CSCanada
International Business and Management
Vol. 10, No. 2, 2015, pp. 32-37
DOI:10.3968/6819

ISSN 1923-841X [Print]
ISSN 1923-8428 [Online]
www.cscanada.net
www.cscanada.org

Research on the Financial Sustainable Growth of the Listed Companies on GEM

HUANG Xiyuan[a],*; ZHANG Jingui[b]

[a] Accounting, School of Economics and Management of Jiangsu University of Science and Technology, Zhenjiang, China.
[b] Professor, Jiangsu University of Science and Technology, Zhenjiang, China.
Research area: Modern management accounting and cost accounting.
*Corresponding author.

Received 11 February 2015; accepted 7 April 2015
Published online 30 June 2015

Abstract

Currently high risk assumed by a listed company on GEM makes numerous operators, investors and creditors pay close attention to the sustainable growth ability of an enterprise. In view of this, this paper makes an empirical analysis on the current status of the financial sustainable growth of the listed companies on GEM and the main factors that might affect their sustainable growth separately through the Wilcoxon signed ranks test and the factor analysis. The research result turns out that the listed companies on GEM have failed to achieve the financial sustainable growth with its actual growth rate greater than the sustainable growth rate to indicate an excessive growth. Meanwhile since the factors that influence the enterprise sustainable growth include the profitability, the cash-generating ability, the debt paying ability, the operation capacity and the growth ability, then the managers should take the following measures to achieve the financial sustainable growth of the enterprise through the cost control, the reinforcement of cash management, the cultivation of core competence, the optimization of the capital structure and the enhancement of the management level etc.

Key words: Listed companies on GEM; Financial sustainable growth; Empirical analysis

Huang, X. Y., & Zhang, J. G. (2015). Research on the Financial Sustainable Growth of the Listed Companies on GEM. *International Business and Management, 10*(2), 32-37. Available from: http://www.cscanada.net/index.php/ibm/article/view/6819
DOI: http://dx.doi.org/10.3968/6819

INTRODUCTION

Coming into the era of "knowledge economy" with the development of economy, Chinese government has managed to provide a more convenient financing channel, which is also called as the growth enterprises market (GEM) to all of the high-tech enterprises to enhance its core competence and the capability of independent innovation. Oriented to serve those newly-established growing firms, such a GEM mainly supports those enterprises characterized with the capability of independent innovation for their financing and becoming listed companies. Different from those traditional listed companies, the listed companies on GEM are always small in scale but featured with high technological content and great development potential. However due to the high uncertainty on the reliability, feasibility and the maturity of new technologies, it has become very hard to make an accurate judgment on the value of these enterprises. Therefore the investment risk will increase, which will reduce to some extent the investor's enthusiasm in the investment. Hence how the listed companies on GEM have been developed and if they possess the sustainable development capacity have become the focus of attention to numerous operators, investors and the creditors of the enterprises. In view of this, this paper takes the first batch of the 28 listed companies on Chinese GEM as the samples to make an empirical research, evaluating their present financial sustainable growth status and analyzing the main influencing factors. Finally based on the empirical results, this paper proposes some feasible suggestions on the company development to improve the comprehensive strength of the listed companies on GEM in the market competition, making sure that the listed companies will be developed in a good way and laying a foundation for their sustainable growth.

1. RESEARCH REVIEW

Many researchers in the academic circle have made

numerous in-depth studies on the problem about the sustainable growth of the enterprise with two typical enterprise sustainable growth models having been constructed: One is the accounting standard-based sustainable growth model represented by the sustainable growth model proposed separately by Robert C. Higgins and James C. Van Horne. Higgins has defined the sustainable growth rate to be "the maximum growth rate achieved by the company in the sales without the depletion of the company's financial resources", while Van Horne has defined the sustainable growth rate as the "maximum annual growth percentage realized by the enterprises in the sales under a certain operation, debt and dividend payout ratio" based on Higgins' theory. The other is the sustainable growth model based on the cash flow index, including the sustainable growth model proposed separately by Alfred Repaper and John L. Coney. Repaper believed that the financial sustainable growth rate was the growth rate when no cash flow was available. Also the close connection between the enterprise growth and the cash flow was the key factor that constrained the enterprise from growth. However Coney discovered in the research that there was a negative correlation between the cash flow and the growth rate. He believed that the growth rate of the cash balance was actually the sustainable growth rate.

2. RESEARCH DESIGN

2.1 Research Method

Firstly, this paper makes an evaluation on the financial sustainable growth of the listed companies on GEM through the Wilcoxon signed ranks test. Secondly, this paper makes a demonstration on the key factors that influence the financial sustainable growth of the listed companies on GEM by extracting most of the information contained in the financial indexes set up by the sample company through the factor analysis method.

2.2 Sample Selection and Data Source

Since the analysis on the financial sustainable growth of the listed companies on GEM requires long-time data, then this paper takes the first batch of the 28 listed companies on GEM approved in 2009 by Shenzhen Stock Exchange as the study objects with the adoption of their financial data from 2010 to 2013. All of these financial data mainly comes from Sina Finance and the annual reports released by these listed companies on GEM.

3. EMPIRICAL ANALYSIS

3.1 Hypothesis Testing About Whether the Sustainable Growth has been Achieved

Whether the actual growth rate and the sustainable growth rate achieved by the sample companies show significant difference is an important index to verify if the listed companies on GEM have realized the sustainable growth. In this paper, the Wilcoxon signed ranks test, which is also a kind of nonparametric test, is adopted to conduct the verification.

Table 1
Test Statistics (Actual Growth Rate - Sustainable Growth Rate)

	2010	2011	2012	2013	Mixing
Z	-3.598	-4.258	-2.960	-3.757	-7.345
The progressive significance (bilateral)	0.000	0.000	0.003	0.000	0.000

Table 1 reveals that for the actual growth rate and the sustainable growth rate of the listed companies on GEM from 2010 to 2013, both of the Z value and the progressive 2-tailed significance probability are lower than 0.05, indicating that such a hypothesis about non-significant difference can be rejected. That's to say, sustainable growth hasn't been realized by the sample companies since the sustainable growth rate and the actual growth rate from 2010 to 2013 are inconsistent.

3.2 Hypothesis Testing About the Excessive Growth and Insufficient Growth

Table 2
Table of Rank Calculation Results (Actual Growth Rate - Sustainable Growth Rate)

	2010	2011	2012	2013	Mixing
Negative ranks	3[a]	3[a]	8[a]	4[a]	18[a]
Positive ranks	25[b]	25[b]	20[b]	24[b]	94[b]
Ties	0[c]	0[c]	0[c]	0[c]	0[c]
Total ranks	28	28	28	28	112

Note. a. the actual growth rate < the sustainable growth rate, b. the actual growth rate > the sustainable growth rate, c. the actual growth rate = the sustainable growth

The rank calculation result obtained in the Wilcoxon signed ranks test is able to validate further if all of these 28 listed companies on GEM have been developed too quickly or too slowly. As shown in Table 2, the number of the negative ranks, which also indicates the difference between the actual growth rate and the sustainable growth rate in 2010~2013, is 18 accounting for 16.07% of the total ranks. However the number of the positive ranks is 94 accounting of 83.93% of the total ranks, while the number of the ties is 0, which means that there's no such a sample, whose actual growth rate is equal to the sustainable growth rate among all of the samples. Hence it can be considered that the actual growth rate of the sample companies in 2010~2013 is greater than the sustainable growth rate. However it is an excessive growth since such a growth won't match the financial resources of these companies.

3.3 Factor Analysis

3.3.1 Variable Declaration

The sustainable growth ability of an enterprise is involved with many factors including the measurable and the

non-measurable factors, the operation and management factors and the financial policy factors. Then this paper selects 13 financial indexes to study and analyze the key factors that might affect the sustainable growth ability of the listed companies on GEM from the following five aspects including the profitability, the debt paying ability, the operation capacity, the cash-generating ability and the growth ability with the variable declaration provided in Table 3.

Table 3
Variable Definition and Formula

Types of Variables	Code of Variables	Name of Variables	Computational Formula
Profitability	X1	Profit rate to net worth	Net profit/Average total assets Where: Average total assets=(Total assets at the beginning of the period+ Total assets at the end of the period) /2
	X2	Earnings per share	(Current gross margin - preferred stock dividend)/ General capital at the end of the period
	X3	Net profit margin on sales	Net profit/Prime operating revenue
Debt paying ability	X4	Asset-liability ratio	Total liabilities/Total assets
	X5	Current ratio	Current assets/Current liabilities
	X6	Quick ratio	Quick assets/Current liabilities
Operation capacity	X7	Current asset turnover	Prime operating revenue/ average current assets Where: Average current assets=(Current assets at the beginning of the period + Current assets at the end of the period) /2
	X8	Total assets turnover	Prime operating revenue/Average total assets Where: Average total assets=(Total assets at the beginning of the period + Total assets at the end of the period) /2
Growth ability	X9	Growth rate of net assets	(Total shareholders' equity at the end of the period - Total shareholders' equity at the beginning of the period)/ stockholders' equity at the beginning of the period
	X10	Total assets growth rate	(Total assets at the end of the period - Total assets at the beginning of the period)/ Total assets at the beginning of the period
Cash-generating ability	X11	Sales to cash flow ratio	NOCF/Prime operating revenue
	X12	Cash recovery for all assets	NOCF/Average total assets Where: Average total assets = (Total assets at the beginning of the period + Total assets at the end of the period)/2
	X13	Net operating profit index	NOCF/ Net profit

3.3.2 Correlation Test

In order to study if there is a certain linear correlation between the 13 financial indexes that have been chosen, this paper then conducts a correlation test on all of the data according to the KMO and Bartlett's test before the factor analysis.

Table 4
The KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.621
Bartlett's test of sphericity	Chi-squared approximation	494.825
	df	78
	Sig.	.000

As shown in Table 4, the KMO and Bartlett's test value is 0.621, which is greater than 0.5. Meanwhile the Sig. value for the Bartlett's test of sphericity is 0.000, indicating that all of the 13 financial indexes chosen in this paper is suitable for the factor analysis.

3.3.3 Factor Analysis Results

(1) Factoring.

As shown in Table 5, five factors have been obtained after the factor extraction with the accumulated variance contribution rates up to 92.888%, indicating that factors have played a significant role in the explanation. Also it proves that basically all of these five factors have preserved the information contained in the original 13 indexes. Then through the orthogonal rotation, it reveals that there's no change in the accumulated variance contribution rate, which still remains 92.888% before and after factor rotation, proving that the orthogonal rotation won't change the overall explanatory ability of the factors. However it's true that factor rotation will lower the difference between the variance contribution rates of different factors, bringing about a more balanced ability among the various common factors in the explanation of the original variables. Therefore it will play a more significant role in the explanation of variables.

(2) Factor Naming. The factor loading matrix after the orthogonal rotation is shown in Table 6.

Table 5
Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of the Variance	Accumulated %	Total	% of the Variance	Accumulated %	Total	% of the Variance	Accumulated %
1	5.188	39.909	39.909	5.188	39.909	39.909	2.833	21.792	21.792
2	3.192	24.555	64.464	3.192	24.555	64.464	2.610	20.078	41.870
3	2.036	15.660	80.123	2.036	15.660	80.123	2.582	19.864	61.734
4	1.171	9.009	89.132	1.171	9.009	89.132	2.422	18.628	80.362
5	.488	3.755	92.888	.488	3.755	92.888	1.628	12.526	92.888
6	.397	3.054	95.942						
7	.263	2.024	97.966						
8	.134	1.032	98.997						
9	.067	.515	99.513						
10	.038	.289	99.802						
11	.015	.117	99.919						
12	.009	.069	99.988						
13	.002	.012	100.000						

Note. Extraction method: Principal component analysis

Table 6
The Factor Loading Matrix After the Orthogonal Rotation

	Components				
	1	2	3	4	5
X1: Net profit rate of assets	.860	.374	.163	.015	.186
X2: Earnings per share	.944	.064	.035	.049	.004
X3: Net profit margin on sales	.697	.371	.145	-.404	.210
X4: Asset-liability ratio	-.424	-.284	-.524	.427	.425
X5: Current ratio	.083	.153	.970	-.015	-.132
X6: Quick ratio	.075	.162	.968	-.030	-.148
X7: Current asset turnover	.048	.203	.078	.942	.177
X8: Turnover of total capital	-.060	.050	-.095	.942	.182
X9: Growth rate of net assets	.449	-.065	-.155	.170	.792
X10: TAGR	-.049	-.202	-.331	.473	.772
X11: Sales to cash flow ratio	.383	.853	.261	-.003	.016
X12: Cash recovery for all assets	.408	.734	.406	.176	-.090
X13: Net operating profit index	.033	.918	.029	.108	-.181

Table 6 reveals that:

(1) In Common Factor 1, the load capacities of X1, X2 and X3 are separately 0.860, 0.944 and 0.697, which are much greater than the load capacities of the other financial ratios. Therefore Common Factor 1 is mainly reflected by the following three financial indexes including the net profit rate of assets, the earnings per share and the net profit margin on sales, representing the enterprise profitability.

(2) In Common Factor 2, the load capacities of X11, X12 and X13 are separately 0.853, 0.734 and 0.918, which are much greater than the load capacities of the other financial ratios. Therefore Common Factor 2 is mainly reflected by the following three financial indexes including the sales to cash flow ratio, the cash recovery for all assets and the net operating profit index, representing the enterprise's operating capacity.

(3) In Common Factor 3, the load capacities of X4, X5 and X6 are separately -0.524, 0.970 and 0.968, which are all lower than 0.5 compared with the load capacities of the other financial ratios. Therefore Common Factor 3 is mainly reflected by the following three financial indexes including the asset-liability ratio, the current ratio and the quick ratio, representing the debt-paying ability of an enterprise.

(4) In Common Factor 4, the load capacities of X7 and X8 are separately 0.942 and 0.942, which are much greater than the load capacities of the other financial ratios. Therefore Common Factor 4 is mainly reflected by the following two financial indexes including the current asset turnover and the turnover of total capital, representing the enterprise's operation capacity.

(5) In Common Factor 5, the load capacities of X9 and X10 are separately 0.792 and 0.772, while the load capacities of the other financial ratios are all less than 0.5. Therefore Common Factor 5 is mainly reflected by the following two financial indexes including the growth rate of net assets and TAGR, representing the growth ability of an enterprise.

4. CONCLUSIONS AND SUGGESTION

4.1 Analysis on the Empirical Results

Through the factor analysis, this paper comes to a conclusion as below:

(1) The sustainable growth ability of a listed company on GEM is mainly affected by its profitability, whose factor contribution rate is up to 21.792%. Actually the profitability of a company is a guarantee in the creation of more values for shareholders. With stronger profitability, the company will be able to gain more profits to provide more endogenous resources. In this way, the total asset scale of the enterprise will be expanded continuously, which will lead to a more obvious scale advantage to enhance the overall competitiveness of the enterprise so that the enterprise will be able to obtain more profits and grow better in the future to support its financial sustainable growth. As to the listed companies on GEM, since all of them are still in the growth stage of the corporate life cycle, then good profitability is actually a critical factor to secure their sustainable development.

(2) With factor contribution rate up to 20.078%, cash-generating ability is of equal importance in the realization of financial sustainable growth of the listed companies on GEM. However subject to the accounting policies, generally most of the enterprises have to identify their profits according to the accrual system and the matching principle to make it inevitable that certain subjective evaluation factors will be contained. However the measurement on the cash flow is not involved with the selection of accounting policies, making the result turn to be more accurate and reliable for good comparability. Meanwhile through the analysis on the enterprise cash flow, it will verify to some extent the cash guarantee of the enterprises, especially the listed companies on GEM, which are in great need of sufficient cash flow to secure their investment in the development of new products and the establishment of production facilities and the sales channels etc. to achieve the sustainable development of the enterprises since they are still in the stage of enterprise scale expansion.

(3) Debt paying ability with the factor contribution rate up to 19.864% is an important index to reflect the financial condition and the operation capacity of an enterprise. Also it has become a critical factor for the survival and development of the enterprise due to the high risk and the great uncertainty in the development of the listed companies on GEM. Actually excellent cash payment ability and debt paying ability will prevent the enterprise from bankruptcy to increase the confidence of the manager, the investor and the creditor for the purpose to lay a firm foundation for the continuous operation and development of the enterprise.

(4) Operation capacity reflects the efficiency that an enterprise manages and uses its assets. When the asset utilization efficiency is increased, the enterprise resources will flow more quickly to improve the debt paying ability of the enterprise, providing the financial support that is necessary for the enterprise to make a decision to improve finally the sustainable growth ability of the enterprise. Hence with the factor contribution rate up to 18.628%, the operation capacity is also an important factor that influences the sustainable growth ability of the enterprise.

(5) The growth ability of an enterprise is the potency that an enterprise has to expand the scale and enhance the strength. Measured based on the growth rate of the net assets and the growth rate of the total assets, the growth ability of a listed company on GEM that mainly reflects the reinvestment in the enterprise's production is also the foundation of enterprise growth with the factor contribution rate up to 12.526%, which shows that good growth ability that exerts positive influence on the sustainable growth of the listed companies on GEM is one of the vital forces to facilitate the improvement of the financial sustainable growth ability of the enterprise.

4.2 Suggestion

The empirical analysis reveals that generally Chinese listed companies on GEM fail to achieve sustainable growth. For most of the enterprises, the actual growth rate is always greater than the sustainable growth rate to bring about an excessive growth. Under such a circumstance, if no proper measures are taken to prevent it beforehand, the company might suffer from the shortage of the endogenous financial resources. Then with the reference of the current sustainable growth status of the Chinese listed companies on GEM and the relevant influence factors, this paper would like to make the following suggestions:

(1) Focus on the cost control to improve the profitability. All of the listed companies on GEM must strengthen the accounting and management on the costs and expenses, trying their best to reduce or even eliminate the various wastes to minimize their cost for the realization of profit maximization. Since the enterprise profitability is one of the important sources for the maintenance of equity capital growth, then the profitability of the listed companies on GEM will be improved through profit maximization,

which will contribute to the continuous provision of the endogenous capital to the enterprise to guarantee the sustainable growth of the listed companies on GEM on a long-term basis.

(2) Strengthen cash management to satisfy the capital needs. The management on the cash flow especially the operating cash flow is able to improve the turnover speed of the receivables and any other asset that requires the use of business capital to speed up the turnover of capitals, improving continuously the enterprises' cash-generating ability to provide a timely and moderate cash guarantee to the companies for their normal production and operating activities.

(3) Optimize the capital structure to apply properly the financial leverage. The increase in the financial leverage is able to fill up the financing gap. However with the increase in the financial leverage, the financial risk assumed by the enterprise will increase as well. Actually during the optimization of the capital structure, the listed companies on GEM will not only consider the reduction of the capital cost and the improvement of the capital utilization efficiency, but also control the financial risk within the reach of the company. Then in order to achieve the financial sustainable growth, this paper would like to suggest the enterprises to reduce properly their short-term liability according to the different purposes of the capitals and increase their long-term liability to relieve the enterprises from the pressure of short-term debt so as to reduce the financial risk.

(4) Increase the management level to improve the asset operation capacity, which reflects the enterprise's operation efficiency in resource allocation and the management of the various resource factors. Therefore the listed companies on GEM can revitalize their existing stock assets through the following methods including the acceleration of the capital turnover and the reasonable planning of the stock size to exploit the potentialities of their assets so as to speed up their asset turnover with a reasonable allocation of the resources to improve their operation capacity.

(5) Make clear of the main business to cultivate the core competence. It has become extremely important for the listed companies on GEM to develop based on their main business and focus on the cultivation of core competence due to the limitation on the scale and the capital. The so-called core competence, which is also the ability featured by the enterprise to achieve the competitive advantage on a long-term basis, is actually the skill or capability characterized by the enterprise, formed in the long-term operating process and hard to be imitated by the competitors. The cultivation of core competence will facilitate the integration of the superior resources in the company to develop such products or services that are featured with unique competitive advantage, while the professional advantage and the main business will act as the foundation for the listed companies on GEM to achieve the sustainable development.

REFERENCES

Fan, X. J., & Guo, X. (2007). Research the reconstruction of the enterprise sustainable growth model and the inspiration. *Accounting Research*, *5*, 39-45.

Li, C., & Bu, D. L. (2009). Construction of a dynamic financial evaluation-based evaluation index system. *Accounting Research*, *23*, 45-47

Liu, B., Liu, X., & Huang, Y. H. (2003). Analysis on the main factors in the sustainable growth of the listed companies in China. *Journal of Chongqing University*, *12*, 111-116.

Peng, B. (2011). Empirical research on the financial sustainable growth of the enterprise based on the factor analysis-example of listed companies in the textile industry. *Communication of Finance and Accounting*, *3*, 115-116

Van Horne, J. C. (1988). Sustainable growth modeling. *Journal of Corporate Finance*, *Winter*, 19-25.

Wang, L. J., & Liang, X. J. (2013). Empirical research on the factors driving the financial sustainable growth of the company-analysis based on grey relational degree. *Communication of Finance and Accounting*, *4*, 39-41.

Wang, Y. C., & Hua, G. R. (2007). Survey on the sustainable growth of the listed companies from financial perspective-the empirical research made by listed it companies. *Accounting Research*, *2*, 65-71

