta_{ji}}, i \in [1, l] \\ \frac{\alpha_{ji} - e_{ji}}{\alpha_{ji} - \beta_{ji}}, i \in [l+1, n] \end{cases} \quad (6)$$

3.4 Composite system synergy model

The coordination degree of the marketing risk system and the enterprise growth system reflects the comprehensive coordination degree of the district marketing risk system and the enterprise growth system operation. That is:

$$U_1(t) = sig(\cdot) \sqrt{|U_1(t) - U_1(t-1)| \cdot |U_2(t) - U_2(t-1)|} \quad (7)$$

$$\begin{aligned} sig(\cdot) &= 1, U_1(t) - U_1(t-1) \geq 0, U_2(t) - U_2(t-1) \geq 0 \\ &= -1, else \end{aligned} \quad (8)$$

$U_1(t)$ refers to the orderly contribution of the marketing risk system subsystem at time t , $U_2(t)$ is the orderly contribution degree of the enterprise growth system subsystem at time t , $U_{(t)} \in [-1, 1]$, when $U_{(t)}$ trending to 1, it shows that the greater the coordination degree between marketing risk system and enterprise growth system, and the effective coordinated development between marketing risk system and enterprise growth system or between internal elements. The smaller the $U_{(t)}$, the smaller the synergy between the two systems, and the disorderly development between the marketing risk system and the enterprise growth system.

4. Collaborative analysis and research on marketing risk and enterprise growth

4.1 Study of the selected company

In order to jointly analyze the marketing risk and the enterprise growth, this paper starting with the scientific and rational takes China Min Energy Company as the case to collect the data of the marketing risk and the enterprise growth for many years, among which the data comes from the Wind database, as summarized in Table 1 for details.

Table. 1 the marketing risk and the enterprise growth [6]

System	Index	Unit	2016	2017	2018	2019	2020	Indicator positive and negative
Enterprise growth	Rate of return on total assets (ROA)	%	6.50%	7.89%	6.39%	6.48%	9.94%	Positive
	Operating cash flow	Unit: 100 million yuan	2.65	3.07	3.39	4.11	7.83	Positive
	Net margin	Unit: 100 million yuan	1.19	1.71	1.45	1.61	5.35	Positive
	Long-term liabilities	Unit: 100 million yuan	10.98	12.79	13.23	14.58	43.01	Negative
	Ratio of income as a percentage of sales	%	30.14%	33.80%	27.61%	27.76%	42.74%	Positive
	Gross profit rate	%	59.95%	55.87%	52.41%	55.79%	67.70%	Positive
	Average accounts receivable turnover ratio	Unit: times	2.83	1.87	1.35	1.3	1.61	Positive
Marketing risk	Asset turnover	Unit: times	0.13	0.15	0.14	0.14	0.17	Positive
	Inventory turnover ratio	Unit: times	19.24	17.96	15.27	13.62	18.42	Positive
	Current ratio	%	1.8	1.16	1.09	0.94	1.04	Positive
	Asset-liability ratio	%	46.84%	51.04%	50.91%	53.30%	63.78%	Negative
	The proportion of technicians	%	20.85%	26.27%	27.87%	29.08%	26.77%	Positive
	Fixed asset turnover	Unit: times	0.2	0.75	0.21	0.24	0.31	Negative
	Basic earnings per share a year-on-year growth rate		1666.67%	45.28%	-15.58%	16.15%	151.84%	Positive
	Cash ratio		1.61	0.48	0.35	0.31	0.39	Positive

Because of the different importance of indicators, this paper combines the formula based on the SPSS platform. It obtains the entropy value e , information utility d , and weight coefficient w of each indicator of enterprise growth system and marketing risk system indicator. The calculation results are shown in Table 2.

Table. 2 different indicators of enterprise growth system and marketing risk system [7]

Weight results are calculated by the entropy method				
subsystem	Index	Information entropy value e	Information utility d	weight coefficient w
Enterprise growth	Rate of return on total assets (ROA)	0.99	0.01	3.06%
	Operating cash flow	0.946	0.054	16.55%
	Net margin	0.8808	0.1192	36.54%
	Long-term liabilities	0.8961	0.1039	31.84%
	The ratio of income as a percentage of sales	0.9911	0.0089	2.74%
	Gross profit rate	0.9975	0.0025	0.76%
	Average accounts receivable turnover ratio	0.9722	0.0278	8.52%
Marketing risk	Asset turnover	0.9974	0.0026	0.27%
	Inventory turnover ratio	0.995	0.005	0.52%
	Current ratio	0.9817	0.0183	1.90%
	Asset-liability ratio	0.9965	0.0035	0.36%
	The proportion of technicians	0.9962	0.0038	0.40%
	Fixed asset turnover	0.9042	0.0958	9.99%
	Basic earnings per share a year-on-year growth rate	0.323	0.677	70.54%
	Cash ratio	0.8462	0.1538	16.03%

Through calculation, it can be found that the information entropy value e of gross profit margin is the largest in the enterprise, at 0.9975, and the information entropy value e of the year-on-year growth rate of basic earnings per share is the smallest in the marketing risk system, at 0.323.

4.2 Collaborative analysis study

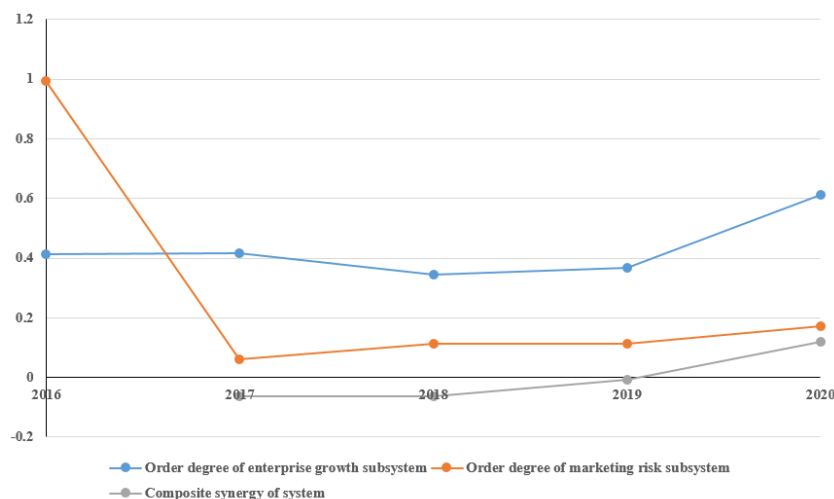


Figure. 1 Order and synergy changes of enterprise growth and marketing risks in 2016-2020

4.3.1 Subsystem order degree resolution

As shown from Figure 1, the order of enterprise growth subsystem of China and Fujian Energy has a large increase in 2020 compared with the previous year but has little change in other years and the overall upward trend. The order of marketing risk subsystem decreased sharply in 2017 compared with the previous year and showed a small and steady upward trend in the later period. There was no

significant synergy between the two subsystems. On the whole, the order of the enterprise growth system is higher than that of the marketing risk subsystem.

4.3.2 Synergy analysis of the composite system

According to Figure 1, although the composite system synergy increased steadily after 2007, it remained at a low level and less than 0 until 2019, indicating that the two subsystems were uncoordinated; only in 2020 above 0 was the coordination between the two subsystems.

4.3 Policies and Recommendations

The article verifies the relationship between marketing risk and enterprise growth ability through empirical research and concludes that there is no obvious synergy between enterprise marketing risk and enterprise growth ability. Based on this conclusion, this paper believes enterprises should boost their growth by improving their marketing ability level and reducing their marketing risks.

Specifically, enterprises can innovate their marketing model. Online marketing, extensive data marketing, micro-marketing, and other new marketing methods have a wide range of information dissemination and a high customer conversion rate in the Internet era. If enterprises want to improve their marketing ability, they should actively try new marketing channels and carry out precision marketing. Enterprises can reduce the risk of enterprise marketing by improving the professional ability of marketers. In marketing, big data technology is used to analyze customers' psychology and needs, and at the same time, we should actively explore the market changes, update our products and marketing activities at any time, and strive to seize the first opportunity and occupy the market. Enterprises should also pay attention to carrying out demand-oriented marketing activities and improving enterprise marketing activities. All business activities are designed to make profits, and marketing activities are no exception. And whether marketing activities can ultimately complete the mission of creating profit. In the red sea of fierce competition, enterprises should make products recognized by the market; on the other hand, marketing activities to get customers. Only enterprises that consider both aspects can develop in the long term in this market. Therefore, we should pay attention to marketing activities, control the risks of marketing activities, and try to ensure that every marketing activity does not fail, can drainage for the enterprise products, and promote enterprises' growth.

5. Conclusion

Marketing is an important link to realize the use-value to the value of goods. There are many uncertainties in the process of marketing. The use of big data technology to conduct collaborative analysis of marketing risks and enterprise growth is conducive to helping enterprises control the risks in marketing to carry out more scientific and effective marketing. In this paper, Zhongmin Energy is selected as the research case, analyzes the indicators that can reflect its enterprise growth ability and marketing risk, and concludes that there is no obvious synergy between enterprise marketing risk and growth ability. Based on the above research conclusions, the corresponding suggestions for enterprise marketing activities are put forward.

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