

# Research on the Effect of Science and Technology Finance on the Improvement of Technological Innovation Level of Start-Up New Energy Enterprises from the Perspective of Multi-Dimensional Participants

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## Abstract

Based on the perspective of subdivided participants, this paper constructs a comprehensive evaluation index system of public science and technology finance represented by the "three-in-one" and market science and technology finance represented by the "four-in-one", and empirically tests the impact of the development level of science and technology finance on the technological innovation level of start-up new energy enterprises and the response mechanism by using the balanced panel data from 2011 to 2023. The results show that the development level of science and technology finance at the provincial level can significantly improve the technological innovation level of start-up new energy enterprises. After considering the endogeneity problem, changing the core explanatory variable measurement method, delaying the explanatory variables, and excluding the municipalities and some provinces, the robustness test is still valid. The mechanism analysis shows that science and technology finance can promote the improvement of the technological innovation level of enterprises by alleviating the financing constraints of enterprises, improving the R&D intensity of enterprises, and improving the regional new quality productivity. However, when the level of enterprise risk-taking increases, there will be a mismatch between the current technical capability and the current situation, which will play a moderating role in the technological innovation level of technology finance for start-up new energy enterprises. In addition, the investment of R&D talents will improve the technical reserve capacity of enterprises, which in turn makes science and technology finance have a certain threshold for the technological innovation level of enterprises. The heterogeneity analysis shows that market technology finance has a more significant impact on start-up new energy enterprises, and at the same time, when the enterprise is a private enterprise, directors, supervisors and senior executives have a financial background and a higher level of regional financial development, the impact of technology finance on the innovation performance of start-up new energy enterprises is more significant. Finally, from the perspectives of multi-level development of science and technology finance, increasing enterprise R&D capital investment, increasing enterprise R&D talents, and improving the regional technological innovation environment, relevant countermeasures and suggestions are put forward, so as to provide practical and beneficial enlightenment for better exerting science and technology finance on the technological innovation level of start-up new energy enterprises.

## **Keywords**

Fintech Finance, Enterprise Technological Innovation, Start-Up New Energy Enterprises,  
The Level of Corporate Risk-Taking