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Relationship Between Capital Structure and Firm Performance, Evidence From Growth Enterprise Market in China

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Abstract
SMEs play an important role in Chinese economy, and along with the launch of China GEM, the pressure of SMEs financing will be reduced. This research established simultaneous equations of capital structure and corporation performance, applicant INN to estimate the equation and then find out the interactive relationship between capital structure and corporation performance. The results show that capital structure and corporation performance exist interactive relationship and capital structure, growth ability, equity concentration, board and corporation scale will significantly influence corporation performance. Profitability, growth ability, debt paying ability, collateral value of assets and enterprise scale will significantly influence capital structure.

Key words: China GEM; Capital structure; Corporation performance; Interactive relationship

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INTRODUCTION
As the most active part of China's national economy, SMEs play an important role in job creation, economy and the national economic structure stability. Recently, the proportion of SMEs account for 99.17% of total enterprises, while SMEs provide nearly 80 percent of resident's employment, 70% of innovations comes from SMEs (Su, 2014). Other than that, SMEs show the amazing ability to promote economic and technological innovation. In 2009, China officially launched the GEM market. As an effective complement to the motherboard market, the GEM is very important for improving liquidity and efficiency, especially for resolving the problem of financing for SMEs.

However, because of the launch of the China GEM market is not long, the system is not as mature as some developed countries. In the process of executing, the China GEM market gradually exposed some problems such as high issue price, high price-earnings ratio, higher oversubscription proportion etc. (Zhao & Sun, 2012). On the other hand, in the China GEM market, the phenomenon of senior executives' monetize is growing, indicating that the current system is not perfect, listed company's capital structure is unreasonable.

In China, the interactive relationship between capital structure and corporate performance in SMEs should combine the actual situation of China's GEM listed companies. From previous studies, we can see that the capital structure is an important factor affecting business performance, but such studies do not reach a uniform conclusion. By analyzing of some listed corporations in China GEM market, this research establishes the simultaneous equations model of capital structure and corporate performance, applicant GMM estimation to estimate the simultaneous equations, to investigate the relationship between GEM Capital Structure and Corporate Performance. Therefore, there will be some suggestions benefit for improving corporation financing efficiency and effectiveness of the management decisions and enhancing performance of listed companies accordingly.

1. LITERATURE REVIEW
At the aspect of relationship between capital structure and company performance, in early 1952, Durand

summarized three theories of capital structure: net theory, net operating income theory and traditional compromise theory. Then Modigliani and Miller (1958) proposed the famous MM theorem stated that there is no optimal capital structure. Once the capital market is fully effective, capital structure and corporate value will be not associated. The MM theory is the bases of modern capital structure theory. From then on, some economists also reached many other achievements. Other than deep study on capital structure, they also pay attention to find out influence factors and optimal capital structure etc. They proposed many theories including trade-off theory, agency theory, signal theory etc. to analyze the relationship between capital structure and corporate value from varieties prospective.

However, in reality, some assumptions MM theory used is un-valid. Hence, Myers (1989) proposed static trade-off theory on the basis of MM theory. This theory takes the bankruptcy costs and agency costs of debt into consideration. It stated that debt financing can reach tax avoidance, but also contribute to the costs and risks increase. If the amount of tax avoidance is larger than cost risks, corporate should add debt financing to achieve optimal capital structure; other than that, corporate should avoid adding debt. Thereafter, the optimal capital structure means corporations' tax avoidance is the same as cost and risk of debt financing.

Based on MM theory, tradeoff theory takes the bankruptcy costs and tax avoidance benefits into consideration, but this theory pay more attention to the external factors and ignore internal factors, which means the explanation is not so reasonable. Then, signaling theory considers the internal factors and believe that there exists asymmetry of information between internal managers and outside investors. Managers can transfer single through capital structure when choose the financing structure. And investors can judge value of this firm accordingly. Then Ross (1977) examined the asset-liability ratio and stated there is positive correlation between asset-liability ratio and enterprise value. Brealey and Pyle (1977) believed investor should reference the proportion of shareholding enterprise managers has. The more the proportion, the higher the enterprise value. Lease et al. (1991) showed that stock prices will rise with debt transfer into equity, while decline when equity transfer into debt. Shah (2004) proved the financial leverage and the company stock price have a positive relationship.

After the trade-off theory, agency theory and signaling theory, Myers and Majluf (1984) presented the pecking order theory. They believed that the separation of management and ownership will lead to asymmetric information. Therefore, internal employees are superiority than external investors, and the best way is internal financing because the external financing will create costs.

Other than that, many scholars also proved that business growth opportunities and corporate debt levels have a significant negative correlation (Smith & Watts, 1992).

Along MM Theory, Jensen and Meckling (1979) raised the capital structure contract theory. This theory provides the allocation of residual claims and corporate control. The principal-agent theory and signaling theory explain the distribution of residual claims, and control theory explains the problem of corporate control distribution. Then, Aghion and Bolton (1992) studied the control power between managers and investors and believed that debt financing and equity financing are different, the creditors have priority claim when corporate bankrupt. Therefore, they believed the optimal capital structure should be shareholders bear minimum losses at the time of bankruptcy.

Based on the theoretical technology, many scholars did relevant empirical study to further analyze the relationship between capital structure and corporation value. Generally, factors influence capital structure including both external and internal factors. Compared to external factors such as macroeconomic situation, trade and economic policies etc., more studies focus on internal factors. Korajczyk and Levy (2003) studied how macroeconomic impact capital structure, and found if there is no constraints, corporation is more interesting in equity financing in the period of economic expansion, and more interested in debt financing when economic contraction. For corporations have financing constraints, results are opposite. From the internal factors, Berger and Udell (2006) proved that increasing corporate debt ratio can cut down agency costs related to equity. If managers of corporation is sensitive to salaries, they will focus on reasonable tax avoidance, which will benefit for corporation performance (Minnick & Noga, 2010). Other than that, the number of board members will also influence firm performance, some proved they have negative relationship (Yermack, 1996), some proved they do not have simple liner relationship. When the number is less than 6, they have no significant relationship, but if more than 6, they have significant negative relationship (Bennedsen et al., 2008).

However, above empirical studies commonly adopted single equation model, and did not take the interaction between corporate performance and capital structure into consideration, which will cause biases and inconsistent when using regression coefficients evaluation. Hence, this research will use simultaneous equations to analyze, and aim at finding some more interesting result.

2. VARIABLE SELECTION

2.1 Firm Performance

Firm performance could be measured based on finance perspective or market perspective. From finance

perspective, there are lots of methods to evaluate the financial performance of a company such as EVA. Although the finance performance could be better reflected by these comprehensive method, they may use some variables that the related to capital structure. This may lead to low meaning of regression results. Therefore a simple but widely used index, return on equity (ROE), is chosen as the proxy variable for firm performance.

2.2 Capital Structure

There are different views on capital structure. Some argue that capital structure is the structure of company's long term capital resource. They usually choose the ratio of long term debt to equity capital as proxy variable. Others think that the capital structure of a company does not confine to long term capital but should also include short term capital source. They usually choose the ratio of debt to assets. Companies listed on GEM are quite different from other listed companies. They tend to be young and doesn't have long term debt. So asset debt ratio (DAR) is a proper proxy variable for capital structure in this study.

2.3 Control Variables

According to the literature review above, the company performance may be influenced by several other factors, including growth potential, company size and structure, growth potential, and ownership structure while capital structure may be influenced by firm performance, growth potential, equity ownership structure, and assets structure. Several control variables are selected to make the model more complete, including:

Growth potential (GP) is measured by sales growth rate. Inertia often exists for company growth. A company with heath growth rate tends to perform well in a certain time period.

Board size (B_SIZE) is measured by the number of board members. Board size may pose influence on company operation and thus affect firm performance.

Collateral value of assets (CVO) is measured by (inventory + fixed asset / total assets. When borrowing, lender would usually ask for collaterals in case the borrower doesn't have the ability of repayment in the future. So CVO may pose limits on capital structure.

Firm size (C_SIZE) is measured by the logarithm of the firm's assets. Companies with bigger size tend to possess stronger ability against risk and have better negotiation power which may increase the firm performance. On the other hand bigger company is harder to manage, so company performance may be negatively influenced (Williamson, 1967).

Ownership structure is measured by the sum of shareholding ratio of first three biggest shareholder (*CR*3). In general, high concentration of shareholding should have positive influence on firm performance (Jensen & Meckling, 1976; Shleifer & Vishny, 1986; Short, 1994; Jirapon & Gleason, 2007).

3. MODELLING

Based on variables we choose, the model of this study is built as follows:

$$ROE_i=C_{1i}+a_{1i}DAR_i+b_{1i}GP_i+c_{1i}CR3_i+d_{1i}C\_\mathrm{SIZE}_i+e_{1i}B\_\mathrm{SIZE}_i+\varepsilon_{1i}.$$

$$DAR_i=C_{2i}+a_{2i}ROE_i+b_{2i}GP_i+c_{2i}COV_i+d_{2i}CR3_i+\varepsilon_{2i}.$$

Where C is constant; Variables are shown in the table below:

Table 1
Variable Definition

Variable names	Variable signs	Variable definition
Firm performance	*ROE*	Net profit/equity
Capital structure	*DAR*	Total debt/total assets
Growth potential	*GP*	Growth rate of sales
Board size	*B*_SIZE	Logarithm of numbers of members in board
Collateral value of assets	*COV*	(Stock + fixed assets)/total assets
Firm size	*C*-SIZE	Logarithm of total assets
Ownership structure	*CR*3	Sum of shareholding ratio of first 3 biggest shareholder

3.1 Sampling

As reporting data may be manipulated by the company in their first year on the growth enterprise market, all companies listed on the growth enterprise market before 2013 are chosen samples of this study. Based on the annual report of these companies in 2013, Data needed for this study are collected. Then, Companies with abnormal data or lacking parts of data are eliminated. After the preprocessing, 367 companies stay in our sample. The descriptive statistics are as follows:

Table 2
Descriptive Statistics

Varable names	Variable signs	*N*	Minium	Maximum	Mean	St.dev
Firm performance	*ROE*	367	0.0022	0.2134	0.0851	0.0423
Capital structure	*DAR*	367	0.0213	0.7851	0.1783	0.1521
Growth potential	*GP*	367	-0.2341	1.6423	0.3531	0.3124
Board size	*B*_SIZE	367	1.7042	2.6431	2.1319	0.1941
Collateral value of assets	*COV*	367	0.0084	0.6521	0.2341	0.2396
Firm size	*C*-SIZE	367	19.8512	22.4512	20.9123	0.5212
Ownership structure	*CR*3	367	0.1632	0.8723	0.5182	0.1392

3.2 Empirical Result

Generalized method of moments (GMM) method is applied to estimate coefficients in the model. Regression result is showed as follows:

Table 3
Result of GMM (ROE as Explained Variable)

Variable	Coefficient	Std. error	Prob.
C	-0.2948	0.0341	0.0152***
DAR	-0.5721	0.0752	0.0000***
GP	0.0504	0.0412	0.0000***
*B*_SIZE	-0.0563	0.0386	0.1721
C-SIZE	0.0162	0.0583	0.0065***
CR3	0.1026	0.1731	0.0458***
	R-squared		0.2536
	Adjusted *R*-squared		0.2408

Note. *** means significant at 1% level, ** means significant at 5% level, * means significant at 10% level.

We could see from the result that there is a significant negative relationship between firm performance and capital structure. The coefficient is -0.5721. Such result is contrary to MM theory and signaling models which hold high debt to asset ratio would increase the firm performance. This may be due to the different policies of GEM in China compare to that of mature stock market. In the growth enterprise market in China, a verification system is adopted for companies which are going to be listed on the market. Companies who pass the verification may launch their IPOs in one and one short time period. Pursuing newly listed companies to become a common thing in China stock market which leads to oversubscription and thus low debt to assets ratio.

Table 4
Result of Gmm (Dar as Explained Variable)

Variable	Coefficient	Std. error	Prob.
C	-1.4215	1.3773	0.0045***
ROE	-4.6421	0.4968	0.0065***
GP	0.4153	0.0483	0.0054***
COV	0.2192	0.2056	0.0942*
CR3	0.0045	0.1849	0.3421
	R-squared		0.1542
	Adjusted *R*-squared		0.1472

Note. *** means significant at 1% level, ** means significant at 5% level, * means significant at 10% level.

From Table 4 we could see that a significant relationship exist between firm performance and debt to assets ratio, which suggests that well performed companies do not resort to outside capital. Such result is in line with the pecking order theory. Company prefers to choose internal financing rather than debt. Then due to the higher oversubscription proportion, companies would choose equity financing rather than debt.

CONCLUSION

In conclusion, there exists an interactive relationship between China GEM listed companies' capital structure and firm performance. However, it cannot explain by single equation model but simultaneous equations can explain it clearly. When it comes to factors influence companies' performance, capital structure, growth ability, equity concentration, board and corporation scale will work. At the aspect of capital structure, profitability, growth ability, debt paying ability, collateral value of assets and enterprise scale is very important. Other than that, the effect of the non-debt tax shield and first shareholders equity concentration is not so obvious. However, because of China GEM market is not mature, it has some problems such as high issue price, high price-earnings ratio, higher oversubscription proportion etc.. Other than that, Chinese SMEs are more interesting in internal financing, equity financing other than debt financing, therefore, analysis of China GEM market should take the real situation of Chinese SMEs into consideration.

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