

Empirical Analysis on the Influence of Equity Structure of Listed Companies on GEM in China on Enterprise Development Ability

Ying Xiao^{1,a} Wei Yu^{2,b,*}

¹*School of Economics, Guangzhou College of Commerce, Guangzhou 511363, China*

²*School of Management, Guangdong Polytechnic Normal University, Guangzhou 510665, China*

^a5570647@qq.com, ^byuweigpnu@hotmail.com

*Correspondence Author: Email: yuweigpnu@hotmail.com

Abstract

On the basis of relevant enterprise development theories, this paper conducts regression analysis on the financial data of hundreds of leading listed companies on GEM in China to study their development ability and existing problems. Through empirical analysis, it is found that the internal ownership structure of a company can well guide its development. The research conclusion shows that the shareholders holding the most shares in a company inhibit its development, while the shares held by other shareholders and legal persons are beneficial to its development. The other shares, which account for a relatively low ratio, have no great influence on the development of a company and present an irrelevant relationship.

Keywords *Listed companies on GEM, shareholding structure, development capacity.*

1. INTRODUCTION

Growth Enterprise Market (GEM), also known as the second board market, plays an extremely important role in the capital market. For companies on GEM, the allocation and governance of equity structure is of vital importance, and optimizing equity structure is of vital importance for their subsequent development. It is not conducive to the development of a company if its ownership structure is more concentrated or more dispersed. Therefore, how to allocate equity reasonably is an urgent problem to be studied.

Based on the actual development of China, the listed companies in the second stock market are studied how to apply professional management knowledge to their practical development, so as to effectively improve their operation structure and promote the good development prospect of securities trading. How to select the structural system of the share ownership of this kind of securities trading companies is the fundamental point of our discussion. This paper aims to conduct some professional analysis to select a good structure system for the development of China's securities market, so that the enterprises in China can keep up with the international pace, and even become the leader.

2. RESEARCH DESIGN

2.1. Research hypothesis

2.1.1 The relationship between ownership concentration and development ability

The shareholding structure governance of a joint-stock company is very important. One of its manifestations is the concentration of shareholding, that is, the major shareholders occupy the majority shareholding share. Prasad S. Bhattacharya and Michael Graham [1] found a significant positive correlation between equity concentration and firm value. Thomsen and Pedersen [2] found that equity concentration is not conducive to enterprise development. Fei Yan [3] found that equity concentration is beneficial to the innovation of enterprises. However if the ownership structure is seriously dispersed, the interests of the remaining shareholders will be affected so that their enthusiasm for the development of the company will be weakened. In the long run, the loss of talent resources will be caused and the benefit of the company will be damaged. Therefore, it is important to control the concentration of the company's ownership structure. Based on the above analysis, we propose the following hypothesis:

H1: The shareholding ratio of the largest shareholder is negatively correlated with the company's development

ability. When the company makes major decisions, the largest shareholder may damage the overall interests of the company due to its own interests. It will reduce the damage to the overall interests of the company if there are multiple shareholders which can restrain the largest shareholder. It is also necessary to form a mutually restrictive management mechanism among these major shareholders to avoid the occurrence of arbitrary behaviors, so as to enhance the company's development capacity.

H2: The shareholding ratio of the top five shareholders is positively correlated with the company's development ability. Drawing lessons from the ownership structure of some developed regions in the world, the equity of domestic investment enterprises can be divided into five major shareholders, so that the specific structure mechanism is most conducive to the development of the company.

2.1.2 The relationship between equity composition and company development capability

Affected by the planned economy, many state-owned companies have a relatively common problem. There are more non-operating assets in total assets which cause the companies to bear too much burden, the personnel are relatively surplus, and the cost of operation is too high. Therefore many state-owned listed companies began to carry out shareholding reform constantly and optimize the shareholding structure. In this context, the production and management efficiency of companies is different from the past which plays an important role in promoting the development of companies. Wu Shukun [4] found that equity structure and enterprise development is a "U" relationship. Zhu Yaqin [5] found that the equity structure has a positive correlation to the company performance. Shen Yanli [6] found that the effect of equity concentration on corporate performance is not obvious. Thus we propose the following hypothesis:

H3: The proportion of state-owned shares is positively correlated with the development ability of a company.

H4: The proportion of corporate shares is positively correlated with the development ability of a company. The shareholder's property right actually comes from the main

Table 1 Measures of ownership concentration

Measures	Meaning	Note
Shareholding ratio of the largest shareholder	Refers to the proportion of the shareholding share of the largest shareholder in the total shares of the company	L1>50%, absolute holding L1<20%,decentralized equity structure 20%<L1<50%,relative holding

body of the company. The main body of investment is generally defined in the external entrust. Relative to the state-owned shares, the principal-agent relationship is more clear and definite. The stable development of a company also requires the corporate investment institutions to participate in the equity allocation of the company. Companies with corporate investment will have more effective development directions.

2.2. Selection of sample data

2.2.1 Definition of listed companies on GEM

GEM companies are secondary stock markets which mainly provide channels for some companies to develop rapidly at the initial stage. This kind of companies have three characteristics: first, it can provide entrepreneurs with more venture capital; second, it has a reasonable system to reduce investment risks and stimulate entrepreneurial initiatives; third, it can boost the market economy and drive the effective operation of the investment market.

2.2.2 Data selection and sources

The data are mainly extracted from the National Tai'an database by the end of Dec 2019. Valid data of more than 500 companies were sorted out for analysis and research.

2.3. The selection of variables

2.3.1 The independent variables

The Independent variable is the index which reflects the equity structure, including the index which reflects the equity concentration degree and the equity composition. As shown in table 1 and 2.

CR Index	The proportion of the total shares held by the top N shareholders of the company	Measuring the distribution of the company's equity and reflecting the views of different major shareholders on the company's development prospects
Herfindahl Index	The sum of squares of the shareholding ratio of the top N shareholders of the company	Highlight the difference in shareholding ratio of shareholders

Table 2 Measures reflecting the composition of equity

Composition of equity	Meaning	Advantages
State shares	Shares formed by the investment of relevant state departments or relevant institutions	The competitiveness is further strengthened, the financing cost becomes lower
corporate shares	Refers to an enterprise as a legal person investing in a company with its legal disposable assets to establish shares, or a social organization investing in a company to form shares	The principal-agent relationship is more explicit. The stability of corporate ownership is strong and the speculation is weak which is beneficial to the operation and development of enterprises.
Public tradable shares	Shares issued to the public by means of public subscription and incorporation, and the property lawfully owned by the public invested into the company to form shares that can be listed and circulated	Facilitate the mobilization of new capital; enhance the company's flexibility of equity capital financing

The dependent variable is an indicator of an enterprise's development capability, as shown in Table 3..

2.3.2 The dependent variables

Table 3 Measures reflecting development capacity

Measures	Formula	Note
Revenue growth rate	Revenue growth of the year/total revenue of the previous year	The higher the value is, the faster the growth rate of the enterprise's operating income is, and the better

		and stronger the market prospect of the enterprise is
Sustainable growth rate	$(\text{Ending net assets} - \text{beginning net assets}) / \text{beginning net assets}$	The higher the sustainable growth rate, the better the prospects for ownership equity and profits

2.3.3 The control variables

In this paper, the control variable is the growth rate of total assets. For an enterprise, the higher the total capital ratio is, the better the development prospect and scale of the enterprise will be. Therefore, the total capital ratio is

an extremely important aspect. In addition, the total capital ratio also has a certain influence on the ownership structure. Table 4 is the definition of the relevant variables:

Table 4 Variable definition table

Category	Variables	Code	Formula
The independent variables	Shareholding ratio of the largest shareholder	L1	The shares held by the largest shareholder/Total equity
	The proportion of the top five shareholders	CR5	The shares held by the top five shareholders/Total equity
	The sum of squares of the shareholding ratios of the top five shareholders	HHI-5	$(\text{The shares held by the top five shareholders} / \text{Total equity})^2$
	State shareholding ratio	GJG	Shares held by state/Total equity
	corporateshareholding ratio	FRG	Shares held by corporate/Total equity
	tradable shareholding ratio	LTG	tradable shares/Total equity
The dependent variable	Revenue growth rate	IRMBR	Revenue growth of the year/total revenue of the previous year
	Sustainable growth rate	SGR	$(\text{Ending net assets} - \text{beginning net assets}) / \text{beginning net assets}$
Control variables	Growth rate of total assets	GROW	Total asset growth for the year/total assets at the beginning of the year

3. EMPIRICAL RESULTS AND ANALYSIS

3.1. Descriptive analysis

The main equity structure studied in this paper is taken as the statistical object (shown in Table 5), which is mainly the comparison of various types of shareholders' shares existing

in the equity distribution of enterprises. Through descriptive statistical analysis of these objects, we can have a general understanding of the basic characteristics of the data of listed companies on gem in China, and lay a foundation for the data analysis in the following paper.

Table 5 Descriptions the statistics Unit: %

	Maximum	Minimum	Average	The standard deviation
L1	81.18	4.15	32.75	12.83
CR5	89.61	11.98	57.51	12.29
HHI-5	0.67	0.00	0.15	0.09
GJG	0.72	0.00	0.02	0.07
FRG	0.90	0.00	0.15	0.22
LTG	1.00	0.07	0.48	0.23
IRMBR	5.80	-0.91	0.28	0.47
SGR	0.39	-0.60	0.05	0.06
GROW	18.52	-0.49	0.37	0.78

According to basic descriptive statistical analysis, it can be seen that the top five shareholders occupy an important position, followed by the largest shareholder. The average of the top five shareholders is relative larger. and in terms of maximum value, their values are well above 50%. This indicates that L1 and CR5 are in the absolute holding status, while the average value of GJG, FRG and LTG are small, indicating that the gaps between each enterprise are small and relatively stable. In terms of development ability, the mean value of IRMBR and SGR are relatively small, indicating that most companies have weak growth potential.

3.2. Correlation analysis of variables

Table 6 D Correlation coefficient matrix

	IRMBR	SGR	GROW	L1	CR5	HHI-5	GJG	FRG	LTG
IRMBR	1.0000								
SGR	0.4632	1.0000							
GROW	0.5738	0.5643	1.0000						
L1	0.9836	0.7566	0.8742	1.0000					

CR5	0.8372	0.6562	0.8490	0.7439	1.0000				
HHI-5	0.7392	0.8283	0.6538	0.8322	0.5349	1.0000			
GJG	0.9372	0.7408	0.5241	0.6732	0.5921	0.5028	1.0000		
FRG	0.5277	0.5374	0.7409	0.5281	0.7428	0.6392	0.4292	1.0000	
LTG	0.2039	0.2442	0.1992	0.2039	0.4021	0.3409	0.1967	0.2033	1.0000

It can be seen from the correlation coefficient matrix in Table 6 that the correlation coefficient between IRMBR and SGR and FRG are between 0.4 and 0.6, showing a moderate positive correlation. The correlation coefficient of IRMBR and GJG is more than 0.8, showing a strong positive correlation. The correlation coefficient of SGR and GJG is between 0.4 and 0.6, showing a strong positive correlation. The correlation coefficient of IRMBR and CR5 is more than 0.8, showing a strong positive correlation. The correlation coefficient of SGR and CR5 is between 0.6 and 0.8, showing a strong positive correlation. The correlation coefficient between SGR and LTG is between 0.2 and 0.4, indicating

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \tag{1}$$

In the model β_0 is intercept. $\beta(i = 1, 2, 3, 4, 5)$ represent equity concentration measures(L1, CR5, and HHI-5).

3.4 Analysis of empirical results

$$IRMBR = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \tag{2}$$

In this paper, the measures reflecting the ownership structure are taken as the independent variables, revenue growth rate as the dependent variable, and the growth rate of enterprise

that there is no correlation between tradable shares and enterprise development capacity.

3.3 Establishment of regression model

This paper studies the relationship between ownership structure and enterprise development capacity. Since it is assumed that the relationship between independent variables and dependent variables is linear, the following model is established:

size and total assets as the control variable, and the regression analysis is carried out in the following table:

Table 7 Coefficient values

	Coefficient	Std.error	t-Statistic	Prob.
C	0.18	0.09	0.11	0.04
L1	-0.13	0.44	-0.29	0.00
CR5	0.08	0.20	0.37	0.15
HHI-5	1.42	0.47	0.06	0.00
GJG	-6.16	0.16	-0.33	0.37
FRG	1.70	0.05	0.40	0.31
F-statistic	78.62			

As can be seen from Table 7, the regression equation of Model 1 is:

$$IRMBR = 0.18 - 0.13X_1 + 0.08X_2 + 1.42X_3 - 6.16X_4 + 170X_5 \quad (3)$$

This model reflects the relationship between the ownership structure and revenue growth rate. Given the significance level $\alpha = 0.05$, $F_{0.05}(5,5) = 5.05$, the null hypothesis is denied because $F = 78.62 > 5.05$. The regression equation is significant, and the results show that there is a significant linear relationship between ownership structure and revenue growth rate.

It can be seen from the model that the P value of L1 and HHI-5 are less than 0.05, indicating that L1 and HHI-5 pass

Table 8 Coefficient values

	Coefficient	Std.error	T-Statistic	Prob.
C	0.05	45.79	1.49	0.00
L1	-0.07	0.03	-2.20	0.00
CR5	0.03	0.01	1.85	0.00
HHI-5	4.41	1.51	2.93	0.19
GJG	1.27	1.27	1.00	0.03
FRG	0.44	0.29	1.52	0.01
F-Statistic	5.12			

As can be seen from Table 8, the regression equation of Model 1 is:

$$Y_2 = 0.05 - 0.07X_1 + 0.03X_2 + 4.41X_3 + 1.27X_4 + 0.44X_5 \quad (5)$$

This model reflects the relationship between the ownership structure and sustainable growth rate. Given the significance level $\alpha = 0.05$, $F_{0.05}(5,5) = 5.05$, the null hypothesis is denied because $F = 5.12 > 5.05$. The regression equation is significant, and the results show that there is a significant linear relationship between ownership structure and sustainable growth rate.

It can be seen from the model that the P value of L1, CR5, GJG and FRG are less than 0.05, indicating that they pass the significance test. L1 is negatively correlated with

development ability of enterprises, so it is not recommended

the significance test, that is, L1 is negatively correlated with the revenue growth rate, while HHI-5 is positively correlated with revenue growth rate. The P value of state shares is greater than 0.05 and does not pass the significance test, that is, GJG was negatively correlated with revenue growth rate. So Hypothesis 1 and Hypothesis 2 are supported, while hypothesis 3 is not supported.

$$SGR = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 \quad (4)$$

In this paper, the measures reflecting the ownership structure are taken as the independent variables, sustainable growth rate as the dependent variable, and the growth rate of enterprise size and total assets as the control variable, and the regression analysis is carried out in the following table:

sustainable growth rate, while CR5, GJG, and FRG are positively correlated with sustainable growth rate. Hypothesis 1, Hypothesis3 and Hypothesis 4are all supported,

By the model analysis, we can see that if the largest shareholder is not restricted the development of the enterprise will be inhibited. The structure that can be beneficial to the development is to adopt a more balanced five shareholder mechanism to drive the healthy development of the enterprise. Therefore, in the distribution of enterprise shares, the proportion of the largest shareholder should be appropriately reduced to balance the proportion of other shareholders. In terms of ownership structure, corporate investment institutions participating in equity allocation can bring more extensive market information resources and provide professional development planning. However, the characteristics of tradable shares have nothing to do with the

development ability of enterprises, so it is not recommended to participate in the distribution system. In addition, In the

ownership structure, the state share has its particularity which is sometimes positively correlated and sometimes negatively correlated with development ability, indicating that the enterprise should allocate the equity reasonably, maintain the moderate concentration of the equity, and avoid

4. CONCLUSION

Based on the above empirical analysis, combined with relevant theories such as financial development and equity structure, the following conclusions can be drawn:

There are still many deficiencies in the shareholding structure system of listed companies in the GEM stock exchange market of China. First of all, the current situation of the shareholding structure system of relevant listed companies in China is that there are numerous enterprises dominated by state-owned shares, and the principal-agent problem of state-owned shares is quite serious. However, many government departments also want to control these enterprises to some extent which will not be good for the development of enterprises. Secondly, the stock rights of listed companies on GEM are excessively concentrated, with the phenomenon of "single dominant share". In addition, the information disclosure system of listed companies on GEM is incomplete. Thus it can be seen that the internal shareholding structure system of this kind of stock exchange listed company is still to be improved.

The stock exchange market in China urgently needs to introduce scientific management system in the structure of enterprise equity distribution. For the problems existing in the equity structure, we should adjust the equity structure appropriately and allocate the proportion of equity reasonably. Secondly, it is necessary to maintain the moderate concentration of equity, reduce the proportion of state-owned shares and increase the proportion of other investors, so as to consolidate the equity structure of listed companies on GEM and achieve equity balances. In addition, it is necessary to improve the development

the situation of a "single dominant share" and a large deviation degree of the equity. Excessive concentration of the equity is not conducive to the development of the enterprise. Only a reasonable allocation of the equity structure can the enterprise develop better.

environment of enterprises, establish and improve relevant laws and regulations and supervision mechanism, so as to reduce the internal fraud behavior and provide investors with a fair, just and open investment environment. Only in this way can the equity structure of listed companies on GEM be solved.

ACKNOWLEDGMENTS

This research is supported by Guangdong Science and Technology Planning Project (Project No.: 2019A101002126) & Guangzhou College of Commerce General Research Project (Project No. :2019XJYB010)

REFERENCES

- [1] Prasad S. Bhattacharya, Michael A. Graham, On institutional ownership and firm performance: A disaggregated view, *J. Journal of Multinational Financial anagement*,19(5)(2009) 370-394.
- [2] Thomsen Steen, Torbin Pedersen, Industry and Ownership Structure, *J. International Review of Law and Economics*,18(1998) 385-402.
- [3] Yan Fei, The impact of equity concentration on enterprise innovation: A case study of Chinese Internet enterprises, *J. Business Accounting*,12(2019) 28-31.
- [4] Shukun Wu, A u-shaped relationship between equity structure and corporate performance: An empirical study on listed companies from 1997 to 2000, *J. China Industrial Economics*, 01(2002) 80-87.
- [5] Yaqin Zhu, Empirical research on the influence of ownership structure on corporate performance , *J. China Journal of Commerce*,01(2015) 77-79.
- [6] Yanli Shen, Study on the influence of equity structure of listed agricultural companies on corporate performance, *J. China Journal of Commerce*,24(2015) 82-84.