

Finance Governance and Dynamic Capital Structure

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Abstract: *This paper studied the influence of finance governance on the adjustment speeds of capital structure under the below- and above-target debt level based on the data of listed companies for the period of 2010 to 2015. The finding of the empirical study show that finance governance does not significantly correlate with upward adjustment speeds when firms have below-target debt and that finance governance significantly negatively correlate with downward adjustment speeds when firms have above-target debt. The finding of this paper not only proves the disciplining effect of debt that the agency problem has influence on dynamic adjustment of capital structure, but also enriches the literature about dynamic capital structure, agency cost and corporate governance.*

Keywords: finance governance, capital structure, adjustment speeds, disciplining effect

1. Introduction

According to the dynamic trade-off theory of capital structure, firms have the target capital structure [1], in the process of operation and development, for a variety of reasons; the structure will inevitably deviate from the target. When deviated from the target capital structure, the structure will be adjusted dynamically toward the target, the adjustment speeds may vary depending on the benefits and cost [2, 3]. The related research shows that the adjustment speeds of the capital structure of listed companies in China are influenced not only by the marketization process [4], market competition [5], legal environment [6], and other external factors, but also by executives shareholding [7], managers compensation [8], media reports [9] and other internal factors.

In addition to the above factors, finance governance also affects the company's capital structure. As the subsystem of the corporate governance, finance governance is essentially a series of formal system and informal system arrangement, mainly including financial allocation system, financial control mechanism, financial supervision system and financial incentive system. Guanglu Zen [10] suggests that the improvement of finance governance can reduce the leverage ratio of listed companies, and that the negative relationship between finance governance and capital structure of state-owned firms is more obvious.

There is a little research that studies the relationship between finance governance and capital structure from a dynamic perspective. We argue that the influence of finance governance on adjustment speeds of capital structure at least includes the following two aspects:

On the one hand, when firms have better finance governance, the interests of equity investor will be better protected, so they are more likely to buy equity of the firms [10]. The equity will be cheaper and cheaper equity can affect adjustment speeds. We call the influence mechanism as the protective effect.

On the other hand, the management has the ultimate decision-making power of the capital structure, and their willingness to make adjustment of the capital structure will directly affect the adjustment speeds of the capital structure. When the cost and benefits of capital structure adjustment for management and shareholders are not the same, agency problems arise. The study suggests that debt will bring more cost to management with little shares in company than shareholders, and that on average, the cost of the debt to management is three times than that to shareholders, while the total return of the debt to management is slightly lower than that to the shareholders [11, 12, 13]. Therefore, the management will tend to reduce the company's leverage ratios, which means that capital structure will adjust upward slowly under the below-target level and adjusts downward fast under the up-target level. The improvement of finance governance can effectively limit the behavior of management to damage the company's value and reduce agency cost. Therefore, the improvement of finance governance will increase the upward adjustment speeds under the below-target level and reduce the downward adjustment speed under the up-target level. We call this effect mechanism as the disciplining effect of debt.

It is very necessary to study the protective effect and the disciplining effect under the below- and above-target debt level.

The protective effect mainly affects the adjustment cost by reducing the equity cost. The adjustment direction of the capital structure is different under different debt levels, and the adjustment means are different.

Under the below-target level, company adjusts the leverage ratio mainly by issuing debt and reducing equity. The protective effect has no effect on cost of the issuance of additional debt, but it will increase cost of reducing the equity, which means giving up cheaper capital. In collusion, the protective effect will reduce the upward adjustment speeds under the below-target level.

Under the up-target level, company adjust the leverage ratio mainly by issuing equity and reducing debt. The protective

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effect has no effect on cost of reducing debt, but it will decrease cost of issuing the equity. In collusion, The protective effect will increase the downward adjustment speeds under the up-target level.

The disciplining effect affects the adjustment speeds mainly by limiting the tendency of the management to reduce the leverage ratio. The improvement of finance governance will increase adjustment speeds under the below-target level and reduce adjustment speeds under the up-target level. It is important to note that the bankruptcy risk under the up-target level will put much more pressure on management to accelerate the downward adjustment speeds. This irrational behavior can be limited by the improvement of finance governance. Therefore, the disciplining effect under the up-target level is greater than that under the below-target level.

We assume that the two effects on the adjustment speeds are the same and the opposite direction under the below-target level.

Hypothesis 1: The improvement of finance governance has no significant effect on the adjustment speeds of capital structure under the below-target level.

Under the up-target level, the protective effect mainly affects the adjustment speeds by issuing the equity. However, issuing the equity is limited by the Chinese government and the protective effect is weakened. The disciplining effect is enhanced by the bankruptcy risk. We assume that the disciplining effect is greater than the protective effect and the adjustment speeds will be slower under the up-target level.

Hypothesis 2: The improvement of finance governance will significantly reduce the adjustment speeds of capital structure under the up-target level.

2. Data

The samples are listed companies in China from 2010 to 2014. The data used to measure the financial governance of listed companies comes from Report on Finance Governance Index of China's Listed Companies written by Minghua Gao. The other data are from the Wind database.

According to the research practice, the initial samples are screened by the following standard: (1) Financial and insurance listed companies are removed; (2) The finance governance index began to be compiled in 2010, the companies listed after 2010 are removed to ensure the continuity of data; (3) Samples with missing data are removed; (4) Samples with asset-liability ratio greater than 1 are removed. In addition, in order to reduce the effect of outliers, all continuous variables were processed by 1% and 99% of Winsorize. Finally, the annual observations of 7116 companies were obtained.

3. Methodology

The finance governance of listed companies is measured by the finance governance index coming from Report on Finance Governance Index of China's Listed Companies written by Minghua Gao. However, the index has only an even number of years, no odd-numbered years. We assume that the change of finance governance is a slow and continuous process, it is reasonable to assume that finance governance index of odd years is equal to the average of the adjacent two years finance governance index, so finance governance index of odd years are calculated using the following formula:

$$CCFI_{it} = \frac{1}{2} \times (CCFI_{i,t-1} + CCFI_{i,t+1}) \quad (1)$$

Where $CCFI_{i,t-1}$, $CCFI_{i,t}$ and $CCFI_{i,t+1}$ respectively represent the finance governance index of the listed company in the $t-1$, t and $t+1$.

Based on the practice of existing study, we estimate the adjustment speeds of capital structure based on the standard partial adjustment model [1, 13, 14]. The model is specified as follows:

$$Lev_{i,t} - Lev_{i,t-1} = \frac{D_{i,t}}{A_{i,t}} - \frac{D_{i,t-1}}{A_{i,t-1}} = \gamma (Lev_{i,t}^* - Lev_{i,t-1}) + \epsilon_{i,t} \quad (2)$$

Where $D_{i,t}$ represents interest-bearing liabilities of company at the end of t , $A_{i,t}$ represents total assets of company at the end of t , $Lev_{i,t}$ and $Lev_{i,t-1}$ respectively represent capital structure of company at the end of t and $t-1$, $Lev_{i,t}^*$ represents target capital structure of company at the end of t , the coefficient γ is the average adjustment speeds of capital structure of the sample companies, $\epsilon_{i,t}$ is the residual term.

ΔLev , the left side of model (2), is the adjustment of capital structure. Dev , the right side of model (2), is the deviation of actual capital structure from target capital structure, the coefficient γ is the average adjustment speeds of capital structure. The model (2) is specified as $\Delta Lev = \gamma Dev_{i,t} + \epsilon_{i,t}$.

Consistent with existing study [1], the following model is adopted to estimate the target capital structure:

$$Lev_{i,t}^* = \beta X_{i,t-1} \quad (3)$$

Where β is the regression coefficient vector, $X_{i,t-1}$ is the main characteristic variable that determines the capital structure. Based on the practice of existing study, we selected six company characteristic variables that affect the capital structure, and the specific information of variables is shown in table (1):

Table 1: Company Characteristic Variables

Names	Meanings	Calculation method
Size	Company size	The natural log of total assets
Profit	Profitability	EBIT/ total assets
Tang	Tangible assets	(fixed assets + inventory)/total assets
Pb	Book-to-market ratio	market value/book value

Dep	Non-debt tax shield	depreciation of fixed assets/total assets
Median	Industry median	The median number of capital structures in the same industry

ΔLev	-0.0021	0.1767
Dev	-0.0232	0.2661
CCFI	55.3377	8.3316

Byoun [13] suggests that the underlying assumption of model (3) is that the adjustment of company's capital structure is perfect on average, and the adjustment speeds is equal to 1. Obviously this assumption does not correspond to the dynamic trade-off theory.

Based on the practice of existing study [5], we bring model (3) into the model (2):

$$Lev_{i,t} = \gamma \beta X_{i,t-1} + (1 - \gamma) Lev_{i,t-1} + \epsilon_{i,t} \quad (4)$$

We use model (4) to estimate parameter vector β , and bring it into the model (3), then we can get the target capital structure $Lev_{i,t}^*$.

Based on the practice of existing study [5], we add the interaction terms of finance governance index and deviation of capital structure into model (2) to study the influence of finance governance on the adjustment speeds of capital structure.

$$\Delta Lev_{i,t-1} = (\gamma_0 + \gamma_1 CCFI_{i,t}) Dev_{i,t} + \epsilon_{i,t} \quad (5)$$

Where γ_1 is the regression coefficient of the interaction terms of finance governance index and deviation of capital structure, it measures the influence of finance governance on the adjustment speeds of capital structure. If γ_1 is significantly positive, the improvement of finance governance can significantly increase the adjustment speeds of capital structure. If γ_1 is significantly negative, the improvement of finance governance can significantly decrease the adjustment speeds of capital structure. If γ_1 is not significantly different from 0, the improvement of finance governance has no significant effect on the adjustment speeds of capital structure.

Based on the practice of existing study [8], we divide the whole sample into the below-target level subsample (where deviation of capital structure is greater than or equal to 0) and the up-target level subsample (where deviation of capital structure is less than 0).

4. Estimation and Results

4.1. Descriptive Statistics

The descriptive statistics of the main variables are shown in table (2) and table (3). The mean value of Lev^* , the target capital structure of listed companies, is 0.2801, and its standard deviation is 0.0538. The mean value of ΔLev , adjustment of capital structure, is -0.0021, and its standard deviation is 0.1767. The mean value of Dev, deviation of capital structure, is -0.0232, and its standard deviation is 0.2661. It is consistent with the recent literature and is comparable.

Table 2: Descriptive Statistics

Names	The mean value	standard deviation
Lev^*	0.2801	0.0538

Table 3: Descriptive Statistics

Names	the below-target level subsample	the up-target level subsample
Lev^*	0.2719	0.2919
ΔLev	0.0130	-0.0239
Dev	0.1467	-0.1551
CCFI	55.4843	55.1260

In the below-target level subsample, the mean value of ΔLev is 0.0130, the mean value of Dev is 0.1467. In the up-target level subsample, the mean value of ΔLev is -0.0239, the mean value of Dev is -0.1551. The adjustment and deviation have opposite direction under different debt levels, and their absolute values are greater than them in the whole group.

The mean value of CCFI, the finance governance index, is 55.3377, and its standard deviation is 8.3316. Its mean value is 55.4843 in the below-target level subsample. Its mean value is 55.1260 in the up-target level subsample. The distribution of finance governance index is similar under different debt levels.

4.2. The Influence of Finance governance on the Adjustment Speeds of Capital Structure

We regression the model (5) under different debt levels to study the influence of finance governance on the adjustment speeds of capital structure. The results are shown in table (4):

Table 4: The Influence of Finance governance on the Adjustment Speeds

	the up-target level subsample	the below-target level subsample
Dev	1.974***	0.152***
Dev*CCFI	-0.034***	-0.001

Note: ***, ** and * represent the significance level of 1%, 5% and 10% respectively.

Table (4), column 2, shows the regression results in the up-target level subsample. The regression coefficient of Dev*CCFI, the interaction terms of finance governance index and deviation of capital structure, is significantly negative. Hypothesis 2 has been proven, the improvement of finance governance will significantly reduce the adjustment speeds of capital structure under the up-target level. With each additional unit of the finance governance index, the company's downward adjustment speeds slowed by 3.4%. Finance governance affects the adjustment speeds through the protective effect and the disciplining effect, under the up-target level, the protective effect increases the

adjustment speeds and the disciplining effect decreases the adjustment speeds. The regression coefficient is significantly negative, so the disciplining effect has greater influence than the protective effect. Under the up-target level, the protective effect mainly affects the adjustment speeds by issuing the equity. However, issuing the equity is limited by the Chinese government and the protective effect is weakened. The disciplining effect is enhanced by the bankruptcy risk. In conclusion, the disciplining effect has greater influence than the protective effect under the up-target level and the improvement of finance governance will significantly reduce the adjustment speeds of capital structure.

Table (4), column 3, shows the regression results in the below-target level subsample. The regression coefficient of Dev*CFFI, the interaction terms of finance governance index and deviation of capital structure, is not significantly different from 0. Hypothesis 2 has been proven, the improvement of finance governance has no significant effect on the adjustment speeds of capital structure under the below-target level. Finance governance affects the adjustment speeds though the protective effect and the disciplining effect, under the below-target level, the protective effect decreases the adjustment speeds and the disciplining effect increases the adjustment speeds. The regression coefficient is not significantly different from 0. Maybe both the protective effect and the disciplining effect can significantly affect the adjustment speeds, but they have the opposite direction, which offset each other. Or neither the protective effect nor the disciplining effect can significantly affect the adjustment speeds.

5. Summary and Conclusions

We studied the influence of finance governance on the adjustment speeds of capital structure under the below- and above-target debt level based on the data of listed companies for the period of 2010 to 2015. The finding of the empirical study show that finance governance does not significantly correlate with upward adjustment speeds when firms have below-target debt and that finance governance significantly negatively correlate with downward adjustment speeds when firms have above-target debt.

We find that the improvement of finance governance can alleviate the agency problem and can reduce the downward adjustment speeds of capital structure. The results has enriched the literature of dynamic capital structure, agency cost and corporate governance.

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