

Influence of Financing Efficiency on Operating Net Cash Flow of SMEs in Nine Cities of Pearl River Delta

Kuangcheng Chai, Chengsheng Jin, Haoran Lan

Guilin University Of Electronic Technology

bluebowz@hotmail.com

Abstract. At present, our small and medium-sized enterprises have created more than 50% of tax revenue, and more than 60% of GDP, they are the important prerequisite and the main driving force to achieve the development of economic quality. Meanwhile, the nine cities in the Pearl River Delta account for 80% of Guangdong's GDP. The study on the financing efficiency of SMEs represented by the new third board of listed companies is of great significance to the development of Grand-Baie and the deepening of reform and opening-up. This paper uses the data of the Wind database from 2016 to 2020 and takes the SMEs listed on the New Third Board in nine cities of the Pearl River Delta as the research samples. Firstly, the DEA model is used to analyze the financing efficiency of SMEs in nine cities. Secondly, the relationship between financing efficiency and operating net cash flow is compared and analyzed. Finally, it will study whether the improvement of financing efficiency can help enterprises improve operating net cash flow. The results show that operating net cash flow is negatively correlated with financing efficiency. The higher the financing efficiency of SMEs in the New Third Board, the smaller the operating net cash flow performance. During the listing period of the New Third Board, the financing efficiency of enterprises keeps improving, which promotes the further development of enterprises. Different from the previous studies of various scholars, this paper selects the very representative Pearl River Delta region as the model to provide a model for governments at all levels on how to promote the development of small and medium-sized enterprises and provide substantive suggestions for the country to encourage and promote the development of small and medium-sized enterprises, to better promote the high-quality development of the economy.

Keywords: New Third Board SMEs financing efficiency operational net gold flow Pearl River Delta

1. The introduction

As a strong driving force for China's economic growth, SMEs play an irreplaceable role in stabilizing growth, promoting reform, adjusting the structure, improving people's livelihood, and preventing risks. At the same time, the cash flow statement is based on a cash basis, reflecting the cash income and cash expenditure of an enterprise in a certain accounting period. Zhou Haijuan (2016) [1] studied the relationship between operating cash flow and financial distress and found that it was possible to analyze and predict financial distress through operating cash flow. At the same time, strengthening the management and control of operating cash flow was of positive significance to alleviate financial distress.

At present, scholars give full recognition to the New Third Board in promoting the development of small and medium-sized enterprises and promoting the innovation of the capital market, but also point out some problems in the financing process of small and medium-sized enterprises. Wu Yangfen et al. (2019) [2] found that technological innovation has a positive impact on the financing efficiency of enterprises, but the overall financing efficiency of SMEs is generally low. Loughran and Ritter (1997) [3] et al. found in their research on American listed companies that the relevant business indicators of enterprises after equity financing showed a downward trend. In terms of debt financing, Badraoui and Lilti (2012) [4] et al. 's research shows that, influenced by factors such as the increase of related costs and the decline of capital management level, the operating performance of most enterprises continues to decline after financing. Therefore, the study of the relationship between financing efficiency and operating net cash flow has important reference significance for

improving financing efficiency and improving the operating net cash flow of small and medium-sized enterprises.

2. Literature review

Financing efficiency refers to an enterprise's ability to integrate capital into the enterprise at the lowest cost and risk and use the capital to bring the highest profit to the enterprise (Zhang Xuemei et al. 2009) [5]. Studying this index is helpful for scholars to better evaluate the development status of enterprises and promote the development of enterprises. Foreign scholars Keeun Lee et al. (2015) [6] drew the conclusion that the relevant factors affecting the financing efficiency of different types of SMEs are also inconsistent. Hashimotoa et al. (2018) [7] measured the efficiency of pharmaceutical enterprises through DEA and found that it decreased continuously from 1983 to 1992. As for the research on operating cash flow, Cao Jinchun (2013) [8] took a part of ST companies as the research object and analyzed the connection between financial risks and corporate cash flow. The research showed that corporate cash flow, especially operating cash flow, was an important indicator reflecting potential risks and current operating conditions of an enterprise.

Based on the above analysis, domestic scholars have conducted in-depth research on the financing efficiency of SMEs, and the research conclusions are basically the same. However, at present, most domestic scholars analyze the main board and small and medium-sized board, and there are few studies on the simultaneous effect of operating cash flow and the New Third board, especially for small and medium-sized enterprises in the Pearl River Delta region. Therefore, under the background of the government's promotion of the construction of Guangdong-Hong Kong-Macao Greater Bay Area, the reform of the New Third Board, and the development of SMEs, this paper intends to study the listed SMEs from two factors: operating net cash flow and financing efficiency.

3. Theoretical analysis and research hypothesis

3.1 Financing efficiency level of SMEs in nine PRD cities

At present, domestic researchers have different views on the financing effects of the New Third Board system on small and medium-sized enterprises. Jian Bing et al. (2019) [9] proposed that with the continuous improvement of the NEEQ market, the financing efficiency of listed enterprises has been improved to a certain extent, but the operating costs and other related financial indicators of NEEQ listed enterprises have not been well improved. This paper holds that China is in the period of vigorously promoting the construction of the Guangdong-Hong Kong-Macao Greater Bay Area, and in the process of deepening the reform of the New Third Board market, the financing efficiency of SMEs is gradually improving.

Based on the above analysis, this paper puts forward hypothesis 1:

H1: The financing efficiency of SMEs in the 9 PRD cities increased continuously during the listing period.

3.2 Relationship between financing efficiency and operating net cash flow of SMEs

It is helpful to understand the financing risk of the enterprise and better manage and control the risk by judging the source composition of the net cash flow of the enterprise. Operating cash flow is the most critical indicator in the cash flow statement. By strengthening the management of operating cash flow, the financing efficiency can be effectively improved, and the waste of various resources can be reduced and avoided, to truly promote the healthy growth of enterprises. This paper will analyze the relationship between financing efficiency and operating net cash flow, explore the relationship between them, and how to promote the improvement of financing efficiency and operating net cash flow.

Based on the above analysis, this paper puts forward hypothesis 2:

H2: Financing efficiency of SMEs is negatively correlated with operating net cash flow.

4. Research design

4.1 Data sources and processing

This paper selected the financing efficiency and operating net cash flow of nine PRD cities listing new shares on China's New Third Board from January 1, 2016, to December 31, 2020, as research samples. Referring to the existing research, this paper processed the samples as follows: (1) eliminate the samples with missing relevant variables and financial information; (2) ST samples were removed; (3) High debt enterprises such as real estate on the New Third Board is excluded. (4) since there are negative values in the relevant data, dimensionless processing is carried out on all the data to make all the data classified between [0,1]. The formula is as follows. Finally, 688 valid observations were obtained. All data at the company level comes from Wind.

$$x_{ij}^* = 0.1 + 0.9 * \frac{x_{ij} - \min(x_{ij})}{\max(x_{ij}) - \min(x_{ij})}$$

4.2 Variable definition

1. Explained Variable -- Operational Cash Flow

The explained variable of this paper is operating net cash flow (OCF), whether the financing efficiency of SMEs after listing has a positive impact on operating cash flow.

For the management of operating cash flow, this paper mainly calculates the information disclosed in the company's annual report.

2. Explanatory Variable -- Financing efficiency (FE)

At the same time, the effectiveness of enterprise financing efficiency is also manifested in the efficient use of the funds raised by the enterprise. In the model, the operating Cost and Total Assets are selected as input variables. Among them, the operating cost is used to measure the cost incurred by the enterprise due to the operation of a business, and the total asset is used to measure the current economic resources owned by the enterprise, as well as the index reflecting the existing total assets.

The output variable is the business income and the total profit; the business income reflects the income of the enterprise from selling goods or providing services, and the total profit reflects the total pre-tax profit of the enterprise. Specific definitions of DEA variables are shown in Table 1.

Level indicators	The secondary indicators	Level 3 indicators	Three-level indicator Description
Input indicators	Money into	Operating Cost	Measure the costs incurred by a business because of doing business
	Asset performance	(Total Assets)	Measure the resources the business currently has that can be measured in monetary terms
Output indicators	Money income	(Operating Revenue)	Reflects the income received by an enterprise for the sale of goods or services
	Corporate profitability	(Total Profits)	It reflects the total results of business activities in a certain period before income tax

Table 1: DEA variable definition.

The financing efficiency estimation formula constructed is:

$$\text{Maxv} = \text{TP} + \text{OR} / (\text{v}_1 \text{Cost} + \text{v}_2 \text{TA})$$

4.3 Control variables

Referring to the research of Wu Yangfen et al. (2019) [10], this paper selected operating revenue (OR), operating Cost (Cost), total assets (TA), total profit (TP), net assets per share (BVPS) and gross profit margin (GPR) as the control variables of this paper. Specific variable definitions are shown in Table 2

Table 2: Variable definition table

The variable name		Variable symbol	Variable description
Explained variable	Net cash flow from operations	OCF	Cash inflow - cash outflow generated during a given accounting period
Explanatory variables	The financing efficiency	FE	Dea-ccr model was used for calculation
Control variables	Operating income	OR	The income derived from the sale of products or the provision of labor services in the production and operation activities of an enterprise
	Operating cost	Cost	Measure the costs incurred by a business as a result of doing business
	Total assets	TA	The resources that a business currently has that can be measured in monetary terms
	Profit total	TP	The total results of business activities of an enterprise in a certain period before income tax
	Net asset per share	BVPS	Net assets per share = (total assets of the company at a certain point - total liabilities of the company at a certain point)/total number of common shares at that point
	Gross profit margin on sales	GPR	(1- purchase price excluding tax/selling price excluding tax) ×100% comprehensive gross margin Net interest rate on assets

4.4 (3) Model building

To test the influence of financing efficiency on operating cash flow, this paper takes operating net cash flow as the explained variable, financing efficiency as the explanatory variable, and controls the relevant factors affecting financing efficiency to establish a multiple linear regression model:

$$OCF_{i,t} = \alpha_0 + \alpha_1 FE_{i,t} + \alpha_2 OR_{i,t} + \alpha_3 Cost_{i,t} + \alpha_4 TA_{i,t} + \alpha_5 TP_{i,t} + \alpha_6 BVPS_{i,t} + \alpha_7 GPR_{i,t} + \varepsilon \dots \dots \dots (1)$$

5. Empirical analysis

5.1 Descriptive analysis

The results of descriptive statistical analysis of the main variables are presented in the table. The maximum financing efficiency is 1, the minimum is close to 0.206, and the mean is 0.635, indicating that there are great differences in financing efficiency of different enterprises. At the same time, the net cash flow generated by operating activities, the mean value is 0.484, the minimum value is 0.1. Moreover, the standard deviation of operating income, operating cost, total assets, and net assets per share is small, indicating that there is little difference in the overall level, but the standard deviation of total profit and gross profit margin is large. Detailed description statistics are shown in Table 3.

Table 3: Descriptive statistics

	N	The minimum value	The maximum	The mean	The standard deviation
FE	4425	0.206	1.000	0.635	0.227
OCF	4425	0.100	1.000	0.484	0.222
OR	4425	0.100	1.000	0.127	0.058
Cost	4425	0.100	1.000	0.133	0.072
TA	4425	0.100	1.000	0.108	0.039
TP	4425	0.100	1.000	0.332	0.170
BVPS	4425	0.100	1.000	0.190	0.078
GPR	4425	0.100	1.000	0.737	0.146
Number of active cases (columns)	4425				

5.2 Correlation test

This paper makes a Pearson correlation test between financing efficiency and net cash flow generated by operating activities. The correlation test results show that the correlation coefficient between Efficiency and net cash flow generated from operating activities (OCF) is -0.389, which is significant at a 1% level, that is, the financing Efficiency of SMEs is negatively correlated with operating cash flow. The experimental results are basically consistent with the hypothesis (2). Specific correlation tests are shown in Table 4.

Table 4: Correlation test

	FE	OCF
FE	1	
OCF	-.389**	1

**. At 0.01 level (two-tailed), the association was significant.

5.3 Regression analysis

The following table lists the regression results of SME financing efficiency and operating net cash flow. In the experimental results, the financing efficiency keeps improving, indicating that the financing efficiency of SMEs' listing on the New Third board keeps improving, which fully verifies hypothesis H1. At the same time, the coefficient of financing efficiency is estimated to be -0.031, and it is significantly negatively correlated with operating net cash flow at the level of 5%, indicating that the increase in financing efficiency will reduce operating cash flow. This fully validates hypothesis H2; At the same time, the analysis results of relevant control variables found from the regression results show that operating Cost (Cost), total profit (TP), and the gross profit margin (GPR) are all significantly positively correlated with enterprise operating efficiency at the level of 1%; However, operating income (OR) has a significant negative correlation with operating net cash flow at 1% level. Specific regression analysis is shown in Table 5.

Table 5: Regression analysis

VARLABLES	Model
FE	-0.031**
	-2.011
OR	0.178***
	7.760
Cost	-0.126***
	-5.783
TA	-0.022*
	-1.697
TP	-0.636***
	-38.861
BVPS	0.030*
	2.485
GPR	-0.35***
	-26.038
Constant	1.118***
	58.250
Observations	4425
R-squared	0.395
Note: ***, ** and * indicate significance at 1%, 5% and 10% levels, respectively;	

6. Conclusions and Suggestions

The results show that: firstly, the financing efficiency of enterprises during the listing period is constantly improved, and the ability to obtain funds is significantly enhanced; Second, with the increase of enterprises to obtain funds, while the financial institutions represented by the bank in order to resist the risk of capital, demanding higher lending rates, at the same time, enterprises listed promoted the improvement of the enterprise management organization form, and audit fees, fees and other costs increase, lead to operating cash flow increased spending; Finally, it is concluded that during the listing period, the increase of financing efficiency of SMEs will lead to the decrease of operating net cash flow, and then put forward higher requirements for the ability of enterprises to manage funds.

In view of the negative financing efficiency and operating net cash flow of small and medium-sized enterprises, this paper obtains the following enlightenment:

First, governments at all levels should actively promote tax and fee cuts, strengthen fiscal and tax support policies, reduce employment costs for small and medium-sized enterprises, promote the transformation and upgrading of key enterprises in relevant fields, and constantly optimize the business environment to create a favorable environment for development.

Second, promote the deepening reform of the New Third Board market, and improve the ability of Beijing Exchange to serve small and medium-sized enterprises. At the same time, encourage the innovative development of financial instruments, broaden financing channels for enterprises, enrich financing products, reduce financing costs, and improve financing efficiency.

Third, enterprises should strengthen their management of the capital, inventory, and accounts receivable, and constantly improve the ability of independent innovation, change and does not match the current situation of the organizational structure and mode of production, management carefully to determine whether enterprise financing, optimizing the financing structure, enhance their own credibility, formed a certain sense of crisis, establishing and perfecting the modern enterprise financial management system.

References

- [1] Haijuan Zhou. Discussion on the relationship between operating cash flow and financial distress [J]. China management information technology, 2016, 19(05): 9-10.
- [2] [10] Yangfen Wu, Fenghua Zeng. Research on the measurement of financing efficiency of smes on the New Third Board in China [J]. Hubei Social Sciences, 2019, No. 385(01): 69-77.
- [3] LOUGHRAN, T. and RITTER, J.R. (1997), The Operating Performance of Firms becomes Equity Offerings. The Journal of Finance, 52: 1823-1850.
- [4] Badraoui K E, Liti J-J. The long-run operating performance of Canadian convertible debt issuers: trends and explanatory factors [J]. International Journal of Business, 2012, 17(3): 299-326.
- [5] Xuemei Zhang, Zhigang Sai. Journal of Shandong University of Finance, 2009, No. 104(06): 80-84.
- [6] Lee, K. and Yoon, B. (2015), The idiosyncrasy of R&D efficiency across types of SMEs. R&D Manage, 45: 250-266.
- [7] HASHIMOTO A, HANEDAB S. Measuring the change in R & Efficiency of the Japanese pharmaceutical industry II. Research Policy, 2008, 10 (37): 1829-1836.
- [8] Jin Chen Cao. Corporate cash flow and financial risk: An empirical study based on paired annual report data of listed companies [J]. Finance and Accounting Communication, 2013(15): 70-73.
- [9] Bing Jian, Suying Zeng. Research on the financing efficiency of enterprises in the "New Third Board" market in China [J]. Science & Technology Economy Market, 2019(04): 72-73.