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The ultimate ownership structure and cost of equity

YIN Lin-hui^{1, 2*}

¹School of Economics and Management, Southwest Jiaotong University, Chengdu 610031, (CHINA)

²School of Accountancy, Jiujiang University, Jiujiang 332005, (CHINA)
E-mail: ylh9992005@163.com

ABSTRACT

The paper adopts the listed companies in Shanghai and Shenzhen from 2004 to 2013 as the research samples, and explores and analyzes the influence of the nature of ultimate ownership, the separation of ultimate ownership and controlling right of ultimate controlling shareholder on cost of equity and the significance difference of correlation between separation degree of ownership and controlling right and cost of equity under different natures of ultimate ownership. The research results show that: 1) compared with cost of equity of non-state-owned holding companies, that of state-owned holding companies shows no significant difference; 2) there exists a significant positive correlation between separation degree of ownership and controlling right and cost of equity; 3) compared with the positive correlation between separation degree of ownership and controlling right and cost of equity of state-owned holding companies, that of non-state-owned holding companies is more significant.

KEYWORDS

The ultimate ownership structure; Cost of equity; Ownership right; Controlling right; Ultimate controlling shareholder.



RESEARCH ISSUE

As the cornerstone of company governance researches, equity structure decides the company's governance structure, behaviors and performance. Earlier in 1930s, scholars thought that the company's equity structure is dispersive and that the agency conflict (the first kind of agency conflict) of the company is the interest conflict between the owner and the operator^[1]. However, later, researches show that equity structure of most companies in the world is not dispersive but concentrated^[2]. It is controlled by the ultimate controlling shareholders, who control the company's voting right through the pyramid structure, cross-shareholding and "one share for multiple votes." On the one hand, the existence of ultimate controlling shareholders can effectively monitor the operator's delinquency; on the other hand, it can lead the ultimate controlling shareholders' invasion of the small and medium shareholders' interests, hence resulting in the interest conflict (the second kind of agency conflict) of the two. Currently, most Chinese listed companies are controlled by ultimate controlling shareholders through the pyramid structure. In these companies, the ownership of the ultimate controlling shareholders is extremely complex. Their settlement of efficiency and agency conflict and the execution of equity differ from each other significantly^[3]. In fact, the pyramid-shaped equity structure might result in the separation of ownership and controlling right. The higher separation degree is, the higher the company's agency conflict and investment risks are. The nature of ultimate ownership mingles with the separation degree of ownership and controlling right to exert a joint influence on the company's behaviors and performance. Therefore, to study the issue is of vital practical significance. From the perspective of the nature of ultimate ownership and the separation degree of ownership and controlling right, this paper attempts to discuss the influence of them on cost of equity (one element of company value). Cost of equity is not only a key indicator for a company's investment and financing decision-making and confirmation of capital structure, but also an important index to measure the completeness of the capital market. It has been a time-honored research issue, which has undergone for half a century. Previous researches into the factors influencing cost of equity mainly focused on the macro-economic factors, company characteristics and elements of company governance. Few literatures discuss the issue from the perspective of the nature of ultimate ownership and the separation degree of ownership and controlling right. The research in this paper can contribute to the further improvement of China's company governance system and the development of China's capital market. It is also of vital practical significance to the reform of China's SOEs.

This contributions of the paper are mainly reflected in the following two aspects: 1) This paper expands the research into factors influencing cost of equity by studying cost of equity from the new perspective of the nature of ultimate ownership and the separation degree of ownership and controlling right; 2) This paper deepens the current literatures' study on the ultimate ownership structure. The current literatures mainly discuss the influence of the ultimate ownership structure on the company's agency conflict, agency cost, company value and company governance. Few literatures discuss its influence on cost of equity cost. Therefore, this paper furthers the research into the economic consequence of the ultimate ownership structure.

THEORETICAL ANALYSIS AND RESEARCH HYPOTHESES

The nature of ultimate ownership and cost of equity

Current literatures generally divide listed companies into state-owned holding companies (hereinafter referred to as SOEs) and non-state-owned holding companies (hereinafter referred to as non-SOEs) from the perspective of the nature of ultimate ownership. This paper finds there is a major differences between SOEs and non-SOEs. SOEs can obtain more government preferential treatment and government's hidden risk guaranty. Due to the strong political connection between SOEs and government, the administration level of SOEs is made up of usually incumbent or former government officials, NPC members or CPPCC members. They can influence the government decisions and make them preferable to SOEs. Moreover, in order to better control and utilize the resources of SOEs, government is willing to show more policy preference to SOEs. Therefore, compared with non-SOEs, SOEs can obtain more preferential treatments from the government, such as fiscal subsidies, tax preference, credit aid and market access qualification^[4]. Besides, as the ultimate controlling shareholder, government can provide certain degree of hidden risk guaranty concerning SOEs' investment risks. Therefore, external investors firmly believe that, due to the state-owned nature of SOEs, even if SOEs run into financial crises, they can easily gain the financial support of the government. Government's preferential treatment and hidden risk guaranty can improve company value and reduce company's investment risks, thus reducing cost of equity.

Hypothesis 1: when all the other factors remain the same, Compared to non-state-owned companies, state-owned companies have a significantly lower cost of equity capital.

Separation degree of ownership and controlling right and cost of equity

The ultimate controlling shareholder controls the listed companies through the pyramid structure, cross-shareholding and "one share for multiple votes," which results in the separation of ownership and controlling right. Claessens et al. (2002) thought that the value of listed companies increase with the ownership of the ultimate controlling shareholder, but when

ultimate controlling right exceeds ultimate ownership the “Entrenchment Effect” will overtake the “Incentive Effect,” thus resulting in the decrease of company value along with the increasing separation degree of ownership and controlling right^[5]. Chang (2003) found that the increasing separation degree of listed companies’ ownership and controlling right might easily trigger their encroachment of interests of small and medium shareholders^[6]. There is an example to show the relationship between the separation degree of ownership and controlling right and cost of equity. Assume that ultimate controlling shareholders control 60% of Company A’s shares, Company A controls 50% of Company B’s shares and Company B controls 30% of Company C’s shares, the ownership of the ultimate controlling shareholder in Company C in the pyramid equity structure is 9% (60%×50%×30%=9%) and their controlling right is 30%(min (60%, 40%,30%)=30%). If the ultimate controlling shareholders transfer their economic benefits from Company C to Company A through commodity connected trade or asset exchange, the ultimate controlling shareholders can obtain 51% of the total economic benefits (60%-9%=51%), which greatly encroaches the interests of other small and medium shareholders in Company C. Generally speaking, the greater the ultimate controlling shareholder’s controlling right is, the greater right that the ultimate controlling shareholder can control the interest input of Company C. However, the smaller the ultimate controlling shareholder’s ownership is, the more interests the ultimate controlling shareholder can obtain from the interest input. Therefore, the larger the separation degree of ultimate controlling shareholders’ ownership and controlling right (namely the former is smaller but the latter is larger), the more interests ultimate controlling shareholders can encroach from small and medium shareholders. As a result, the external investors will face greater investment risks and investors might ask for higher required return according to the equilibrium principle of risks and returns, thus leading to the increase of companies’ cost of equity.

Hypothesis 2: when all the other factors remain the same, the greater separation degree of ultimate controlling shareholders’ ownership and controlling right, the higher the cost of equity.

For a long time, SOEs have been faced with the problems of unclear property right and incomplete supervision. Though the state-owned shares of SOEs belong to the state nominally, they are in fact controlled by the government’s state-owned asset management institutions. Relevant officials can directly or indirectly control the operation and management of SOEs, but government officials only have the controlling right instead of residual claim right. Therefore, it is impossible for them to obtain residual earnings from SOEs. No matter how hard they work, they can only obtain the salary and relevant benefits offered by the government, thus resulting in the separation of the controlling right and the residual claim right. Therefore, even if there exists a higher separation degree of ownership and controlling right in SOEs, it is unlikely for government officials to legally obtain earnings due to the legal restrictions though they can encroach greater economic interests from small and medium shareholders through fund occupation, connected trade and asset exchange. Therefore, when a company is faced with the separation of controlling right and ownership, compared with families or individuals who act as the ultimate controlling shareholders of non-SOEs, government officials will bring weaker incentive effect when encroaching on the economic interests of other small and medium shareholders in SOEs. As a result, the external investors will face fewer risks while investing in SOEs, and investors’ required return and company’s cost of equity will be lower.

Hypothesis 3: when all the other factors remain the same, the positive correlation between separation degree of ownership and controlling right and cost of equity will be more significant in non-SOEs than in SOEs.

RESEARCH DESIGN

Measurement models of cost of equity

There are many measurement models of cost of equity. The common ones include GLS model^[7], CT model^[8], GGM model^[9], ES model^[10] and OJN model^[11]. Among these measurement models, GLS model is more applicable in China. Therefore, this paper adopts GLS model to measure cost of equity. Refer to Formula (1) for the model details.

$$M_t = B_t + \sum_{k=1}^{11} \frac{E_t[(ROE_{t+k} - COE) \times B_{t+k-1}]}{(1 + COE)^k} + \frac{E_t[(ROE_{t+12} - COE) \times B_{t+11}]}{COE \times (1 + COE)^{11}} \quad (1)$$

Where, M_t stands for the market value of equity at the end of the year t ; COE for cost of equity; B_t for the book value of equity at the end of the year t ; $E_t[\cdot]$ for the predicted value of market at the end of the year t . ROE_{t+k} stands for the return on equity in the year $t+k$. When $1 \leq k \leq 3$, the value ROE_{t+k} is defined to divide predicted earnings value E_{t+k} (adopting Hou et al. (2012) model to predict earnings) in the year $t+k$ with the book value of equity B_{t+k-1} in the previous year; when $4 \leq k \leq 11$, the value of ROE_{t+k} is defined to regress in equal difference to the industry median (excluding the loss-making company samples) in the past decade; when $k \geq 12$, the value of ROE_{t+k} is defined to be identically equal to

the industry median in the past decade. B_{t+k} stands for the book value of equity based on “clean surplus accounting,” namely $B_{t+k} = B_{t+k-1} + E_{t+k} - D_{t+k}$. Where, D_{t+k} stands for the cash dividend in the year $t+k$. In $D_{t+k} = r \times E_{t+k}$, r stands for the current dividend payout ratio. When the surplus is positive in the year t , r is equal to the cash dividend in the year t to be divided by accounting surplus; when the surplus is negative in the year t , r is equal to the ratio of the cash dividend to 6% of the total assets in the year t ^[7]. Besides, r is winsorized and made to stay in the zone $[0, 1]$.

Modeling and definition of variables

In order to verify the influence of the nature of ultimate ownership on cost of equity (namely Hypothesis 1), the following verification model is established:

$$COE = \beta_0 + \beta_1 State + \sum (\lambda Control_Variable) + \varepsilon \quad (2)$$

In order to further verify the relationship between the separation degree of ownership and controlling right and cost of equity and the significance difference about the relationship in SOEs and non-SOEs (namely Hypothesis 2 and Hypothesis 3), the following verification model is established:

$$COE = \beta_0 + \beta_1 State + \beta_2 Separ + \sum (\lambda Control_Variable) + \varepsilon \quad (3)$$

$$COE = \beta_0 + \beta_1 Separ + \sum (\lambda Control_Variable) + \varepsilon \quad (4)$$

From Formula (2) to Formula (4), COE stands for cost of equity; β_0 - β_2 and λ are coefficients of the corresponding verification model; $State$ for dummy variable of SOEs; $Separ$ for the separation of ownership and controlling right; $Control_Variable$ for control variables (control variables of the two models are same); ε for the random error item. The detailed definition of the variables is shown in TABLE 1.

TABLE1: Detailed definition of variables

Symbol of variables	Name of variables	Definition of variables
<i>COE</i>	Cost of equity	The implied cost of equity solved according to GLS model
<i>State</i>	The dummy variable of SOEs	If the listed company is an SOE, it equals to 1; otherwise, it is equal to 0.
<i>Separ</i>	The separation degree of ownership and controlling right	Subtract the ultimate controlling shareholders' ownership from the controlling right, then divide controlling right.
<i>Beta</i>	Beta coefficient	Beta value of the share in a specific year
<i>Lnassets</i>	Company scale	The natural logarithm of the total assets at the end of a specific year
<i>Bm</i>	Book value to market value ratio	The ratio of shareholders' equity book value to its market value
<i>Oprisk</i>	Operation risk	The ratio of non-current assets to the total assets at the end of a specific years
<i>Finrisk</i>	Financial risk	The ratio of the total liabilities to the total assets at the end of a specific year
<i>Turnover</i>	Turnover rate	The ratio of the annual number of shares traded to the total number of circulating shares at the end of a specific year
<i>Roa</i>	Profitability	The ratio of the annual net profit to the total assets at the end of a specific year
<i>Assturn</i>	Asset turnover ratio	The ratio of the annual revenue to the total assets at the end of a specific year
<i>Incomegrow</i>	Income growth	The annual income growth rate
<i>Year</i>	Year	Set 2005-2013 as the dummy variable of every year
<i>Industry</i>	Industry	Set the dummy variable of 20 industries

Sample selection and data source

It was not until December 2003 that China Securities Regulatory Commission stipulated clearly that the information of the practical controller of listed companies should be disclosed. After that, lots of listed companies disclosed the information accordingly. This paper selects all the listed companies from 2004 to 2013 as the samples. Based on that, the

following companies are eliminated from the samples: 1) Listed companies which are in ST or PT; 2) The listed companies issue not only A-share, but also B-share or H-share or shares of other kinds; 3) Listed companies which are belong to SMEs or GEM; 4) Listed companies whose asset-liability rate is larger than 1; 5) Financial and insurance listed companies; 6) Listed companies whose data are not complete; and 7) Listed companies whose ultimate controlling right is smaller than 10% (LA Porta et al. thought that the effective controlling right should be no lower than 10%^[2]). After selection, unbalanced panel sample with 9672 observation points are obtained. All the data are from CSMAR database.

EMPIRICAL RESULT AND ANALYSIS

Descriptive statistics

TABLE 2 is the descriptive statistical result of all variables. From TABLE 2, it can be seen that the average (median), standard deviation, minimum value and maximum value of cost of equity (*COE*) is 6.3% (5.9%), 3.1%, (approximate to) 0 and 24.6% respectively. This suggests that there is a great fluctuation of sample companies' cost of equity. The average of SOEs' dummy variable (*State*) is 67.6%. This suggests that SOEs are still in a dominating position among the sample companies. The separation degree of ownership and controlling right (*Separ*) averages at 18.3%, which is not that large. However, its standard deviation reaches 24.8%, minimum value 0 and maximum value 97.9%. This suggests the separation degree of the sample companies' ownership and controlling right is high. Besides, the median of *Separ* is 0, which suggests that more than half of the sample companies are not faced with the separation of ownership and controlling right.

TABLE 2: The descriptive statistical result of all variables

Variable	N	Mean	SD	Min	P25	P50	P75	Max
<i>COE</i>	9672	0.063	0.031	0.000	0.042	0.059	0.079	0.518
<i>State</i>	9672	0.675	0.468	0.000	0.000	1.000	1.000	1.000
<i>Separ</i>	9672	0.183	0.248	0.000	0.000	0.000	0.369	0.979
<i>Beta</i>	9672	1.114	0.245	-0.342	0.981	1.130	1.260	2.355
<i>Lnassets</i>	9672	21.799	1.166	15.577	20.978	21.700	22.492	27.387
<i>Bm</i>	9672	0.494	0.313	0.002	0.259	0.434	0.662	4.413
<i>Oprisk</i>	9672	0.473	0.220	0.000	0.309	0.469	0.639	0.989
<i>Finrisk</i>	9672	0.512	0.188	0.007	0.381	0.526	0.650	0.994
<i>Turnover</i>	9672	5.194	3.608	0.007	2.516	4.218	6.870	31.030
<i>Roa</i>	9672	0.032	0.089	-2.746	0.010	0.029	0.056	4.837
<i>Assturn</i>	9672	0.716	0.578	0.000	0.351	0.583	0.896	8.097
<i>Incomegrow</i>	9672	0.218	0.540	-0.650	-0.010	0.133	0.306	3.767
<i>Rdiv</i>	9672	0.215	0.296	0.000	0.000	0.101	0.333	1.589

Multiple regression

TABLE 3 shows the result of multivariate regression analysis. Model (1) and Model (2) are the regression of all samples; Model (3) and Model (4) stands for the regression of SOE samples and non-SOE samples respectively, Hausman test and Sargan-Hansen test are employed, finding that Model (1)-Model (4) are not suitable for the conditions of random effect model. Therefore, the individual fixed effect model is employed to conduct regression test of Model (1)-Model (4). In order to redress the heteroskedasticity and serial correlation, this paper adopts the parameter estimation method of Driscoll-Kraay^[12], when there exists heteroskedasticity and serial correlation in the model, the estimated parameters are still robust. The F value of Model (1)-Model (4) is above 1%, which means the coefficient of the four models is generally significantly. R^2 of the four models both exceeds 60%, suggesting the general imitative effect of the four models is good.

From Model (1) and Model (2) in TABLE 3, it can be seen that the coefficient of *State* is positive and negative respectively, but both fail to pass the significance level test. This suggests that there exists no significant difference between cost of equity of SOEs and non-SOEs. This is not consistent with the Hypothesis 1, this may be because SOEs should shoulder more social responsibility and political cost. Government officials might require SOEs to implement the vanity projects according to the administration intention rather than maximization of company value when necessary. For example, SOEs might be required to invest in municipal engineering and infrastructure with low earnings, which are thus entrusted with higher social responsibility and political cost than non-SOEs. Model (2) shows that the coefficient of *Separ* stays above 10% and the significance is positive. This suggests, the higher the separation degree of ownership and controlling right, the higher cost of equity is, and proves that Hypothesis 2 is correct. Model (3) shows that the coefficient of *Separ* is positive among the SOE samples but is not significant. However, in Model (4), the coefficient of *Separ* is positive among the non-SOEs and passes the significance level test of 1%. This suggests that the positive correlation between the separation degree of ownership and controlling right and cost of equity is more significant among non-SOEs than SOEs, and proves that Hypothesis 3 is correct.

ROBUSTNESS TEST

In order to test the robustness of the regression result, the following robustness test is conducted: 1) some scholars thought that CT model and GGM model are two measurement models of cost of equity more suitable for the Chinese capital market. Therefore this paper adopts the two models to measure cost of equity and finds out that the regression result is in line with the conclusion stated above; 2) "Ownership/Controlling right" and "Controlling right-Ownership" of ultimate controlling shareholders are adopted as replacement variables of *Separ*, and it is found that the regression result remains the same; 3) Different from the sample selection which adopts 10% as the effective controlling right ratio of ultimate controlling shareholders, the robustness test refers to the method of [2], in which 20% is adopted for the sample selection. The result obtained is basically in line with the conclusions stated above.

TABLE3: The result of multivariate regression analysis

VARIABLES	(1)	(2)	(3)	(4)
<i>State</i>	-0.000 (-0.080)	0.001 (0.506)		
<i>Separ</i>		0.002* (1.698)	0.002 (1.624)	0.004*** (3.101)
<i>Beta</i>	0.002 (1.157)	0.002 (1.036)	0.000 (0.216)	0.004 (1.601)
<i>Lnassets</i>	0.004*** (5.113)	0.004*** (5.141)	0.005*** (4.294)	0.002*** (3.871)
<i>Bm</i>	0.050*** (45.584)	0.050*** (44.183)	0.051*** (55.292)	0.049*** (14.663)
<i>Oprisk</i>	-0.006*** (-3.378)	-0.006*** (-3.481)	-0.004** (-2.311)	-0.004*** (-3.231)
<i>Finrisk</i>	0.007*** (3.903)	0.007*** (3.626)	0.008*** (3.194)	0.009*** (3.447)
<i>Turnover</i>	0.000 (1.290)	0.000 (1.356)	0.000 (0.995)	0.000* (1.890)
<i>Roa</i>	0.176*** (25.572)	0.176*** (25.735)	0.224*** (19.563)	0.127*** (15.093)
<i>Assturn</i>	0.004*** (13.090)	0.004*** (10.790)	0.004*** (18.297)	0.003*** (3.989)
<i>Incomegrow</i>	0.001*** (4.713)	0.001*** (3.856)	0.001*** (5.140)	0.001*** (2.781)
<i>Rdiv</i>	-0.004*** (-6.090)	-0.004*** (-6.238)	-0.004*** (-6.506)	-0.005*** (-6.858)
Constant	-0.076*** (-4.897)	-0.076*** (-4.920)	-0.087*** (-3.777)	-0.032*** (-3.344)
<i>Year</i>	Yes	Yes	Yes	Yes
<i>Industry</i>	Yes	Yes	Yes	Yes
Observations	9,817	9,672	6,536	3,136
F-Value	969.5	3994	503.5	3636
Winth-R ²	0.655	0.653	0.680	0.636

Notes: T-statistics in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

CONCLUSIONS

This paper adopts the listed companies from 2004 to 2013 in Shenzhen and Shanghai as the research samples, and verifies the influence of the nature of ultimate ownership, the separation degree of ownership and controlling right on cost of equity both theoretically and empirically. The research findings show that: 1) Restricted by government, SOEs shoulder more

social responsibility and political cost. On the other hand, due to SOEs' favorable political relationship with the government, they can obtain more preferential treatment and hidden risk guaranty from the government. The advantage and disadvantage offset each other, ridding SOEs' significant advantage in investment risks and company value compared with non-SOEs. As a result, it is hard for SOEs and non-SOEs to differ significantly in terms of cost of capital equity; 2) The separation of ultimate controlling shareholders' controlling right and ownership enables the ultimate controlling shareholders to encroach on the interests of small and medium shareholders through the "Entrenchment Effect," reduce the company value, and increase investment risks and company's cost of equity; 3) SOEs are faced with the separation of controlling right and residual claim right. The government officials responsible for the monitoring work boasts the controlling right of SOEs, but are not entitled to residual claim. As the representatives of SOEs' ultimate controlling shareholders, government officials bring weaker incentive effect when encroaching on the economic interests of other small and medium shareholders in SOEs. As a result, the investment risks of SOEs will be lower than those of non-SOES, and the positive correlation between the separations of ownership and controlling right and cost of equity will be more significant in non-SOEs than that in SOEs.

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