ISSN: 2688-8645

Research on the Efficiency of Science and Technology Finance and Influencing Factors in the Yangtze River Economic Belt

Sui Li[a], Shanshan Chen

School of Statistics and Applied Mathematics, Anhui University of Finance and Economics, Bengbu, 233041 China

[a]sui2007nuaa@163.com

Abstract

Science and Technology(S&T) finance is the catalyst of economic growth and financial innovation. Based on the input-output panel data of S&T finance in the Yangtze River economic belt from 2015 to 2019, this paper uses the Three-stage DEA model to measure the efficiency of S&T finance in provinces and cities in the Yangtze River economic belt，and Tobit regression model is used to explore the factors affecting the efficiency of S&T finance.The results show that: first, the efficiency level of S&T finance in the Yangtze River economic belt is not high as a whole, and is significantly affected by environmental variables. Second, the main reason for the low efficiency of S&T finance in the Yangtze River economic belt is the low scale efficiency. Third, the efficiency of S&T finance in the Yangtze River economic belt is affected by many factors.Therefore, it is suggested that the government should optimize the investment mode of scientific research funds, promote the scale efficiency of small and medium-sized S&T enterprises, create a good market environment and improve the ability of S&T innovation.

Keywords

Efficiency of S&T Finance; Yangtze River Economic Belt; Three Stage DEA Model.

1. Introduction

S&T finance is the product of the development of science and technology and finance in a certain period. S&T finance plays a great role in promoting scientific and technological innovation, and also guides the development direction of today's economy and society. The Yangtze River Economic Belt starts from Shanghai in the East and winds West to Panzhihua City, Sichuan Province, covering 11 provinces and cities from east to west.The total area accounts for about 21.35% of the country, and the population and GDP exceed 40% of the national total. It is not only the backbone of China's economic development, but also a key area for the development of science, technology and finance. Promoting the better and faster economic development of the Yangtze River economic belt is inseparable from scientific and technological innovation. Therefore, it is of great significance to study the scientific and technological financial efficiency of provinces and cities in the Yangtze River economic belt.

2. Literature Review

2.1. Research on the Relationship between Finance and S&T Innovation

Zhong Teng and Wang Changyun (2017)[1] believe that the securities industry in financial institutions is more conducive to enterprise innovation; Sun Zeyu and Qi Baolei (2021)[2]found that the openness of capital market has a positive impact on enterprise innovation; Li Mengya et al (2019)[3] found that venture capital can indirectly increase the innovation output of enterprises through the study of enterprises listed on China's GEM; Sun Defeng et al (2020)[4]

ISSN: 2688-8645

found through the research on the data of A-share IPO enterprises from 2000 to 2016 that the earlier the venture capital is involved, the stronger the effect on the cultivation of scientific and technological innovation ability of enterprises.

2.2. Research on the Efficiency of S&T Finance

Li Junxia and Wen Xiaoni (2019)[5] conducted an exploratory study on the efficiency of S&T finance in 27 provinces and cities in China using the data from 2009 to 2016. The empirical results show that the efficiency of S&T finance in China does not reach the optimal allocation state, and there are obvious regional differences; Liu Taiping and Zhang Aishu (2020)[6] used panel data to measure the efficiency of S&T finance in Jiangsu Province from 2006 to 2017. It shows that although the efficiency of S&T finance in Jiangsu Province is very high and in a relatively effective state, the return to scale shows a decreasing trend.

Based on the previous research results, the research scope of most scholars is mainly concentrated in provinces and cities or a specific province and city, and there is relatively little separate research on economic regions. This paper measures the efficiency of S&T finance in 11 provinces and cities of the Yangtze River economic belt, and widens the existing research area from the research perspective.

In terms of research methods, most of the existing literatures use a single DEA method to measure efficiency, and the influence of external environmental factors is not considered in the research process, resulting in the inconsistency between the results and the actual situation. At the same time, most of the literature uses cross-sectional data to analyze the efficiency of S&T finance. The amount of data is too small to show the change trend of the research object. This paper adopts the Three-stage DEA analysis method, which not only makes the results true and reliable, but also objectively reflects the changing trend of scientific and technological financial efficiency in the Yangtze River economic belt.

3. Index Design

3.1. Input-output Index

The input-output index of S&T finance selected in this paper are shown in Table 1

Table 1. Input-Output Index System of S&T Finance

Input index		Output index	
Government Expenditure on S&T	X1	Patent Application Authorization	Y1
Technology Loan	X2	Contract Amount in Technology Market	Y2
Internal Expenditure of R&D Funds	X3	Sales Revenue of New Products in High-Tech Industry	Y3

3.2. Environmental Variables

Table 2. Environmental Variables of SFA Model in the second stage

index		computing method
Scientific Research Atmosphere	Z1	Proportion of Regional R&D Institutions in the Total Number of Institutions in China
Government Support	Z2	Proportion of Government S&T Expenditure in Total Financial Expenditure
The Opening Degree	Z3	Proportion of Total Import and Export in Regional GDP

ISSN: 2688-8645

The principle of selecting environmental variables is that they will affect the efficiency of S&T finance, but they are not artificially controllable variables. Following this principle, this paper selects the environmental variables of the second stage SFA model, as shown in Table 2.

3.3. Influencing Factors

S&T finance is a complex system formed by the intersection of science and technology and finance. In this system, the government, enterprises, scientific research institutions and the market participate together to promote scientific and technological innovation and realize capital appreciation. From the perspective of the scientific and technological innovation level of the Yangtze River, the external market environment atmosphere, the attention of enterprises to scientific and technological innovation activities, the number of scientific researchers and scientific and technological innovation ability all affect the scientific and technological financial efficiency level of the Yangtze River economic belt to varying degrees. Therefore, this paper explores the impact of these factors on the efficiency of S&T finance from the above aspects, as shown in Table 3

Table 3. Factors Affecting the Efficiency of S&T Finance

index		computing method
S&T Human Resources	Z1	R&D personnel / resident population
R&D Expenditure Intensity	Z2	R&D expenditure / regional GDP
Market Environment	Z3	technology market turnover / regional GDP
S&T Innovation Ability	Z4	local patent application authorization/national patent authorization

4. Calculation of the Efficiency of S&T Finance in the Yangtze River Economic Belt

4.1. Introduction to Three-stage DEA Model

Stage I: DEA analysis is conducted on the input-output variables of S&T finance from 2015 to 2019 to obtain the efficiency value of S&T finance in the Yangtze River economic belt. DEA models are mainly divided into two types, one is CCR model, the other is BCC model. When the research object is constant return to scale, CCR model can usually be used; When the research object is variable return to scale, BCC model is usually selected. This paper selects BCC model to measure the efficiency of S&T finance in the Yangtze River economic belt.

Stage II: The input relaxation and environmental variable data of the previous stage are used to construct the SFA model, and the coefficients obtained after SFA regression are used to remove the influence of external factors on the efficiency value, and only the input relaxation caused by management inefficiency is retained. The specific expression of SFA is as follows:

$$s_{nk} = f^n(z_k;\beta^n) + v_{nk} + u_{nk}, \quad n = 1,2,\cdots,N; k = 1,2,\cdots,K \tag{1}$$

In which， s_{nk} is input slack， $f^n(z_k;\beta^n)$ is a random frontier function， z_k is an environment variable， β^n is coefficient， $v_{nk}+u_{nk}$ is mixed error， $v_{nk} \sim N(0,\sigma_v^2)$ is a random disturbance， $u_{nk} \sim N^+(u,\sigma_u^2)$is management inefficiency.

Stage III: Eliminate the influence of external environmental factors. In this stage, based on the input-oriented BCC model, the efficiency is measured again by using the new input variables adjusted in the previous stage and the original output variables.

ISSN: 2688-8645

4.2. Stage I DEA Results

In the first stage, the investment oriented BCC model is used to calculate the scientific and technological financial efficiency of provinces and cities in the Yangtze River economic belt, in which the value of technical efficiency(TE) is equal to the product of pure technical efficiency(PTE) and scale efficiency(SE). The evaluation results by provinces and cities in the first stage are shown in Table 4.

Table 4. Evaluation Results of the first stage

Region		2015			2016			2017		
		TE	PTE	SE	TE	PTE	SE	TE	PTE	SE
Upstream Area	Chongqing	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Sichuan	0.80	0.91	0.88	0.75	0.75	1.00	1.00	1.00	1.00
	Guizhou	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Yunnan	1.00	1.00	1.00	0.69	1.00	0.69	1.00	1.00	1.00
Midstream Area	Jiangxi	0.87	1.00	0.87	1.00	1.00	1.00	1.00	1.00	1.00
	Hubei	0.84	1.00	0.84	0.93	1.00	0.93	1.00	1.00	1.00
	Hunan	0.61	0.69	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Downstream Area	Shanghai	0.50	0.68	0.74	0.42	0.45	0.93	0.63	0.77	0.81
	Jiangsu	0.85	1.00	0.85	1.00	1.00	1.00	0.89	1.00	0.89
	Zhejiang	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Anhui	0.64	0.64	1.00	0.73	0.76	0.97	0.74	0.75	0.99
Mean		0.83	0.90	0.91	0.87	0.91	0.96	0.93	0.96	0.97
Region		2018			2019			Five-year average		
		TE	PTE	SE	TE	PTE	SE	TE	PTE	SE
Upstream Area	Chongqing	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Sichuan	0.85	0.87	0.97	1.00	1.00	1.00	0.88	0.91	0.97
	Guizhou	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Yunnan	0.97	1.00	0.97	0.93	1.00	0.93	0.92	1.00	0.92
Midstream Area	Jiangxi	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	0.97
	Hubei	0.84	1.00	0.84	0.83	1.00	0.83	0.89	1.00	0.89
	Hunan	0.62	0.86	0.72	0.62	0.74	0.84	0.77	0.86	0.89
Downstream Area	Shanghai	0.45	0.65	0.69	0.61	0.65	0.93	0.52	0.64	0.82
	Jiangsu	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95
	Zhejiang	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Anhui	0.82	0.82	1.00	0.70	0.84	0.83	0.73	0.76	0.96
Mean		0.87	0.93	0.93	0.88	0.93	0.94	0.87	0.92	0.94

Before the adjustment, the average technical efficiency of the Yangtze River economic belt was 0.87, which shows that the overall technical efficiency of science, technology and finance in the Yangtze River economic belt is invalid; From the perspective of each region, the average technical efficiency of the upstream region before adjustment is 0.95, that of the midstream region is 0.88 and that of the downstream region is 0.8. It can be seen that there are significant differences in the technical efficiency of S&T finance among regions before the adjustment; By region, before the adjustment, the average technical efficiency of Chongqing, Sichuan, Guizhou, Yunnan, Jiangxi, Hubei, Jiangsu and Zhejiang is higher than that of the whole Yangtze River economic belt, and the technical efficiency of Chongqing, Guizhou and Zhejiang has been in an effective state for five years.

ISSN: 2688-8645

From the perspective of pure technical efficiency, the average value of the overall pure technical efficiency of the Yangtze River economic belt before adjustment is 0.92; In terms of subregions, before the adjustment, the average level of pure technical efficiency in the upstream region was 0.98, that in the midstream region was 0.95 and that in the downstream region was 0.85. It can be seen that there are some differences in the pure technical efficiency of each region before the adjustment; In terms of provinces and cities, except Sichuan, Hunan, Shanghai and Anhui, the average pure technical efficiency of other provinces and cities is higher than that of the whole Yangtze River economic belt.

From the perspective of scale efficiency, the average value of the overall scale efficiency of the Yangtze River economic belt before adjustment is 0.94; In terms of subregions, the average level of scale efficiency in the upstream region is 0.97, the middle reaches region is 0.92 and the downstream region is 0.93 before the adjustment. The results show that there is little difference in the level of scale efficiency among the regions of the Yangtze River economic belt before the adjustment; In terms of provinces and cities, the scale efficiency of Chongqing, Sichuan, Guizhou, Jiangxi, Jiangsu, Zhejiang and Anhui is higher than the average of the Yangtze River economic belt.

It can be seen from the decomposition results that the low level of scientific and technological financial efficiency of the Yangtze River economic belt before adjustment is mainly due to the low pure technical efficiency.

4.3. Second Stage SFA Regression Analysis

After the first stage of evaluation, it is found that the efficiency of S&T finance in various regions and individual provinces and cities of the Yangtze River economic belt does not seem to be consistent with the development level of S&T finance. Most of the downstream regions are coastal provinces and cities, with a good scientific and technological innovation environment and sufficient capital investment, but the efficiency level of scientific and technological finance is lower than that of the midstream and upstream regions. Therefore, it is speculated that the reason for the deviation in the measurement of the efficiency level of S&T finance is that the influence of environmental factors in the S&T finance system is not considered. Therefore, in the second stage, it is necessary to adjust the external environment to make all provinces and cities in the same environment. In the following, taking the investment relaxation as the dependent variable and the scientific research atmosphere, government support and openness as the independent variables, the SFA regression model is used for analysis. The results are shown in Table 5.

Table 5. Regression Results of the second stage

Variable	Financial S&T Expenditure Slack Variables	Technology Loan Slack Variables	Internal Expenditure of R&D Funds Slack Variables
Coefficient	-45.61***	-4.88***	-45.62
Scientific Research Atmosphere	-236.80**	-44.31***	-565.14**
Government Support	1339.98**	190.57***	1330.66
The Opening Degree	121.68**	15.80***	407.27***
Sigma-squared	3109.82***	10.44**	16761.10***
Gamma	0.84***	0.38*	0.72***
Log Value	-260.17	-138.19	-321.51
LR One-tailed Test	32.011205***	18.290343***	14.067076***

ISSN: 2688-8645

From the results in Table 5, all variables passed the significance test. At the same time, most of the regression coefficients are also significant, indicating that environmental factors have a significant impact on the evaluation of the efficiency of science, technology and finance in the Yangtze River economic belt. Analyze the environmental factors and input slack variables: the regression coefficients of scientific research atmosphere and the three input relaxation variables are significantly negatively correlated. A good scientific research atmosphere helps to reduce the input redundancy in the field of science, technology and finance and achieve a reasonable allocation of input resources. The coefficient of government support to most input slack variables is significantly positive, indicating that government support has caused input redundancy, and too many policy interventions have an adverse impact on the rational allocation of input resources. Openness has a significant positive impact on all input slack variables, indicating that the improvement of openness has caused a waste of investment in scientific and technological financial resources. The possible reason is that areas with high openness have attracted a large amount of capital investment, which far exceeds the capital demand in the development of scientific and technological finance, resulting in the problem of excessive investment and low efficiency.

4.4. Stage III DEA Analysis

Table 6. Evaluation Results After Adjustment

Region		2015			2016			2017		
		TE	PTE	SE	TE	PTE	SE	TE	PTE	SE
Upstream Area	Chongqing	0.63	1.00	0.63	1.00	1.00	1.00	0.82	1.00	0.82
	Sichuan	0.71	0.96	0.74	0.74	0.91	0.81	1.00	1.00	1.00
	Guizhou	0.71	1.00	0.71	0.45	1.00	0.45	0.65	1.00	0.65
	Yunnan	0.64	1.00	0.64	0.42	1.00	0.42	0.54	1.00	0.54
Midstream Area	Jiangxi	0.39	1.00	0.39	0.55	1.00	0.55	0.66	1.00	0.66
	Hubei	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Hunan	0.50	0.95	0.53	0.57	1.00	0.57	0.55	1.00	0.55
Downstream Area	Shanghai	0.99	1.00	0.99	0.89	1.00	0.89	0.98	1.00	0.98
	Jiangsu	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Zhejiang	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Anhui	0.60	0.94	0.63	0.66	0.96	0.68	0.77	0.93	0.82
Mean		0.74	0.99	0.75	0.75	0.99	0.76	0.81	0.99	0.82
Region		2018			2019			Five-year average		
		TE	PTE	SE	TE	PTE	SE	TE	PTE	SE
Upstream Area	Chongqing	1.00	1.00	1.00	0.56	1.00	0.56	0.80	1.00	0.80
	Sichuan	0.93	0.96	0.97	1.00	1.00	1.00	0.88	0.97	0.90
	Guizhou	1.00	1.00	1.00	1.00	1.00	1.00	0.76	1.00	0.76
	Yunnan	0.70	1.00	0.70	0.52	1.00	0.52	0.56	1.00	0.56
Midstream Area	Jiangxi	0.64	1.00	0.64	0.84	1.00	0.84	0.62	1.00	0.62
	Hubei	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Hunan	0.43	0.95	0.45	0.55	0.92	0.60	0.52	0.96	0.54
Downstream Area	Shanghai	0.94	0.94	1.00	0.91	0.92	0.98	0.94	0.97	0.97
	Jiangsu	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Zhejiang	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Anhui	0.72	0.96	0.75	0.92	0.96	0.95	0.73	0.95	0.77
Mean		0.85	0.98	0.87	0.84	0.98	0.86	0.80	0.99	0.81

ISSN: 2688-8645

Using the model of the first stage to calculate the new input calculated in the previous stage and original output data, a more real result of science, technology and financial efficiency of the Yangtze River economic belt is obtained, as shown in Table 6. In order to more clearly describe the efficiency level of science, technology and finance in various provinces and cities, 11 provinces and cities are divided into the following three categories according to the efficiency value: 0.9-1.00 is high efficiency area, 0.70-0.90 is medium efficiency area, and 0-0.7 is low efficiency area.

From the perspective of technical efficiency, the average technical efficiency level of science, technology and finance of the Yangtze River economic belt after adjustment is 0.80, and the overall efficiency is at the medium level, which is significantly lower than that of 0.87 before adjustment, indicating that the overall technical efficiency level of the Yangtze River economic belt is overestimated under the influence of environmental variables. In terms of subregions, the average technical efficiency in the five years after adjustment in the upstream region is 0.75, that in the midstream region is 0.71 and that in the downstream region is 0.92. From the perspective of provinces and cities, Shanghai, Jiangsu, Zhejiang and Hubei are high efficiency areas, Chongqing, Sichuan, Guizhou and Anhui are medium efficiency areas, and Yunnan, Jiangxi and Hunan are low efficiency areas.

From the perspective of pure technical efficiency, the average value of the overall pure technical efficiency of the adjusted Yangtze River economic belt is 0.99, indicating that its system and management level are very high. In terms of subregions, the average level of pure technical efficiency in the adjusted upstream and midstream regions is 0.99 and that in the downstream region is 0.98. It can be seen that there is almost no significant difference in the pure technical efficiency of each region after adjustment; In terms of provinces and cities, except Sichuan, Hunan, Shanghai and Anhui, the average pure technical efficiency of other provinces and cities is higher than that of the whole Yangtze River economic belt.

From the perspective of scale efficiency, the average value of the overall scale efficiency of the adjusted Yangtze River economic belt is 0.81, indicating that its scale efficiency level is not high and in an invalid state. In terms of subregions, the average level of scale efficiency of the adjusted upstream region is 0.76, the middle reaches region is 0.72 and the downstream region is 0.94. The measurement results show that there are great differences in the level of scale efficiency of each region after adjustment; In terms of provinces and cities, the scale efficiency of Sichuan, Hubei, Shanghai, Jiangsu and Zhejiang is higher than the average of the Yangtze River economic belt.

From the decomposition results, it can be seen that the low efficiency of S&T finance in the adjusted Yangtze River economic belt is mainly due to the low scale efficiency.

5. Analysis of Influencing Factors

This paper selects Tobit model to study the factors affecting the efficiency of science and technology finance in the Yangtze River economic belt. The reason is that the efficiency value of science and technology finance calculated by DEA method in the first stage is within the range of 0 and 1. If simple linear regression is used to analyze the efficiency value and influencing factors, the results may be biased.

The efficiency value of the first stage is regressed with the selected explanatory variables, and the results are shown in Table 7:

The relationship between S&T human resources (z1) and the technical efficiency of S&T finance is not significant. The possible reason is that the personnel system of S&T finance in the Yangtze River economic belt is backward and solidified, the scientific research workflow is cumbersome, and the reward and punishment mechanism is not perfect, which can not arouse the work

ISSN: 2688-8645

enthusiasm of scientific researchers, so that S&T human resources can not play their due role in the development of S&T finance.

Table 7. Regression Results of Tobit Model of S&T Financial Efficiency

variable		coefficient	Std. Deviation	z-Value	P-Value
S&T Human Resources	Z1	-1.82853	53.69156	-0.03	0.973
R&D Expenditure Intensity	Z2	-31.4482	12.37708	-2.54	0.011
Market Environment	Z3	23.01493	6.117884	3.76	0.000
S&T Innovation Ability	Z4	5.400962	1.623816	3.33	0.001

R&D investment intensity (z2) has a significant negative correlation with the technical efficiency of S&T finance. At present, the S&T strength of China's provinces and cities continues to increase, and the frontier of S&T continues to expand. However, over reliance on capital investment can no longer meet the needs of regional S&T finance entering the stage of in-depth development. Therefore, enterprises should make efforts to reasonably allocate financial resources and maximize S&T output.

There is a significant positive correlation between market environment (Z3) and technical efficiency. A good market environment is conducive to information communication among enterprises, research institutions and financial institutions. The openness, transparency and high-speed transmission of information are conducive to attracting all kinds of financial capital to S&T innovation activities.

There is a significant positive correlation between S&T innovation ability (Z4) and technological efficiency. The foundation of S&T development comes from the improvement of S&T innovation ability, which injects new vitality into scientific research activities. On the one hand, the ability of S&T innovation can improve the transformation efficiency of S&T achievements and promote the efficiency of S&T finance. On the other hand, it is conducive to optimize the products and services of S&T finance and realize the optimal allocation of input-output factors of S&T finance.

6. Conclusions and Countermeasures

From the regression results of the second stage in the Three-stage DEA model, it can be seen that the three variables have passed the significance test at the 1% level, indicating that environmental factors do have an impact on the efficiency of S&T finance. Through SFA regression adjustment, the calculation results after excluding the interference of external factors show that the low scale efficiency of S&T finance in the Yangtze River economic belt is the main reason for the low technical efficiency of S&T finance in the Yangtze River economic belt. The efficiency of S&T finance in the Yangtze River economic belt is affected by many factors. The regression results of Tobit model show that R&D investment intensity has a negative effect on the efficiency of S&T finance, and there is a significant positive correlation between market environment and S&T innovation ability and the efficiency of S&T finance.

In this regard, the following countermeasures and suggestions are put forward:

First, the government should, on the one hand, adjust the proportion of Fiscal Science and technology expenditure in scientific research funds, and guide the accumulation of financial funds to science and technology parties. On the other hand, it should strengthen the management and supervision of science and technology R & D funds. Second, pay attention to the development of small and medium-sized science and technology enterprises and promote the improvement of scale efficiency. Third, create a good market environment and improve the ability of scientific and technological innovation.

ISSN: 2688-8645

Acknowledgments

The authors are very grateful for the support by the Key Projects of Natural Science Research in Anhui Universities (KJ2019A0660), Key University Level Scientific Research Projects of Anhui University of Finance and Economics(ACKYB20011), Anhui Philosophy and Social Science Planning Project (AHSKY2020D41).

References

[1] Zhong Teng, Wang Changyun.Financial Development and Enterprise Innovation Output--Based on the Comparative Perspective of Different Financing Modes[J].Journal of Financial Research, 2017 (12): 127-142.

[2] Sun Zeyu, QiBaolei. Capital Market Liberalization and Corporate Innovation--a Quasi-Natural Experiment from “Shang Hai-Hong Kong”and “Shen Zhen-Hong Kong”Stock Connect[J]. Science and Technology Progress and Policy, 2021(4):109-117.

[3] Li Mengya, Yan Taihua. Research on the Impact of Venture Capital and Innovation Investment on Financial Performance under the Effect of Corporate Social Capital Threshold[J].Chinese Journal of Management, 2019(10):1498-1506.

[4] Sun Defeng, fan conglai, Hu Hengqiang. The Influence of Venture Capital Stage Choice on the Improvement of Enterprise Innovation Ability[J]. Commercial Research,2020(8):71-81.

[5] Li Junxia, Wen Xiaoni. Research on the Relationship Between the Allocation Efficiency and Influencing Factors of China’s Science and Technology Finance[J]. China Soft Science,2019(1):164-174.

[6] Liu Taiping, Zhang Aishu. Research on the Efficiency Evaluation of Science and Technology Finance in Jiangsu Province [J]. West China Finance,2020(03):68-73.