

## Financing Efficiency of Small and Medium Enterprises Listed on the New Third Board

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### Introduction

This article selects 56 small and medium-sized enterprises listed on the New Third Board in China as samples, and based on their financial reports from 2018 to 2020, uses the DEA model to analyze the impact of different factors on the financing efficiency of small and medium-sized enterprises listed on the New Third Board market. This article believes that small and medium-sized enterprises listed on the New Third Board generally have low financing efficiency. Most enterprises have problems in management, technology, or enterprise scale, resulting in low financing efficiency. Compared to the size of enterprises, most of them are mainly limited in technology and cannot achieve maximum financing efficiency.

### Research Questions

This paragraph summarizes the current situation of SME financing and its efficiency, pointing out that despite the policy support, SMEs, with its flexibility, diversity characteristics, in financing this aspect still has instability. By reviewing the research of many scholars, this paper emphasizes the influence of enterprise scale, debt level and innovation ability on financing efficiency, and studies the impact of different factors, such as sci-tech board, and it points out that the current research is based on MM theory, balance theory and financial growth cycle theory.

### Methodologies

- 1) The DEA model is highly compatible with the three basic theories used in this paper.
- 2) The DEA model is a model specifically used to calculate multi input and multi output indicators. The analysis of enterprise financing efficiency has a certain complexity and needs to consider multiple factors. Therefore, the DEA model is more suitable for measuring financing efficiency.
- 3) The DEA model does not require a relational function and does not need to be hypothesized and validated like other models.

### Mathematical Formulas

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

### Tables

Table 1. Mean efficiency of efficient and inefficient combinations

Mean efficiency	Effective groups (6)	Ineffective groups (50)
Comprehensive efficiency	1	0.314
Pure technical efficiency	1	0.380
Scale efficiency	1	0.851

### Conclusion

Due to the small scale of small and medium-sized enterprises, their internal management is not systematic enough, which can easily lead to institutional overlap, functional conflicts, or fragmentation, resulting in low management and operational efficiency within the enterprise. Therefore, scientific management has a positive significance for internal coordination and efficiency improvement.