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An Empirical Study on Difference Factors for SMEs' Financing Efficiency-Evidence from SMEs in Zhejiang Province of China

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Abstract: Small and Medium-sized Enterprises (SMEs) have recently taken an important role in boosting Chinese economy. The previous literatures found that SMEs in China operated the business immaturely with an inefficient fund utilization rates. They are unable to choose reasonable fund channels and hard to adjust financing strategy and structure in accordance with their own asset structure, profitability and risk status. Based on the data of 63 listed companies in Zhejiang province in the SME board of Shenzhen Stock Exchange in 2011, this study researches the SME financing difference by establishing linear regression model with the influencing factors of assets scale, profitability and operating costs. The results show that net profit is an indicator reflecting the profitability of the corporate assets and the different profitability of Chinese SMEs is the key to differentiate the financing efficiency. It is also found that enterprises with strong profitability are expected with good debt paying ability by the market which shows a higher liability financing efficiency.

Key words: Financing difference, efficiency factors, multiple linear regression

INTRODUCTION

Since, the 21th century, SMEs (Small and medium-sized enterprises) have taken the role of foundation and most active factor of economy in various countries. Chinese SMEs also contribute a lot to the national economic development. However, there are many urgent issues in capitals on account of the small enterprise scale, insufficient assert mortgage, low credit rating, inefficient credit guarantee system, lacking policy support, low level of management with financing characteristics of small amount and high frequency. In a deeper perspective, it is a problem of financing efficiency. SMEs are unable to choose reasonable fund channels and hard to adjust financing strategy and structure in accordance with their own asset structure, profitability and risk status which preventing their normal operation and healthy development in capital market. Since, 2007 especially, Chinese SMEs have struggled through the rising prices of raw materials and labor costs, the exchange rate adjustment of RMB, international financial turmoil and domestic bank credit crunch.

SMEs Board and GEM (the growth enterprise market) have launched in China in May 2004 and October 2009, respectively which is serving SMEs to provide a more convenient financing channel as a productive supplement to motherboard market. With SMEs Board market taking the role of transition for GEM market, it is necessary to discuss its financing efficiency of SMEs market for that of GEM market.

The overseas literatures on SMEs financing focus on SMEs in developed countries with certain value of reference but unsuitable to Chinese conditions. The domestic researches are mostly interested in the difficult financing reasons and macro suggestions with little empirical analysis on data. It surveys SMEs in Zhejiang and establishes a linear regression model to study the influencing factor of financing efficiency. The result is believed to be helpful for improving financing efficiency scientifically and provide a realistic financing basis for SMEs.

In early 1930s, British parliamentary Macmillan put forward the famous "Macmillan Gap" in the report of issue of SMEs. The concept of "financing gap" was firstly stated including credit capital gap and equity capital gap. Later report by Bolton and Wilson and research of Mason and Harrison on informal venture capital show that SMEs are always faced with the problem of capital gap.

It argues that SMEs do not make financing with target for optimal capital structure in a traditional way. Concerning about dilution and loss of control, SMEs prefer the financing method with minimal intervention which means firstly endogenous financing and external financing next and firstly bond financing and equity financing in external financing.

Interaction hypothesis in long-term by Kyriakis *et al.* (1994). states that small and medium-sized financial institutions are generally regional. On the basis of long-term cooperation and mutual understanding with local SMEs, the medium-sized financial institutions have

less information asymmetry and more serviceable. By contrast, the large financial institutions prefer to offer loans to large enterprises for the sake of avoiding credit risk. The hypothesis agrees that the establishment of small and medium-sized financial institutions would benefit for solving difficulties of SME financing.

Stiglitz and Weiss (1981) perfectly explained the main reason for credit rationing after introducing the factors of asymmetric information and moral hazard. S-W model is regarded as the main model in analyzing SME financing. Assuming that there is information asymmetry between banks and borrowers, the model believes that adverse selection problems would emerge and lead to market failure when banks increase interest. The solution is credit rationing which would reduce capital supply for SMEs.

In the theory of financial repression in developing countries, McKinnon (1973) and Shaw (1973) declare the government is stimulated by financial repression so that to prefer putting financial resources into large projects and state-owned sectors instead of providing less support to SMEs and non-state-owned sectors. Although, they have a strong incentive and motivation to support the real economy, banks would not satisfy the financing needs of SMEs for its lack of competence.

The theoretical model credit market information asymmetry by Stiglitz and Weiss (1981) has a most influence to explain the generative mechanism of credit rationing. It is proved that the banks are forced to use credit rationing rather than raising interest rates with the purpose to balance the supply and demand. A lot of enterprises are eliminated on account of information asymmetry, although they would like to pay high interest for exchange. The extensive survey (NSSBF) by Berger and Udell (2006) investigates on banks and SMEs across the United States in 1993 shows it is the commercial banks as the most basic source of credit by SMEs.

Jayaratne and Wollken (1999) argue that the size of bank and the ratio of bank loans to SMEs is negative related which means that small banks are more willing to provide loans to SMEs than large banks. When large banks provide financing services to SME, the unit funds transaction costs and information costs are relatively high. It is difficult to establish a stable and close working relationship with between large banks and SMEs. On the contrary, small and medium-sized banks focus more on a particular small area with a better understanding of the operation and credit status of a large number of local SMEs which is easy to set up continuous accumulating information.

Endogenous financing and exogenous financing are the main financing methods of business financing.

Nowadays, SMEs depend too much on financing channels. It is obvious that endogenous financing is an inevitable choice. In the perspective of long-term development, however, exogenous debt financing should gradually become an important form of financing with the enterprises scale growing up, the company strength expanding and capital demand increasing. Overall, the capacity of SMEs' self-accumulation and self-development remains weak.

It is an important reason of the inefficient SME financing that is information asymmetry between banks and SMEs. Junyang (1998) finds the phenomenon of information asymmetry between banks and SME. And

SMEs usually have no modern enterprise management system with single property rights and small-scale capital. The business is running lack of standardization with short term operation and low fight risk ability. In addition, unreal or absent accounting statements of SMEs result in low credit ratings. Banks are often reluctant to provide SMEs with loans because of the less confidence.

State-owned commercial banks still insist the perception of "focus in the large enterprises and neglecting the small ones", where the mechanism of institutional settings, credit rating and credit-granting authority can not meet the needs of SMEs. Wei (2008) claimed that the overall situation of China's capital market is lagging far behind with slower speed than economic development in the context of domestic financial repression and bank-leading financing.

With the preference on large enterprises, the government does not provide a lot of favorable terms to stimulate the small enterprises with convenient funds offering as some other countries have done.

Su (2009) argues that corporation financial intermediation is beneficial to overcome the difficulties of SMEs= financing. Company financial intermediation refers to an economic phenomenon that full funded supplier companies offer goods and allow buyers delay in payment which is believed to solve the problem of SME financing through enterprise payable accounts, receivable accounts or commercial credit.

MATERIALS AND METHODOLOGY

SMEs can be internationally defined with the three factors: Paid-up capital; number of enterprise employees; operating income of certain period. Most countries and regions adopt the three indicators to define SME. However, some countries have different definitions to SME at different stages, even if they have the same reference standard. On February 19 of 2003, State Council

issued “Interim Provisions on the standard of SME” (SETC SME 2003, No. 143) formulated by the State Economic and Trade Commission, State Planning Commission, Ministry of Finance, the National Bureau of Statistics jointly. The provision clearly defined the ceiling of SME standard and the floor of large enterprises standard. The so-called SME refers to the economic unit operating independently with various forms and running in small-scale without dominant position in the market.

SME financing efficiency: Financing efficiency is believed as the ability and effect of corporate financing in transferring savings to investment. The process of corporate financing is also a resource allocating process in a form of capital supply and demand. The optimum allocation of whole society resource and economic efficiency would be achieved in the process of individual enterprise maximizing its own interests in the flow of capital.

SMEs financing structure and financing channels: The financing structure refers to the collection of funds from various financing channels or the proportion of various kinds of funds. Specifically, it means the proportional relations between funds sources such as the relation between own funds (equity capital) and borrowed funds (liability). A reasonable financing structure is the basic condition for an enterprise to achieve high financing efficiency. Revenue is varied for different financing structures.

SMEs financing cost: Financing cost is a cost to obtain and occupy the funds mainly including financing expenses and fund utilization expenses. Financing cost refers to the various expenses during financing process while the cost utilization expenses refers to the payment from enterprises to funds providers including opportunity cost. Generally, financing cost is negatively related to financing efficiency, the higher financing cost, the lower financing efficiency. Financing expenses are varied from different financing forms.

SMEs profitability: The enterprise with good profitability has a strong ability for debt financing because it is expected with good debt-paying ability by capital market. Good financial statements sent positive signals to the investors in the capital markets which is easy to obtain more favored investments. Good credit status helps the enterprise easily obtaining the credits of bank and other financial institutions with larger amount of investment. Moreover, enterprise with good profitability also has a strong ability for internal financing for its great profit.

SMEs fund utilization: Fund utilization concerns the capital in-position rate and investment orientation. It is believed that the capital in-position rate of internal financing is undoubtedly higher than other financing forms. The funds could immediately be put in place as long as the profits are decided to be left in the enterprise. However, the capital in-position rate of bank loans and folk borrowing is much low for SME loan funds on account of the strict limitation of loan contracts.

Measurement: The study selects some of the influencing factors on SME’s financing efficiency introduced above to make an empirical research. In this research, total assets stand for enterprise scale, operating costs stand for the enterprise management efficiency and net profit and operating income represent corporate profitability. As the listed SMEs in Zhejiang making financing from small and medium-sized board market, the amount of SMEs’ financing would reflect the difficult level of financing. Regression equation is planned to establish between each influencing factor in order to study the SMEs’ financing efficiency.

RESULTS

Model: The samples are based on the date of 63 Zhejiang SMEs in 2011 with the data from Guotai’an database. The total financing amount (Y) is considered as the dependent variable while the total assets (X₁), operating costs (X₂), net profit (X₃) and operating income (X₄) are considered as the independent variables. A unary linear regression model is established, respectively and the results are as follows by Eviews.

OLS estimator is written according to the output results:

$$\hat{Y} = (1.80E + 08) + 0.0435 \times X_1 \tag{1}$$

$$t = (7.6) (1.08)$$

As Table 1 shows, R² = 0.66 illustrates the model is just ordinarily fitting and 66% of variation Y could be explained by variables X₁.

Table 1: Results of the unary linear regression for total assets

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.80E+08	23619917	7.632961	0
X1	0.043473	0.004037	10.76947	0
R-squared	0.655331	Mean dependent var		3.21E+08
Adjusted R-squared	0.649681	S.D. dependent var		2.64E+08
Log likelihood	-1276.98	F-statistic		115.9814
Durbin-Watson stat	1.950177	Prob(F-statistic)		0

Given $\alpha = 0.05$, the overall effect of model equation is significant because $P_F = 0.0000 < \alpha$ which shows a linear relationship between financing amount and corporate assets. The result declares that every \$1 increase of corporate assets means an average increase of 0.0435 Yuan in financing amount.

The SME's assets scale is positively related with SME financing which is taking a great effect on SMEs financing. The amount of SME assets in part reflects the scale of the business. The greater the business scale, the more trust from the investors and better credit rating from banks which makes financing more available.

OLS estimator is written according to the output result:

$$\hat{Y} = (2.21E + 08) + 0.0456 \times X_2 \tag{2}$$

$$t = (6.41) (-5.06)$$

As Table 2 shows, $R^2 = 0.296$ illustrates the model is badly fitting and only 29.6% of variation Y could be explained by variables X_2 .

Given $\alpha = 0.05$, the overall effect of model equation is significant because $P_F = 0.0000 < \alpha$ which shows a linear relationship between financing amount and operating costs. The result declares that every \$1 increase of operating costs means an average decrease of 0.0465 Yuan in financing amount.

SME's operating costs is negatively related with the SME financing which reflecting the level of cost management and operating efficiency. The higher the operating costs, the higher financing cost and the lower the management efficiency and funds utilization.

OLS estimator is written according to the output result:

$$\hat{Y} = (2.07E + 08) + 0.5526 \times X_3 \tag{3}$$

$$t = (7.19) (7.45)$$

As Table 3 shows, $R^2 = 0.48$ illustrates the model is ordinarily fitting and 48% of variation Y could be explained by variables X_3 .

Table 2: Results of the unary linear regression for operating costs

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.21E+08	34413328	6.410389	0
X2	-0.04555	0.008998	-5.06227	0
R-squared	0.295828	Mean dependent var		3.21E+08
Adjusted R-squared	0.284284	S.D. dependent var		2.64E+08
Log likelihood	-1299.48	F-statistic		25.62653
Durbin-Watson stat	2.106505	Prob(F-statistic)		0.000004

Given $\alpha = 0.05$, the overall effect of model equation is significant because $P_F = 0.0000 < \alpha$ which shows a linear relationship between financing amount and net profit. The result declares that every \$1 increase of net profit means an average increase of 0.5526 Yuan in financing amount. SME's net profit is positively related with the SME financing which has the most important effect on SMEs financing with a correlation coefficient of 0.5526. It takes the greatest role of corporate profit for the financing of SMEs. The higher the corporate profit is, the greater the profitability which makes financing more available.

OLS estimator is written according to the output result:

$$\hat{Y} = (2.13E + 08) + 0.0445 \times X_4 \tag{4}$$

$$t = (6.43) (5.48)$$

As Table 4 shows, $R^2 = 0.33$ illustrates the model is badly fitting and only 33% of variation Y could be explained by variables X_4 .

Given $\alpha = 0.05$, the overall effect of model equation is significant because $P_F = 0.0000 < \alpha$ which shows a linear relationship between financing amount and operating income. The result declares that every \$1 increase of operating income means an average increase of 0.0445 Yuan in financing amount.

SME's operating income is positively related with the SME financing which is an important indicator of corporate profitability. The great amount of operating income guarantees the good profit source. The higher the profitability is, the better debt paying ability which makes financing more available.

Taking total assets (X_1), the main business cost (X_2), net profit (X_3), total operating income (X_4) as independent

Table 3: Results of the unary linear regression for net profit

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.07E+08	28714709	7.19569	0
X3	0.552575	0.074218	7.445277	0
R-squared	0.47609	Mean dependent var		3.21E+08
Adjusted R-squared	0.467501	S.D. dependent var		2.64E+08
Log likelihood	-1290.17	F-statistic		55.43215
Durbin-Watson stat	1.907031	Prob(F-statistic)		0

Table 4: Results of the unary linear regression for operating income

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.13E+08	33795980	6.303612	0
X4	0.044539	0.008136	5.474272	0
R-squared	0.329432	Mean dependent var		3.21E+08
Adjusted R-squared	0.318439	S.D. dependent var		2.64E+08
Log likelihood	-1297.94	F-statistic		29.96765
Durbin-Watson stat	2.106596	Prob(F-statistic)		0.000001

Table 5: Multiple linear regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.30E+08	26410142	4.932949	0
X1	0.030011	0.00504	5.95454	0
X2	-0.01505	0.006232	-2.41424	0.0189
X3	0.343355	0.125401	2.73806	0.0082
X4	0.000609	0.009452	0.064391	0.0094
R-squared	0.730584	Mean dependent var		3.21E+08
Adjusted R-squared	0.712004	S.D. dependent var		2.64E+08
Log likelihood	-1269.22	F-statistic		39.32021
Durbin-watson stat	1.914567	Prob(F-statistic)		0

variable, a multiple linear regression model is established by the least square method. The outcome is as Table 5 shows by Eviews.

OLS estimator is written according to the output result:

$$\hat{Y} = 0.0300 \times X_1 - 0.0150 \times X_2 + 0.3434 \times X_3 + 0.0006 \times X_4 + (1.30E + 08) \quad (5)$$

$$t = (5.95) (-2.41) (2.74) (0.06) (4.93)$$

For the economic meaning test, the signs of parameter estimates of the model above are consistent with the actual.

For the goodness of fit test, $R^2 = 0.7306$ illustrates the model is fitting well and 73.06% of variation Y could be explained by variables combination of X_1 , X_2 , X_3 and X_4 .

For the significance test of regression equation, the equation is extremely significant in the statistical sense with $F = 39.3202$ and p-value of 0.0000 which is not only less than the 0.05 level of significance, but also less than the 0.01 level of significance.

For the significance test of regression parameter, all the p-values of four parameters (X_1 , X_2 , X_3 and X_4) are under the significant level of 0.05 which reflects that the explanatory variables have significant impact on financing amount.

DISCUSSION

Effect of influencing factors for SMEs financing efficiency

Effect of SME profitability: Net profit is an indicator reflecting the profitability of the corporate assets. The above multiple linear regression model shows that profitability is the most important influencing factor for SME financing. The different profitability of Chinese SMEs is the key to differentiate the financing efficiency.

Enterprises with strong profitability are expected with good debt paying ability by the market which is also more attractive to the investors. It is impossible of the enterprises with great profitability being closed down or

going out of business. The great prospect helps the enterprise to obtain high credit ratings from the banks which shows a high liability financing efficiency.

Enterprises with strong profitability also indicate SMEs with great competence during the growth period and mature period of development. It is undoubtedly that those enterprises could win the investors' favor for the big market potential in the future.

Effect of fund utilization rate: Operating cost reflects the enterprises efficiency in fund utilization which is also an important factor affecting SME financing efficiency.

The fund utilization rate of SMEs reflects the internal management efficiency of the enterprises. Extensive management has become a bottleneck restricting further development when most SMEs develop to a certain size. In order to run the business smoothly in diverse investment structure and large enterprise system, it is necessary to establish a flexible organization with excellent management personals with four varied levels of board of shareholders, board of directors and board of supervisors and managers. The SME running in the family-run model keeps inefficient fund utilization for its in separate ownership and management. The development and fate of the enterprises rests in the hands of specific people and extensively managed by "rule of man" or "insider control".

The low fund utilization rate of the SMEs reflects the inferior quality of enterprises, lack of specification and short of management transparency which making SMEs financing negatively as the investors have no confidence on the enterprises.

Effect of financing channels and financing structure:

Listed companies possess a great many financing channels with the relatively reasonable financing structure, including liability financing and equity financing. On the contrary, unlisted SMEs have less financing channels and financing inefficiency with the major capital coming from bank loans. It is clear that the number of financing channels is positively related with financing efficiency.

SMEs are usually faced with the problem of "adverse selection" in liability financing. The main causes of "adverse selection" are "information asymmetry" and "moral hazard". As most SMEs have the trouble of nontransparent information, the problems are more serious in SMEs than in large enterprises. For the sake of cost benefit, the state-owned banks are mostly cautious and careful making loans to unlisted SMEs and prefer the listed SMEs with information transparency. It makes the difference of financing efficiency between listed SMEs and unlisted SMEs.

Also, the empirical research is limited for the limited financial data of listed SEMs in Zhejiang (2011). Secondly, the influencing factors are selected in part subjectively and non-scientifically. Especially, the factor of financing channels and financing structures are only discussed by theoretical analysis without test by model on data. Thirdly, the factors of life cycle duration and financing risk need to be studied further. It is believed the research for SMEs financing could be further explored on practice.

CONCLUSION

In the 63 samples for statistics, the financing of listed SMEs is relatively optimistic. It is the government to study positively and perform efficiently to help SME financing better and promote Chinese economic development. With the correlation coefficient at 0.55, it shows the strongest effect of SME net profit on financing amount. Without high profitability, it is undoubtedly difficult to get financing. Therefore, it is urgent for SMEs to establish scientific system and make upgrade for the sake of the improvement of profitability. The amount of SME assets reflects the size of enterprise in some extent. The larger the enterprise, the easier to get investors trust and the better of bank credit rating which making financing more available. It is found that the internal management efficiency and fund utilization for investment making a great effect on SME financing and refinancing. Although, financing channels are not selected by the index and data in the empirical analysis, it is also believed to influence Chinese SME financing by the theoretical analysis. The abundant financing channels could help SMEs to get development capitals, promote industrial upgrading and achieve a virtuous cycle of business improvement.

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