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Research on the relationship between microenterprise internal control and financial risk

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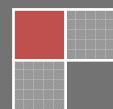
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ABSTRACT

Disadvantages of microenterprise begin to occur in the aftermath of the current financial crisis. It has become an important subject to increase the ability of resisting financial risk. Particularly enhancing the enterprise internal control will be the key to strictly control the microenterprise financial risk. This essay empirically analyzes the relationship between microenterprise internal control and financial risk with the financial risk measured by Z-score, which is aimed at providing some basis for microenterprise to establish relevant system.

KEYWORDS

Microenterprise; Internal control; Financial risk; Financial crisis; Measured by Z-score.



INTRODUCTION

Lots of international and domestic academics have been studying the relationship between enterprise internal control and financial risk for long. Although these researches are mostly in-depth, they mainly adopt quantitative analysis instead of qualitative analysis and they focus very much on large and medium enterprises, very little reference to small businesses even microenterprises. The essay attempts to study the relationship between internal control and financial risk from the microenterprise's perspective and empirically examines the relationship using Chinese macro-statistics data. On the basis of the research production of^[6], the internal control is divided into 5 first grade indexes and 11 second grade indexes to measure the quality of control, and the financial risk is measured by Z-score. Besides, the essay empirically analyzes the effect of microenterprise internal control on financial risk with 650 representative microenterprises as research object.

MODEL CONSTRUCTION

An econometric model should be builded in order to analyze the effect of microenterprise internal control on financial risk. Suppose that the financial risk function caused by different factors can be expressed that:

$$F = x_0 + \sum_{i=1}^n \frac{1}{u_i a_i^{a_i}} X^{u_i} \quad , \quad (0 < u_i < 1)$$

Among it, X_0 denotes the value-at-risk caused by a standard factor in the competitive conditions; X_i denotes the consumption index caused by the i th combination of risk factors. $i \in [1, 2, \dots, n]$; X_i denotes the CES function of the i th combination of risk factors index. It can be expressed that:

$$X_i = \left[\int_0^{n_i} x_i(j)^{a_i} dj \right]^{\frac{1}{a_i}} \quad , \quad (0 < a_i < 1)$$

$x_i(j)$ denotes the value-at-risk caused by the j th financial risk factor; n_i denotes the type of the i th financial risk factor. Substitution elasticity of any two kinds of financial risk is $\frac{1}{1-a_i}$, $a_i > u_i$ indicates that

the substitution elasticity of any two kinds of risk in one combination of financial risk is larger than that of any two kinds of combination of financial risk. All the representative enterprises' function of the combination of financial risk can be expressed that:

$$x_n = a^{\frac{a}{1-a}} M^n (X^n)^{\frac{u-a}{1-a}} (P^n)^{\frac{1}{1-a}}$$

The representative enterprises' minimum risk function can be expressed that:

$$f = (1-a) Y \Theta c^{\frac{a}{1-a}} - k$$

Among it, $Y = \sum M^n (X^n)^{\frac{u-a}{1-a}}$, $\Theta = \theta^{\frac{a}{1-a}}$, $C(\phi) = c(\phi)^{\frac{a}{1-a}}$. Y denotes external factors impacting the financial risk, which should be regarded as exogenous variable to any microenterprise. The representative enterprises' financial risk function can finally be expressed that:

$$F_i = \frac{(1-a) \cdot Y \cdot \theta^{\frac{a}{1-a}}}{C(\beta_i, d_i)} \cdot f_i$$

According to the financial risk function and Z-score method, an econometric model concerning the effect of microenterprise internal control on financial risk can be builded as followed:

$$F = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \dots + \alpha_i X_i + \gamma$$

Among it, F denotes the financial risk; X_1, X_2, \dots denotes the factors impacting enterprise internal control; $\alpha_1, \alpha_2, \dots, \alpha_i$ denotes the correlation coefficient; γ denotes the random errors.

EMPIRICAL ANALYSIS

Selecting and explaining variables

The essay selects Z-score, which represents the financial risk and can be obtained by Z-score method, as explanatory variable. Using the internal control evaluation index system established by Lin Zhonggao^[2] for reference, explanatory variables are composed of 5 first grade indexes and 11 second grade indexes. The first grade index includes internal environment(NH), risk assessment(FP), control activities(KZ), information communication(XG) and internal supervision (NJ). The second grade index includes the situation that one man holds two positions(LJ), managerial compensation(GX), management ownership of stock(CG), whether establish the internal audit institution or not(NS), analysis and measures(FD), whether have property protection mechanism or not(CB), performance evaluation and salary system(JX), frequency of routine meetings of the company(LH), whether have information management mechanism or not(XJ), audit opinion(SY) and frequency of punishment on illegal behavior(WC). In addition, this essay designs two control variables. One of them is that the earlier company is established, the better management system, internal control and financial management will be. The other one is that the bigger the company, the more the resources used in internal control and the better the internal control. (Krishnan J, 2005) All the details are listed in TABLE 1. According to the variables selected, the econometric equation can be designed as followed:

$$Z = \alpha_0 + \alpha_1 NH + \alpha_2 FP + \alpha_3 KZ + \alpha_4 XG + \alpha_5 NJ + \gamma$$

Source of sample data

Chinese Ministry of Industry and Information Technology has established the criteria to divide microenterprise. The microenterprise is generally what has employees less than ten, but not all the industries apply. For example, the industrial microenterprise is the company with employees less than 20 or with annual income less than 3 million yuan; the property management microenterprise is the company with employees less than 100 or with annual income less than 5 million yuan; the real estate microenterprise is the company with annual income less than 1 million yuan or with total assets less than 20 million yuan. The essay selects 650 representative microenterprises as the research object, while only 561 of them conform to the precondition that information relatively complete. These data come from Chinese development of small and medium-sized information net in 2011 and the samples derive from basically the whole nation. Besides, the raw data have been processed by using mathematical statistics method.

Descriptive statistics of data

With the purpose of grasping the overall characteristic of the variables, descriptive statistics of variables have been analyzed by using econometric software and the analysis result is listed in TABLE 2.

TABLE 1 : Meaning and Expected Symbol of the Variable

Variable type	First grade index	Second grade index	Expected symbol	Variable definition	
Explained variable		Financial risk	+	Z-score	
	Explanatory variable	Internal environment	The situation that one man holds two positions	+	Choose 0 if one man holds both factory director and manager; Choose 1 if different people hold these two positions.
Managerial compensation			+	The top three managers' pay and natural logarithm	
Management ownership of stock			+	The natural logarithm of managerial ownership	
Risk assessment		Whether establish the internal audit institution or not	+	Choose 1 if there is internal audit institution and fulltime staff; Choose 0 if it is on the contrary.	
		Analysis and measures	+	Choose 1 if there is both risk and measures in financial statement; Choose 0 if it is on the contrary.	
		Whether have property protection mechanism or not	+	Choose 1 if there is property protection; Choose 0 if it is on the contrary.	
Control activities		Performance evaluation and salary system	+	Choose 1 if there is performance evaluation and salary system in annual report; Choose 0 if it is on the contrary.	
		Information communication	Frequency of routine meetings of the company	+	The number of times of routine meetings in a year.
			Whether have information management mechanism or not	+	Choose 1 if there exists enterprise information security in annual meeting; Choose 0 if it is on the contrary.
			Internal supervision	Audit opinion	—
Frequency of punishment on illegal behavior	—	The number of times of punishment from CSRC from 2000 to 2011.			
Control variable		Corporate age	+	The period of time since the corporate established.	
		Firm size	+	The natural logarithm of company's total assets at the end of the year.	

Regression process

In order to empirically study the effect of microenterprise internal control (NK) on financial risk, it attempts to build an econometric model with Z-score of financial risk which is regarded as explanatory variable, 5 first grade indexes which include internal environment(NH); risk assessment(FP); control activities(KZ); information communication(XG) and internal supervision (NJ), 11 second grade indexes which include the situation that one man holds two positions(LJ); managerial compensation(GX); management ownership of stock(CG); whether establish the internal audit institution or not(NS); analysis and measures(FD); whether have property protection mechanism or not(CB); performance evaluation and salary system(JX); frequency of routine meetings of the company(LH); whether have information management mechanism or not(XJ); audit opinion(SY) and frequency of punishment on illegal behavior(WC), and two control variables which include corporate age (NL) and firm size (GM). The essay carries out regression analysis between partial variables and aggregate variables by using SPSS. The regression result which is listed in TABLE 3 shows that all the variables have passed the significance test and the goodness of fit R² is more than 0.2. The regression effect is relatively significant.

- (1) The correlation between internal environment and financial risk. The situation that one man holds two positions and financial risk is not closely correlated with financial risk. It is probably because the smaller scale of the microenterprise. Raising managerial compensation can lower the financial risk. And increasing management ownership of stock can also motivate the managers and lower the financial risk.

TABLE 2 : Descriptive Statistics of Data

Variable	Mean	Median	Maximum	Minimum	Standard deviation	Sample size
Financial risk	5.67814	5.76182	10.57891	-1.26484	2.56419	561
The situation that one man holds two positions	0.72659	1	1	0	0.42687	561
Managerial compensation	13.56874	13.58461	15.32541	11.00269	0.73297	561
Management ownership of stock	10.25481	14.22254	20.68412	0	7.24694	561
Whether establish the internal audit institution or not	0.91547	0.01578	0.78516	0	0.26971	561
Analysis and measures	0.94681	1	1	0	0.16841	561
Whether have property protection mechanism or not	5.21490	6	6	1	1.19426	561
performance evaluation and salary system	0.94287	1	1	0	0.23697	561
Frequency of routine meetings of the company	7.54920	7	32	2	3.51862	561
Whether have information management mechanism or not	0.98126	1	1	0	0.23694	561
Audit opinion	1.05781	1	4	1	0.36149	561
Frequency of punishment on illegal behavior	0.26581	0	3	0	0.53691	561
Corporate age	8.61492	8	22	3	3.59147	561
Firm size	20.61493	20.51674	24.26580	19.26571	0.68167	561

- (2) The correlation between risk assessment and financial risk. Both internal audit institution and analysis&measures are closely correlated with financial risk. In another word, both risk assessment mechanism and professional audit institution can lower enterprise's internal and external financial risk and help to realise the desired goals.
- (3) The correlation between control activities and financial risk. Both the property protection mechanism and performance evaluation and salary system are closely correlated with financial risk. It indicates that both property protection mechanism and performance evaluation could reinforce the corporate control and lower the probability of a risk.
- (4) The correlation between information communication and financial risk. The frequency of routine meetings of the company is not closely correlated with financial risk. It's probably because that these routine meetings are not good and deep-going. Whether have information management mechanism or not is closely correlated with financial risk. It indicates that information transfer is conducive to internal control and risk prevention.
- (5) The correlation between internal supervision and financial risk. Both audit opinion and the frequency of punishment on illegal behavior are closely correlated with financial risk. In another word, the disclosure of audit opinion and the punishment on enterprise's illegal behavior can efficiently strengthen the internal control and lower the probability of a risk.
- (6) The correlation between total internal control and financial risk. From the overall regression result, the main factors which have an influence on financial risk are managerial compensation, management ownership of stock and property protection mechanism.

TABLE 3 : Regression Result

Variable	NH		FP		KZ		XG		NJ		NK	
	Coefficient	P	Coefficient	P	Coefficient	P	Coefficient	P	Coefficient	P	Coefficient	P
C	25.324	0	29.364	0	22.364	0	32.648	0	38.259	0	17.256	0.0021
LJ	0.015	0.947									-0.105	0.771
GX	1.264	0									0.938	0.0001
CG	0.054	0.007									0.048	0.021
NS			1.498	0.036							0.726	0.351
FD			2.841	0.003							0.264	0.816
CB					0.815	0					0.636	0
JX					1.641	0.04					0.331	0.684
LH							-0.121	0.066			-0.064	0.158
XJ							1.751	0.037			0.516	0.553
SY									-1.462	0.006	-0.706	0.164
WC									-0.671	0.032	-0.131	0.623
NL	-0.022	0.639	-0.011	0.824	0.005	0.861	-0.029	0.502	-0.023	0.706	-0.003	0.923
GM	-1.710	0	-1.320	0	-1.080	0	-1.221	0	-1.426	0	-1.316	0
R ²	0.356		0.364		0.267		0.299		0.451		0.443	

CONCLUSION

The essay studies the correlation between enterprise internal control and financial risk from the microenterprise's perspective. It divides internal control as internal environment, risk assessment, control activities, information communication and internal supervision five indexes by using international and domestic research production for reference. We can draw a conclusion by the empirical examination which uses chinese macro-statistics data. The first, managerial compensation is closely correlated with financial risk, so raising managerial compensation can lower the financial risk of microenterprise. The second, strengthen the internal supervision of microenterprise control activities can lower financial risk. Besides, audit opinion and enterprise punishment on illegal behavior play an important role in preventing the financial risk. The third, expedite enterprise information dissemination channel is conducive to microenterprise internal control and financial risk prevention.

REFERENCES

- [1] Hua Jin, Heping Zhu; Empirical Analysis of the Effect of Llisted Sems Internal Control on Financial Risk[J]. Journal of Financial Communication, **6**, 73-75 (2012).
- [2] Zhonggao Lin, Shuzhen Wang; Discussion of the internal control and corporate value[J]. Journal of Finance and Trade Research, **5**, 117-122 (2006).
- [3] Mengjun Xie; The Correlation Between Industrial Structure and Economic Growth in Shandong Province: Based on Empirical Data in 1980—2010[J]. Journal of Shandong Institute of business and technology, **6**, 30-34 (2012).
- [4] Xiaohui Wu, Jinghui Lou; Empirical Analysis of the Effect of Independent Director on Traditional Internal Governance Mechanism[J]. Journal of Research on Quantity Economy and Technology Economy, **4**, 142-152 (2008).
- [5] Guohua Chi; Evaluation System Model of Enterprise Internal Control Based on Management[J]. Journal of Accounting Research, **10**, 55-61 (2010).
- [6] H.Ashbaugh-Skaife, D.W.Collins, W.Kinney; The effect of SOX Internal Control Deficiencies and their Remediation on Accrual Quality[J]; The Accounting Review, **1**, 217-250 (2008).
- [7] L.L.Bargeron, K.M.Lehn, C.J.Zutter; Sarbanes-Oxley and Corporate Risk-taking[J]; Journal of Accounting and Economics, **49**, 34-52 (2010).
- [8] MenYang; The reason analysis and countermeasures of small and middle scale enterprises accounting risks[J]; Statistics and decision making, **3**, 25-27 (2013).