Contents lists available at www.innovativejournal.in

JOURNAL OF BUSINESS MANAGEMENT AND ECONOMICS

Home page: http://innovativejournal.in/index.php/jbme

JBME ISSN: 2347-5471

Application of Financial Ratio Evaluate Enterprise Finance Risk Warning- An example of China's listed Agricultural Company

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DOI: https://doi.org/10.15520/jbme.v6i08.2263

Abstract: Establishing risk assessment system and risk control, enterprises can prevent and mitigate risks and minimize losses caused by risks. On the basis of reviewing related literature of financial risk measurement with solvency, profitability, operation ability and development ability, through the construction of regression model and statistical method, the empirical analysis and inspection are carried out for the listed agricultural companies. According to the financial indicators can alert the financial situation of agricultural companies and reflect the financial risk situation.

Key words: Financial Ratio, Enterprise Finance, Risk Warning, Agricultural Company

INTRODUCTION

The agricultural industry is related to the livelihood of the people and the foundation of economic development. In the case of continuous development and progress of agricultural science and technology, agricultural companies have also developed rapidly, and some of the industry leaders have been listed as the leader of the whole industry. The business scale of the agricultural listed companies is very large, and the business area involved is more extensive. It can not only gain more economic benefits, but also lead the development and progress of industry technology. However, due to the complexity of the capital market, agricultural listed companies have encountered some financial risk problems, resulting in difficulties in the operation of the company. The reason is that the agricultural listed companies are not a large number of companies, have not formed a unified mechanism, and the ability to respond to the market risk is not strong, which leads to the weak financial risk prevention and control ability of the listed agricultural companies.

According to the survey statistics of WIND finance from 2011 to 2015, according to the statistics of 23 listed agricultural companies, the decline price preparation for the long term investment from 2011 to 2015 has shown a decline, but the stock fall price and the fixed asset fall price have risen. The decrease of investment impairment in the long and short period shows that the listed companies in the financial market have experienced some experience in the financial market for a period of time, reducing the low benefit investment, applying the related funds to the fixed assets and inventory, and the related amount continued to increase. However, due to the great difference between listed agricultural companies and other companies, the increase in fixed assets and inventory investment will increase financial risk. In addition, agricultural listed companies still have some deficiencies in financial management, risk prevention and control, and corporate governance. Therefore, it is necessary to study the financial risk assessment, find out the specific measures to assess the financial risk of the enterprise, and draw a concrete risk evaluation model, so as to make a reliable evaluation of the financial risk of the listed agricultural companies, so as to measure the level of the overall financial risk and improve the support for the related work.

LITERATURE REVIEW

Ostrow et al. (1984) [1] studies the EVA evaluation system and uses this index system to study the financial situation of listed companies, and has received extensive attention from the industry people. The core theory of EVA evaluation is that cash flow income and accounting income are the main targets of evaluation, which have obvious limitations. However, the income of cash flow has a direct relationship with the solvency of the enterprise, which indirectly reflects the relationship between the solvency and the financial risk of the enterprise. Birch et al. (2009) [2] has studied this field and pointed out that the key of financial analysis is to collect and collate financial information as the basis of financial analysis. Straub and Thirumalai (2011) [3] believes that financial analysis is a kind of judgment analysis. The fundamental purpose is to predict and estimate the future development and performance of the company based on the financial situation and related data of the company's present and past practice.

Firman-Edwards (1955) [4] has made a study on the development ability of enterprise management and production through the principle of microeconomics. It is considered that the development ability of enterprises is different under different operating modes. Single operation and diversified operation are different for enterprises. On this basis, it further points out that the development capacity and the financial situation of the enterprise have a close relationship. The better the development ability of the enterprise and the brighter future prospects, the financial situation will be better. Heidl et al. (2014) [5] makes a further supplement to the theory of Penrose. It believes that the state of the market product is often effective, and the product can play a variety of functions in the market. For enterprises, let these functions meet the needs of consumers, so that consumers can form a strong consumer group to form a solid consumer group, so that the future development of the enterprise can have a solid consumer foundation. To achieve the realization of product functions, we need to make full use of all kinds of resources, so that these resources can enhance the market competitive advantage of products.

Lubatkin and Chatterjrr (1994) [6] through the capital asset pricing model, on the relationship between corporate profit and financial risk, point out that the higher the enterprise's gravitational ability, the lower the possibility of financial risk in the state of capital asset pricing. This is because the capital assets of quantitative quotas create greater profit value, which means that it is the best in a series of related links, so that there is no financial risk. However, it is worth noting that if the profit is exceeded that of a theoretical norm under capital asset pricing, it may lead to financial risk. This is because in the scope of the theoretical quota, it is difficult to achieve it through normal operating means. Assuming that it has reached such a level, then there may be improper operation as an act, in this way, it will increase financial risk.

Gouya et al. (2014) [7] studies the financial risk and bankruptcy of the company through the multivariable model. It selects 66 companies (33 bankruptcy) as samples, and finds that the receivable turnover rate of the bankrupt company is greatly higher than that of the non-bankrupt enterprises, and some companies are unable to recover the accounts receivable for many years. And this is a reflection of the problem, that is, the company's poor operating capacity, do not deal with the things in this area, thus triggering financial risks, causing the company to go bankrupt. At the same time, the 33 bankrupt companies are also greatly higher in inventory turnover than those of non-bankruptcy companies. The poor recovery of accounts and the overstock of inventory have become a major reason for the bankruptcy of the company. Schirmer (2000) [8]through the Value at Risk theory, analyzes the risk value of enterprise operating investment in the condition of non-distribution, and points out that there is a certain value relationship between business investment and financial risk, that is, the higher the risk, the higher the value of the business investment. But the higher the value of business investment, the risk will not necessarily be high. This shows that risk determines value, not value determines risk. For agricultural listed companies, we should recognize this point and make reasonable adjustment and control of business behavior.

RESEARCH METHOD

In this paper, take agricultural listed companies as the research object. In the comprehensive analysis, some companies with incomplete or abnormal data are eliminated. 66 agricultural listed companies are selected as the research overall, and the 2012-2016 year continuous five years as the research period.

Based on the definition and essence of financial risk, financial risk is produced in the financial management activities of the enterprise, which is finally reflected in the deterioration of the financial situation of the enterprise and the reduction of the operating results, that is to say, the business performance of the enterprise is declining. Usually, the actual performance of an enterprise is measured by the financial indicators of the enterprise. Although a single financial index can transmit the financial information of one aspect of the enterprise, it is isolated; there are various kinds of financial indicators. Only the necessary classification and the choice of the financial indicators can make an accurate comprehensive evaluation of the business performance.

Table 1 Variable definition description

Variable Type	Classification	Variable name	Variable description
Interpreted variable		Z score	Z=1.2X1+1.4X2+3.3X3+0.6X4+1.0X5
Explanatory variable	Solvency	EBIT	EBIT = marginal contribution - fixed operating cost
		QR	QR=(Quick assets/ Currentliability)*100%
		DAR	DAR=(Total liabilities / Total assets)*100%
		ER	ER=(Total liabilities / Stockholder's equity)*100%
	Profitability	ROE	ROE=(Net profit / Net assets)*100%
		CA	The value of assets earned or lost when the value of existing assets is deducted from the time of purchase.
		OPM	OPM=(Operating profit / Operating income)*100%
		CPR	CPR=(Profit / Cost)*100%
	Operation ability	ART	ART=(Net credit / Average balance of accounts receivable)*100%
		IT	IT=(Sales cost / Average inventory)*100%
		TFA	TFA=(Sales revenue /Net value of fixed assets)*100%
		TTA	TTA=(Sales revenue / Total assets)*100%
	Development ability	TAGR	TAGR =(Total assets growth this year at the beginning of volume / Total assets)*100%
		NPGR	NPGR =Total profit - Tax
		BIGR	BIGR=(Main business revenue growth / Total revenue of main business last year)*100%

Based on the above variables, the following four linear regression models are established:

$$Z_{it} = \alpha_0 + \alpha_1 EBIT_{it} + \alpha_2 QR_{it} + \alpha_3 DAR_{it} + \alpha_4 ER_{it} + \varepsilon_{it}$$
$$t = 1,2,3,4,5;\ \ i = 1,\ldots,66$$

$$Z_{it} = \beta_0 + \beta_1 ROE_{it} + \beta_2 CA_{it} + \beta_3 OPM_{it} + \beta_4 CPR_{it} + \varepsilon_{it}$$
$$t = 1,2,3,4,5;\ \ i = 1,\ldots,66$$

$$Z_{it} = Y_0 + Y_1 ART_{it} + Y_2 IT_{it} + Y_3 IFA_{it} + Y_4 TTA_{it} + \varepsilon_{it}$$
$$t = 1,2,3,4,5;\ \ i = 1,\ldots,66$$

$$Z_{it} = \delta_0 + \delta_1 TAGR_{it} + \delta_2 NPGR_{it} + \delta_3 BIGR_{it} + \varepsilon_{it}$$
$$t = 1,2,3,4,5;\ \ i = 1,\ldots,66$$

THE RESULTS OF EMPIRICAL ANALYSIS

In this paper, the regression coefficients of the model are obtained by the complex regression analysis. On the basis of this, the effects of each variable on the explanatory variables are determined. According to the R^2, adjusted R^2, F value and T value are used to test the fitness, the explanatory power and the significance of the parameters.

Solvency on risk warning regression analysis of listed agricultural companies:

Table 2 Regression analysis of solvency on risk warning

	Regression coefficient	**Standard error**	**T-value**	**Sig.**	**VIF**
Constant	7.475	1.020	7.331	0.000	
ER	0.001	0.006	00.223	0.824	5.430
EBIT	1.909	0.000	2.390	0.020	1.007
QR	-0.001	0.001	-0.756	0.452	1.812
DAR	-0.080	0.032	-2.536	0.013	7.132
R^2	0.352		Adjusted R^2	0.315	
F-statistic	9.526				

From table 2 that all of the value of the VIF variable is not more than 10, does not have the problem of multicollinearity. After the adjustment of R^2 value is 0.315. In terms of regression parameters, EBIT and Z score are positively correlated, indicating that EBIT and Z score change in the same direction; DAR and Z score are negatively correlated, indicating that DAR and Z score are not the same direction changes; ER and Z score are positively correlated but not tested by significant level; QR is negatively correlated with Z score but not tested by significant level.

Therefore, solvency on risk warning regression analysis of listed agricultural companies, when EBIT increases, the fixed financial costs per dollar surplus will be relatively reduced; DAR is reflected in the total assets by borrowing to raise funds, which can measure the protection of the interests of the creditor in liquidation. The lower the ratio, the stronger the debt paying ability of enterprises. For solvency of agricultural listed companies, the impact of EBIT and DAR on Z scores is more significant, which is a key indicator affecting Z scores.

Profitability on risk warning regression analysis of listed agricultural companies:

Table 3 Regression analysis of Profitability on risk warning

	Regression coefficient	**Standard error**	**T-value**	**Sig.**	**VIF**
Constant	-2.799	1.881	-1.488	0.141	
ROE	-0.115	0.040	-2.860	0.006	1.554
CA	0.069	0.018	3.869	0.000	1.030
OPM	-0.007	0.031	-0.217	0.829	1.745
CPR	0.111	0.038	2.929	0.005	2.284
R^2	0.292		Adjusted R^2	0.252	
F-statistic	7.231				

From table 3 that all of the value of the VIF variable is not more than 10, does not have the problem of multicollinearity. After the adjustment of R^2 value is 0.252. In terms of regression parameters, ROE and Z value are significantly positive correlation, indicating that ROE and Z score change in the same direction; CA and Z score are significantly positive correlation, indicating that CPR and Z score are higher. OPM was negatively correlated with Z score but did not pass significant level test.

Therefore, profitability on risk warning regression analysis of listed agricultural companies, the higher ROE indexhave higher income of investors, it can measure the efficiency of company's utilization of capital to the shareholders; capital appreciation can truly reflect the operating situation and the degree of preservation of the enterprise capital. The enterprise can effectively carry out the product production and expand the market, grasp the competitive advantage of the market, and can lay the foundation for the continuous development of the enterprise. CPR shows that the higher the index, the smaller price the enterprise pays for profit, the better cost control can stronger the profitability. For the profitability of agricultural listed companies, the effect of ROE, capital appreciation and CPR on Z score is more significant, which is the key index to influence the Z score.

Operation ability on risk warning regression analysis of listed agricultural companies:

Table 4 Regression analysis of operation ability on risk warning

	Regression coefficient	**Standard error**	**T-value**	**Sig.**	**VIF**
Constant	0.856	3.755	0.228	0.820	
ART	0.139	0.034	4.074	0.000	1.062
IT	-1.073	0.654	-1.639	0.106	5.512
TFA	0.069	0.034	2.011	0.048	5.623
TTA	9.816	4.654	2.109	0.039	1.938
R^2	0.379		Adjusted R^2	0.343	
F-statistic	10.671				

From table 4 that all of the value of the VIF variable is not more than 10, does not have the problem of multicollinearity. After the adjustment of R^2 value is 0.343. In terms of regression parameters, ART and Z score are positively correlated, indicating that ART and Zscore are in the same direction, TFA is positively correlated with Z score, indicating that TFA is in the same direction as Zscore, TTA is positively correlated with Z score, TTA is changed in the same direction as Zscore. IT was negatively correlated with Z score but did not pass significant level test.

Therefore, operation ability on risk warning regression analysis of listed agricultural companies, the higher ART, the higher turnover rate, indicating that the accounts receivable quickly, the age is short, the liquidity of the assets is strong and short term solvency is strong, it can reduce the loss of bad debts. The use of fixed assets utilization rate is low, reflecting the degree of enterprise assets;bigger the TTA, indicating that total asset turnover faster, reflects the enterprise sales ability is stronger. For agricultural listed company’s operation ability, ART, TFA and TTA showed significant effects on Zscore, and it is an important index affecting Z score.

Development ability on risk warning regression analysis of listed agricultural companies:

Table 5 Regression analysis of development ability on risk warning

	Regression coefficient	**Standard error**	**T-value**	**Sig.**	**VIF**
Constant	7.383	2.329	3.170	0.002	
TAGR	0.061	0.015	4.096	0.000	1.388
NPGR	0.004	0.001	3.691	0.000	2.255
BIGR	-0.074	0.064	-1.167	0.247	2.266
R^2	0.461		Adjusted R^2	0.438	
F-statistic	20.232				

From table 5 that all of the value of the VIF variable is not more than 10, does not have the problem of multicollinearity. After the adjustment of R^2 value is 0.438. In terms of regression parameters, TAGR and Z values are positively correlated, indicating that TAGR and Z values change in the same direction; NPGR and Z values are positively correlated, indicating that NPGR and Z values change in the same direction; BIGR and Z values are negatively correlated but not tested by significant level.

Therefore, development ability on risk warning regression analysis of listed agricultural companies, TAGR is the ratio of total amount of assets to total assets in the current period of the enterprise, reflects the changes in the scale of the assets of the enterprise, and the stable asset growth has an important role in the long-term development of the enterprise; It means that the net profit is more, the business efficiency of the enterprise is good, the net profit is little, and the business efficiency of the enterprise is poor. It is an important index to measure the operation of an enterprise. For the development ability of agricultural listed companies, the impact of TAGR and NPGR on Z score is more significant, and it is an important index affecting Z score.

CONCLUSION AND SUGGESTION

CONCLUSION

On the basis of reviewing related literature of financial risk measurement with solvency, profitability, operation ability and development ability, through the construction of regression model and statistical method, the empirical analysis and inspection are carried out for the listed agricultural companies, and the following conclusions are obtained: financial ROE the index is higher indicate higher the income of the investors, higher the efficiency of the company's investment in the capital, and the increase of the value of capital added with good value and value can effectively carry out the product production and expand the market, grasp the competitive advantage of the market, and can lay the foundation for the continuous development of the enterprise; Cost profit rate shows that the index is higher, enterprise profit and the cost is small, cost control better, stronger profitability, can improve the value of enterprise.Secondly, higher the accounts receivable turnover rateindicate higher the turnover rate, quick accounts receivable, short account age, strong liquidity of the assets and strong short-term debt repayment ability, which can reduce the loss of the bad debts of the company. The turnover rate of total assets of financial assets is large, which shows that total assets turnover of the company is fast, which can reflect strong sales ability of the company and

affect the enterprise. Finally, growth rate of total assets of financial changes in the period of change can reflect the enterprise's assets, can make the enterprise long-term stable development; increase the financial net profit growth rateand net profit of enterprise can create business efficiency will be better.

Suggestion:

The enterprise should determine a suitable proportion structure between the equity capital and the debt capital so that the level of debt is always maintained at a reasonable level and cannot exceed its own ability to bear the debt. And even in a crisis. To ensure that an enterprise can not only maintain the normal production and operation of the enterprise, but also bring as much profit as possible to the enterprise under the premise of reducing or not increasing the risk, using the scientific investment decision method, choosing a relatively large income and relatively small risk of investment projects or combination, and constantly taking an examination of its income situation. Inspect and compare and amend unreasonable investment. The best combination of profitability, risk and robustness, or in the return and risk, will make the conservatism principle act as a balancer, so as to avoid risks reasonably.Secondly, improve the professional knowledge level, professional judgment and self-quality of the related financial management personnel, to help establish a sound risk prevention mechanism for the agricultural listed companies, so that the enterprises can prevent, control and rescue all kinds of risks that may appear in the process of management and avoid the financial crisis.

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