Study on Non-agricultural Management of Agricultural Enterprises and Impacts on Financial Risk

——A Case Study of Listed Enterprises in Shanghai and Shenzhen A-Shares in 2012-2017

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Abstract: To increase the farmers' income, promoting the development of society is the common hope for agricultural listed company. When the agricultural listed companies developed, due to the expansion of the scale, to obtain more financing, most of the agricultural listed companies have to begin the "conversion" business. This paper, through the analysis of the Shanghai and Shenzhen A-shares listed on the 30 agricultural listed companies during 2012—2017's main business review, puts forward research on non-agricultural agricultural enterprises and its impact on financial risk, and applies the Z model to determine the enterprise financial risk, and HHI (Beh Finn Dahl index) to determine the non-agricultural degree.

1. Introduction

Agriculture is the basic industry of our country. The development of agricultural enterprises is almost related to the gross national product (GDP) of the whole country. It is of great significance to the basic means of production on which everyone in the society depends for their survival. It cannot be neglected to promote and guide the development of agricultural industry.

From the current situation of the development of the listed agribusiness, the scale of the agricultural listed companies in our country is not large, and the proportion of circulating shares is small from the view of the equity structure. Some researches show that the overall market performance of the agriculture-related listed companies is not good, and the performance of the agricultural listed companies is obviously polarized. The degree of non-agricultural expansion is serious, and some of the agribusiness listed companies even withdraw from the agricultural industry.

Natural factors, policy factors and financial factors are all important factors that affect the development of enterprises. Diversification has become a good recipe for dispersing risk. To a certain extent, it can disperse the huge natural risks and market risks in the field of agriculture. At the same time, the non-farming of agricultural enterprises also needs to be paid at the same time. Therefore, this paper focuses on the financial risks of agricultural related enterprises and measurement of financial risk.

This paper makes a deep analysis of the development and management of the agricultural related

listed companies in Shanghai and Shenzhen A-shares, and it makes a completed and objective analysis of the reasons for the non-agricultural operation. At the same time, by establishing a financial risk evaluation model (Z model), the paper finds the relationship between non-agricultural management and financial risk, and finally puts forward constructive suggestions and suggestions on non-agricultural management of agribusiness.

2. Literature Review

2.1 The Definition of Non-agricultural Management in Agribusiness

Zhang Huaqing, et al. (2010) think that the non-agricultural management of agribusiness listed companies refers to some listed companies that originally belong to the agricultural sector but change their industry attributes and invest their stock or incremental funds in non-agricultural industries in order to obtain more income. Li Zhaoping, Wang Jingyan (2012) believe that agricultural listed companies invest a large number of funds in non-agricultural industries as a phenomenon. From a practical point of view, the non-agricultural management of the agricultural listed companies makes the listed agricultural industry assets decrease substantially, and at the same time violates the original intention of agricultural management. This phenomenon is not conducive to the healthy development of the agricultural industry and the effective operation of the capital market. In the course of the development of our socialist market economy, many new economic subjects have been born. Non-agricultural management is also a special term under this special social system. Compared with foreign countries, foreign capital markets have liquidity, in academia they turned non-agricultural tools into diversification.

2.2 Analysis of Causes in Non-agricultural Management of Agricultural Listed Enterprises

Profit motive in the first place. In 2007 and 2009, Peng Yi published a study respectively that the reason for the non-agricultural management behavior was the low profit, so agricultural listed enterprises transferred investment direction in order to obtain short-term economic benefits, or to grab more economic benefits.

The second is the motivation of risk aversion. The scholars, such as He Fengping (2014), believes that the main reason for the non-agricultural management behavior is to avoid the unpredictable investment risk which is caused by the natural risks in agriculture.

Finally, it is the motivation of chasing the relevant in the industry. Wang Jiquan (2012) uses the theory of "herd benefit" and the psychology of chasing the maximum profit to explain the deep motivation of non-agricultural management of the listed companies involved in agriculture in our country. The study found that once an agricultural company had a non-agricultural operation and brought considerable economic benefits, it would lead to being learned and imitated among other agricultural company investors, and then they would reduce their investment in agricultural funds and redirect capital to non-agricultural management industries. In the study, the author also ascribed the reason of agricultural enterprises to the objective policy environment.

2.3 Research on the Influence of Non-agricultural Management on Financial Risk

The impact of funds on financial risks is the first point focused. Li Yiling (2008) found that a large amount of capital investment was needed for a diversified non-agricultural operation of agribusiness, and that financial risks mainly come from the influence of funds. Since the capital sources of enterprises are divided into equity financing and debt financing, when the use of funds is

dispersed, it is very likely that enterprises will use "new debt to repay old debts" and will not be able to repay their debts, thus posing a huge potential risk to the financial affairs of agribusiness.

The second is the policy support to the non-agricultural development. Luo Shuang(2011) , starting from the policy , believed that the government policy influenced the agricultural infrastructure and the investment of agricultural products under the support of the agricultural policies. In this context, agricultural enterprises don't use the large amount of government subsidies they receive in agricultural industries, but in order to gain more benefits, pursue greater profit margins, lastly the agricultural enterprises invest them in non-agricultural industries.

The last is the utilization of resources and the core competitions. Li Tingjie (2010) believes that natural resources is very limited, and agricultural companies, to a large extent, occupy most of the natural resources in the field of agriculture. Therefore, in theory, agribusiness should give full play to its own advantages and maximize the use of the natural resources it occupies. However, at present, most agricultural enterprises cannot develop their own advantages to the maximum, when the situation is getting worse, it will not only lead to the decline of the core competitiveness and profitability of agribusiness, but there will be serious financial risks.

3. Theoretical Analysis and Research Hypothesis

Non-agricultural operation is an important way for agricultural listed companies to expand their business and obtain excessive profits. However, the risk of obtaining excessive profits should be assumed. Non-agricultural management belongs to diversified management, so we can use the explanation of diversification and enterprise financial risk in the theory of strategic management: diversification can spread risk. At the present stage, the scholars undefined the researches is based on the strategic management theory and the herd behavior theory to carry out the research on the non-agricultural business and financial risk of the listed agricultural enterprises. This paper will further examine the influence of the non-agricultural management on the financial risk of the listed agricultural enterprises based on the theory of externality and the theory of "search and match", as shown in the following column:

The resources of the agribusiness listed company due to the asset specificity do not match with the new business sector, the resources which are needed for the new business are lacking and the enterprise governance mechanism is not perfect (Cui Yingke 2013), non-agricultural operation is not the best way for the enterprise to widen its business fields.

Hypothesis: The non-agricultural management of the agribusiness listed companies will lead to the improvement of the financial risk.

4. Research Design

4.1 Research Sample

Firstly, because this paper uses Z model to measure the financial risk, the financial data of the last five years can get the best forecast results. Secondly, the agribusiness listed companies in the last seven years are in the new normal environment of the economy, faced with great opportunities and challenges, the problem of changing the mode of development, adjusting the management structure, and controlling the relationship between the degree of non-agricultural operation and the financial risk. Therefore, this paper selected Shenzhen and Shanghai stock exchange A-share listed agribusiness in 2010-2017 as a research sample. All stock data from the cninfo information network (www.cninfo.com.cn). In order to ensure the scientific and data validity of the research, this paper selects 30 agricultural listed companies, excluding companies that were St, and the data were severely missing during the study, they eventually got a sample size of 1035. In this paper, excel

2010 and SPSS22.0 two kinds of software are used for data processing.

4.2 Model Setting and Variable Definition

4.2.1 Model Setting

Based on the model and variable design developed by Cui Yingke(2013), the following multivariate linear regression models were established according to the hypothesis, and the risk assessment model was established by using SPSS22.0 software for regression analysis and correlation analysis.

$$FR = \beta_0 + \beta_1 HHI + \beta_2 SIZE + \beta_3 ADR + \beta_4 GROWTH + +\beta_5 ROS + \beta_6 ROE + \beta_7 SUB + \varepsilon$$

Among them, Fr denotes financial risk, and HHI indicates the degree of non-agricultural operation of agribusiness. β_0 is a constant term, and β_i(i=l,2,3,...) for the independent variable coefficient. The GROWTH, SIZE, ADR, and the profitability index ROE, ROS, the government subsidy income of SUB are chosen as the control variables, ε is the coefficient of random disturbance.

4.2.2 Variable definitions

4.2.2.1 Explained Variables

In this paper, FR is used as an index to measure the financial risk of a company. The evaluation system of Z model for risk index is selected. The Z index model was founded by Edward Altman in 1968 to evaluate the financial risk. Z exponent is expressed as:

$$Z=1.21X_1+1.4X_2+3.3X_3+0.\ 6X_4+0.999X_5$$

The Z value of the company can be calculated according to the above financial formula. In general, the smaller the Z values, the greater the financial risk of the enterprise is, and the greater the possibility of bankruptcy in the future emerges. The empirical determination regions of Z model are as following:

Table 1 The Empirical Determination Regions of Z Model

Z	Financial Risk
Z<1.81	Possible bankruptcy
1.81<Z<2.657	An intermediate ground
Z>2.657	No bankruptcy

Table 2 Calculation of Financial Indexes in Z Model

x_i	Formula
x_1	Current capital/Total assets
x_2	Retained earnings /Total assets
x_3	Earnings before interest and tax/Total assets
x_4	Preferred stock and common stock market value/Total debt
x_5	Turnover of total capital

4.2.2.2 Explanatory Variables

This paper selects HHI (Herffendal Index) to measure the degree of non-agricultural operation. HHI is a negative indicator, the larger HHI values, the lower the degree of non-agricultural is, and

the HHI index of the agribusiness companies which operates only agriculture is 1.

$$HHI = \sum_{i=1}^{n} S_i^2,$$

S_i refers to the share of revenue from primary operations in total sales revenue in item *i*.

4.2.2.3 Variables Definition Table

Table 3 Variables Definition

Type of variable	Symbol	Formula
Explained Variable	FR	
Explanatory Variable	HHI	
Controlled variable	ADR	Total liabilities / Total assets
	ROS	Main business profit / Main business income
	ROE	Net profit / Average annual net assets
	GROWTH	(Current year's operating income-Last year's operating income)/ Last year's operating income
	SIZE	Natural logarithm of total enterprise assets
	SUB	Government subsidy income / Main operating income

5. Empirical Analysis

5.1 Distribution of HHI in 30 Agricultural Listed Companies

As can be seen from the above table 4: firstly, at this stage, the majority of agribusiness listed companies have engaged in different degrees of non-agricultural management. In the operation of the listed agricultural enterprises, there are 21 non-coherent agricultural enterprises, accounting for 70% of all the total, and the lowest level of non-agricultural management is 14.7%. There are only 9 agricultural enterprises engaged in s monocline industry. Secondly, many industries involved in the non-agricultural management of agribusiness. The diversified industries involved in non-agricultural operations include manufacturing, industry, real estate, construction, wholesaling and retailing, services, fishing, transportation, warehousing, etc. but non-agricultural management mainly focus on manufacturing industry.

Table 4 Distribution of HHI in 30 Agricultural Listed Companies

Stock code	HHI	Mainly related industry	Business type
002299	0.5913	Manufacturing, Transportation, Warehousing	Non-coherent
002385	0.4207	Industry	Non-coherent
000713	0.3722	Services	Non-coherent
600975	0.4791	Manufacturing,Wholesaling, Retailing	Non-coherent
000798	0.4879	Manufacturing, Real estate	Non-coherent
000998	0.9551	----------------------	Monocline industry
600313	0.5578	Services, Industry	Non-coherent
002477	0.8528	Manufacturing,wholesaling, retailing	Coherent
600108	0.8622	Wholesaling, Retailing	Non-coherent
600467	0.5145	Manufacturing, Fishing	Non-coherent
002714	0.9612	-------------------------	Monocline industry
600506	0.8761	Manufacturing	Non-coherent
300313	0.8536	Manufacturing	Non-coherent
002458	0.8298	Others	Non-coherent
600018	0.9819	--------------------------	Monocline industry
600257	0.6485	--------------------------	Monocline industry
600313	0.5270	Manufacturing, Construction	Non-coherent
002746	0.6387	Services	Coherent
002321	0.6574	Wholesaling, Retailing	Non-coherent
300498	0.4127	Manufacturing, Education	Non-coherent
002234	0.3258	Real estate	Non-coherent
002069	0.1470	Services	Non-coherent
002041	0.3269	Industry	Coherent
600354	0.4879	Manufacturing	Non-coherent
300106	0.4850	Services	Non-coherent
600251	0.2506	Services	Non-coherent
000592	0.3175	Manufacturing, Construction, Finance	Coherent
000663	0.2506	Manufacturing, Construction, Education	Non-coherent
600097	0.9853	--------------------------	Monocline industry

5.2 Descriptive Statistics

From the statistical results in Table 5, we can see the minimum value of financial risk is -0.3235, the maximum value is 4.0247, the mean value is 1.5329, and the standard deviation is 0.921, which indicates that there is still a big gap in the distribution of financial risk among agricultural listed companies. Judging from the index of the degree of non-agricultural management(HHI), the minimum value is 0.1470, the maximum value is 0.9934, the mean value is 0.6125, and the standard deviation is 0.4763. According to the data analysis, the degree of non-agricultural management of the whole industry shows a trend of polarization, and all sample companies show a trend of non-agricultural management.

Table 5 Descriptive Statistics Analysis of Variables

Type of Variable	Max	Min	Mean	Standard Deviation
HHI	0.9934	0.1470	0.6125	0.4763
FR	4.0247	-0.3235	1.5329	0.9211
SIZE	22.337	20.497	21.436	0.6874
SUB	0.493	0.001	0.0016	0.0490
ADR	0.6939	0.0980	0.3764	0.1754
GROWTH	1.7423	0.1818	0.6115	0.4083
ROS	75.775	-181.237	21.049	16.760
ROE	20.387	-13.968	-0.019	1.6380

It can be seen from Table 6 that the overall HHI of 30 listed agricultural companies has increased year by year in the past five years. To some extent, it can be determined that the operating trend of listed agribusiness in the past five years is returning to agriculture. On the analysis of the controlled variables, the scale of the company is quite different, the standard deviation is 0.6874, and the minimum value of growth ability is 1.7423, therefore, the enterprise also needs to improve its own growth ability. Government subsidy income is still low in most of the listed agricultural companies, but the largest number of government subsidies even exceed 40% of the main business income. The minimum value of profitability index ROE and ROS of 30 listed agribusiness samples are all negative, which indicates that the profitability of listed agribusiness should be improved.

Table 6 Trends of overall 30 listed companies HHI in the past 5 years

Stock code	2010	2011	2012	2013	2014	2015	Trends
Overall 30	0.5555	0.6019	0.6496	0.6590	0.7063	0.7861	Return agriculture

5.3 Correlation Analysis

In order to better study the influence of non-agricultural management on the financial risk of the agribusiness listed companies, this paper uses SPSS22.0 to carry on the correlation analysis of the variables in the sample before the multivariate regression analysis. The results are shown in table 7. It can be seen from table 7 that the financial risk of the agribusiness listed company is significantly positively correlated with the level of non-agricultural management of the enterprise at the level of 1%, and the financial risk is significantly negatively correlated with the government subsidy level at the level of 1%. In terms of controlled variables, financial risk is significantly positively correlated with the size, growth capacity, asset-to-liability ratio, and profitability of companies at a level of 1%.

Table 7 Inter Variables Coefficient Matrix

	FR	HHI	SIZE	SUB	GROWTH	ADR	ROS	ROE
FR	1.000							
HHI	0.152***	1.000						
SIZE	0.243***	-0.043**	1.000					
SUB	-0.132***	0.323***	0.045**	1.000				
GROWTH	0.069***	-0.025	0.126***	0.278***	1.000			
ADR	0.0224***	-0.234***	0.261***	-0.389***	0.001	1.000		
ROS	0.345***	-0.643***	-0.265***	0.411***	-0.386***	-0.004	1.000	
ROE	0.137***	0.326***	0.685***	-0.382***	-0.093***	-0.516***	-0.002	1.000

***,**,* Respectively indicate significant levels at 1%, 5%, and 10%

5.4 Multivariate Regression Analysis

It can be seen from Table 6 that the degree of non-agricultural operation of the agribusiness listed companies is significantly positively correlated with the financial risk at the level of 5%, the size, growth of the company, ratio of assets and liabilities, there is a significant positive correlation between profitability and financial risk at the level of 1%. The above shows that the greater the degree of non-agricultural management of listed agribusiness companies is, the more concentrated they are in agriculture, which means that the greater the Z value of FR, the smaller the financial risk is. The larger scale, the more superior growth, the stronger profitability and solvency of the agribusiness listed company, the more effective can reduce the occurrence of financial risk. However, there is a significant negative correlation between government subsidy income and financial risk at the level of 1%, which also indicates that the larger the proportion of government subsidy income to total income, the smaller the Z value of FR is. This means that the higher the financial risk of an agribusiness listed company, the more likely it is to face bankruptcy, which may be due to the fact that the agribusiness listed company receives subsidies from the government without any risk, the large-scale use of it in investment areas not familiar has led to higher financial risks.

Table 8 Multivariate Regression Analysis

Variables	FR	
	Coefficient	T
HHI	0.042**	3.065
SIZE	1.361***	45.174
SUB	-0.362***	-4.588
ADR	0.148***	-10.346
ROS	0.156***	-9.981
ROE	0.053***	5.305
Constant	0.112***	9.238
F	641.142	
R^2	0.9 00	
Observed value	1035	

***,**,* Respectively indicate significant levels at 1%, 5%, and 10%

6. Findings and Policy Recommendations

6.1 Findings

The non-agricultural management of agricultural listed companies will increase the financial risk, which is in line with the assumption of this paper. This is mainly due to the fact that most of the natural resources owned by listed agricultural companies, but the lack of non-agricultural resources and the ability to choose industries with higher returns, which has led to a higher financial risk. Secondly, the lack of non-agricultural management experience of listed agribusiness companies, they still blindly have followed the industry investors who can get high returns to invest. For example, although there are many industries involved in non-agricultural management of agribusiness at this stage, but it can be found through analysis that non-agricultural enterprises mainly focus on manufacturing and real estate.

The non-agricultural management of agricultural enterprises presents the trend of returning to agriculture. The reason for this analysis is that after a series of non-agricultural investments, the agribusiness listed companies find that they can't well manage in the field of non-agricultural operation. Due to lack of investment experience and other reasons agricultural listed companies

have not obtained higher profit than the agricultural management or even paid a loss, they once again return to agricultural management and even tend to specialize agricultural management.

6.2 Policy Recommendations

Based on the above study, this paper puts forward the following suggestions:

From the point of view of the government: the government should adjust the preferential policies for agriculture appropriately and pay attention to the macro-control of the agricultural company market. As a result of the whole study and analysis, we can see that some of the important reasons for the non-agricultural of agribusiness are due to the large amount of financial support and preferential policies given by the government, which has led agricultural company to unscrupulously invest the money it receives in non-agricultural investment. Therefore, first of all, the government should set up the incentive form and principle that accords with the current situation of the management of the agricultural companies, pay attention to supervise the company that accepts the preferential policy. Secondly, improve the investment environment for agricultural management and reduce investment risks. At the present stage, the current land contract responsibility system of our country limits the large-scale development of agricultural industry to a certain extent. Our government should shoulder the responsibility, grasp the history, recognize the present situation.

From the enterprise itself: first, agricultural listed company should deepen self-understanding, seek a better path of development. in the business objectives of the enterprise, if the agricultural wants to achieve the business objectives that set for the enterprise. They should increase its understanding of its current operating situation, play their own role in the market and real investment direction. In the management thought of the enterprise, the agribusiness should pay more attention to the leading business, and then expand to other business after using its advantage resources to the maximum. In the development of leading business, agribusiness should strive to innovate, bring into play the basic value of agriculture, and constantly improve the value of agriculture and the added value of agricultural products. In terms of industry orientation, as the leading force of agricultural industrialization, agricultural companies are the growth poles of agricultural economic space, promote the development of other agricultural enterprises through multiplier effect, and break the new equilibrium state of higher agricultural comparative benefits. Give play to the role of a point-to-face, the formation of the entire agricultural industry prosperity.

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