



Research on the Influence of Financial Asset Allocation Ratio on Performance of High-tech Listed Companies

Zhuang Yujin^{1,a}, Li Yuju^{1,b*}, Zhao Hengfang^{1,c}, Chen Jingbo^{1,d}

¹ School of Economics and Management, Beijing Jiaotong University, Beijing, China

^a YJzhuang2021@163.com

^{b*} yjli@bjtu.edu.cn

^c zhfbjtueducn@163.com

^d 19241132@bjtu.edu.cn

ABSTRACT

Taking A-share high-tech listed companies in Shanghai and Shenzhen stock markets from 2011 to 2020 as samples, this paper uses factor analysis method to build a comprehensive evaluation model of high-tech enterprise performance from three dimensions: innovation performance, financial performance and market performance, and uses fixed effect panel data regression to empirically analyze the impact of financial asset allocation ratio of high-tech listed companies in China on enterprise performance. It is found that the allocation ratio of financial assets of high-tech listed companies has a significant negative impact on corporate performance. Therefore, high-tech enterprises should rationally allocate the proportion of financial assets, attach importance to R&D investment, and focus more on entity management and R&D innovation, so as to enhance the long-term value of enterprises.

Keywords: High-tech enterprises, Financial assets allocation, Financial performance, Market performance, Innovation performance.

1. INTRODUCTION

With the smooth landing of China's establishment of Science and Technology Innovation Board and pilot registration system, which has become a brand new platform to lead economic development to innovation-driven transformation, high-tech enterprises in China have continued to increase. As of April 2021, nearly half of the more than 3,700 listed companies in Shanghai and Shenzhen cities in China belong to high-tech enterprises, and the proportion of high-tech enterprises in GEM is as much as 90%, which has become an important support for China's real economy. However, with the financialization process of Chinese enterprises deepening gradually, driven by the profit motive of capital, more and more high-tech enterprises are increasing the proportion of financial assets allocation. Guotaian database (CSMAR) shows that the average value of financial assets to total assets ratio of high-tech listed companies in China from 2011 to 2020 increases from 18.96% in 2011 to 25.29% in 2020, while the types of financial assets also tend to be complicated, financial assets have become an important part of the assets of high-tech enterprises, and have an important impact on Financial assets have become an

important part of the assets of high-tech enterprises and have an important impact on the performance of enterprises in all aspects. The performance indicators of enterprises in various aspects are numerous, and the focus is different for different kinds of enterprises, which leads to two questions: First, how to measure the corporate performance of high-tech listed companies? Second, how does the proportion of financial assets allocation of high-tech listed companies affect their corporate performance?

Based on the above questions, this paper takes 2011-2020 A-share high-tech listed companies in China as the research sample, constructs an econometric model by building a high-tech enterprise value index system based on financial performance, market performance and innovation performance, and empirically tests the relationship between the financial asset allocation ratio and the corporate performance of high-tech listed companies. It is found that there is a significant negative relationship between the proportion of financial assets and corporate performance of high-tech listed companies, and excessive allocation of financial assets will inhibit the growth of corporate performance of high-tech listed companies and affect their development in the long run.

Compared with previous literature, the innovation of this paper is to evaluate the comprehensive performance of high-tech listed companies rather than one aspect alone. The contribution of this paper is mainly in the following two aspects: (1) Through empirical analysis of the impact of financial asset allocation ratio on high-tech listed companies, it helps to guide the management of high-tech enterprises to weigh the proportion of financial asset investment with operating assets and R&D and innovation investment in the decision-making process, better guide high-tech enterprises to focus on innovation and R&D, and enhance the social value of high-tech enterprises. (2) The existing literature has more often studied the impact of financial asset allocation ratio on a certain aspect of high-tech listed companies. Synthesizing the existing literature, this paper summarizes various aspects of measuring the corporate performance of high-tech listed companies, extracts index weights through principal component analysis, and establishes a corporate performance index system for high-tech listed companies, which provides a reference for measuring their corporate performance.

2. LITERATURE REVIEW AND RESEARCH HYPOTHESIS

2.1. Literature Review

In previous studies by scholars on the impact of financial assets on firms, most scholars believe that over-allocation will hinder firms from improving their business performance and is detrimental to long-term development. Wang Hongjian et al [1] argued that the financialization of real firms helps to enhance business performance in the short term, but significantly inhibits firms' technological innovation. Huang Xianhuan et al [2] argue that total financial asset allocation is positively related to corporate financial risk, but allocation of short-term financial assets helps to reduce risk. Liu Guanchun et al [3] argue that an increase in the proportion of investment in financial assets can effectively reduce corporate leverage, based on the substitution relationship between financial asset allocation and debt financing. Sheng Mingquan et al [4] argue that financial asset allocation has a negative effect on total factor productivity. Lai Wenjing et al [5] argue that the participation of real enterprises in non-listed financial institutions significantly improves the business performance and reduces the financing constraints of non-state enterprises, but significantly reduces the market performance and total factor productivity of state-owned enterprises, while making state-owned enterprises receive more government subsidies and non-state enterprises receive more bank loans. Peng Yu-Chao et al [6] argue that the excessive "de-realization" of monetary funds has caused the risk of stock price collapse and reduced the stability of financial markets. Some other scholars, such as Qi Yudong et al [7], have studied the financing

constraint and market arbitrage motive, and pointed out that the positive relationship between financial asset allocation ratio and firm value is significant under the financing constraint scenario, and the opposite under the market arbitrage motive. However, the study by Liang Xiaolin et al [8] states that financing constraints are negatively related to firm performance and that financing constraints have a depressing effect on the performance of high-tech firms.

Among the many effects caused by the financialization of firms, its impact on innovation capability has attracted the attention of some scholars. First, some scholars have explored the measurement of high-tech enterprise performance: Chen Ying [9] argued that high-tech enterprise performance should cover three dimensions: financial performance, technological performance and social performance, and the comprehensive score of enterprise performance was obtained by factor analysis. Based on the study of financial performance of high-tech enterprises, Sijia Sun and Meng Qingjun [10] used factor analysis to screen out the financial indicators with greater correlation and categorized them into five public factors, such as solvency, cash capacity and equity flexibility, and proposed that enterprises should enhance their core competitiveness and improve their performance by enhancing solvency and cash capacity. Some scholars [11,12,13] tested the effect of R&D investment on the performance of high-tech enterprises and showed that R&D investment is positively related to enterprise performance; Kuang Yuning and Wang Xinli [14] and Sun Yanbing [15] applied the balanced scorecard to the study of high-tech enterprise performance. Secondly, some scholars have elaborated on the impact of financial asset allocation on high-tech enterprises from various aspects: Zhao Liwei et al [16] found that financialization has a significant inhibitory effect on high-tech enterprises' technological innovation, and this effect is concentrated in transactional financial assets and investment real estate, which is especially obvious in non-state owned enterprises, highly profitable enterprises, and high-growth enterprises. Liang Lu et al [17], on the other hand, conducted a study on the correlation between financial asset allocation and financial performance of high-tech enterprises, and proved that the financial asset allocation of high-tech enterprises showed a negative correlation with financial performance. The comprehensive research of previous scholars found that the research for the influence of financial assets on high-tech enterprises mainly focuses on the influence of financial asset allocation ratio on their financial performance, market value, and innovation ability, and this paper will also establish the evaluation model of enterprise performance of high-tech listed companies based on factor analysis method, considering these three aspects.

2.2. Theoretical Analysis And Research Hypothesis

There is a consensus in the literature that excessive allocation of financial assets in high-tech listed companies will lack sufficient funds for R&D of core technologies and equipment renewal, which will affect the innovation performance of enterprises, and then inhibit the development of their main business, thus further affecting their financial performance. For market performance, due to the special characteristics of high-tech enterprises with high requirements for innovation capability, investors in the capital market pay more attention to their innovation capability. In the long run, the growth of enterprise value should not depend on the financing constraint motive, and the reduction of innovation capability will eventually have a negative impact on the market performance of high-tech enterprises. Therefore, integrating the three aspects of financial performance, market performance and innovation performance, the research hypothesis is proposed:

The allocation ratio of financial assets of high-tech listed companies is negatively related to their corporate performance.

3. EMPIRICAL RESEARCH DESIGN

3.1. Source of Sample Data

In this paper, according to the list of high-tech enterprises recognized between 2011 and 2020 given by the enterprise qualification database of CSMAR, the listed A-share high-tech companies in China were selected as the research objects, and their annual report data from 2011 to 2020 were selected to exclude companies with incomplete data or abnormal data, while in order to control the possible influence of extreme values on the reliability of the regression results, this paper Winsorize the tailing process for all continuous variables at the 1% and 99% levels. The final sample of 2,255 companies with 11,892 observations was obtained. All data in this paper were obtained from the CSMAR, and data processing was performed using SPSS26 and StataSE15.

3.2. Research Design and Definition of Variables

3.2.1. Dependent Variable

Through literature review, it is found that the performance of high-tech listed companies can be measured broadly from three aspects: product market, capital market and development potential. The performance of the product market can be measured based on financial performance, and this paper draws on Liang Lu et al [17] to establish an index system from four aspects: profitability, solvency, growth and operational capacity, and use principal component analysis to extract principal components as proxy variables for financial performance; the performance of the capital market can be measured based on market performance, i.e. enterprise value, and draws on Qi Yudong et al [7] to select TobinQ This paper draws on Hu Haiqing et al [18] to choose the ratio of R&D expenditure to total assets as a proxy variable for innovation performance, because the impact of the financial asset allocation ratio on the innovation performance of enterprises is essentially an impact on R&D investment, rather than on the direct economic benefits generated by R&D and innovation activities . A principal component analysis was again conducted from the three aspects of financial performance, market performance and innovation performance to extract the corporate performance proxy variable PE and establish a corporate performance measurement model.

3.2.2. Independent Variable

Financial assets include financial assets held for trading, long-term equity investments, investment properties, investments in other equity instruments, available-for-sale financial assets, derivative financial assets and held-to-maturity investments. Total financial assets are calculated by summing up the financial asset items based on the difference between the old and new standard divisions. Financial asset allocation ratio (Fin) = total financial assets/total assets.

3.2.3. Control variables

Referring to the literature such as Qi et al [7], this paper selects firm size (Size), gearing (Lev), corporate cash flow (Cfo), business size (Sale), firm age (Age), capital intensity (Fixed), industry (Indus) and year (Year) as control variables.

Table 1. Main variables and their definitions

	Variable name	Code	Description
Independent variable	Financial asset allocation ratio	Fin	Total financial assets/total assets
Dependent variable	Corporate Performance	PE	Composite score of business performance obtained by factor analysis

	Financial Performance	F	Combined financial performance score obtained by factor analysis
	Rate of return on assets	ROA	(Net profit + income tax + interest expense) / Average total assets
	Return on net assets	ROE	Net profit/average balance of shareholders' equity
	Cost Margin	CPR	Total profit / (operating costs + administrative expenses + selling expenses + finance costs + business taxes and surcharges)
	Current ratio	CR	Current assets/current liabilities
	Quick ratio	QR	Quick assets/current liabilities
	Operating income growth rate	OIGR	Operating income growth / prior year operating income
	Owner's equity growth rate	OGR	Change in owner's equity / Prior period owner's equity
	Non-current asset turnover ratio	TNA	Operating income/average non-current assets
	Shareholder equity utilization	VET	Operating income/average shareholders' equity
	Total asset turnover ratio	TAT	Operating income/average total assets
	Market Performance	M	TobinQ
	Innovative performance	I	R&D investment / total assets
Control variables	Company size	Size	Natural logarithm of total assets
	Gearing ratio	Lev	Total liabilities/total assets
	Corporate cash flow	Cfo	Net operating cash flow/total assets
	Scale of business	Sale	Natural logarithm of operating income
	Company age	Age	Current year - year of listing + 1
	Capital Intensity	Fixed	Fixed assets/total assets at end of period
	Industries	Indus	Industry dummy variables
	Annual	Year	Annual dummy variables

4. BUSINESS PERFORMANCE FACTOR ANALYSIS

In this paper, factor analysis was conducted using SPSS26. Firstly, the main factors were extracted from the indicators selected to measure financial performance according to Liang Lu et al [17] to construct a comprehensive evaluation model of financial performance, and then factor analysis was conducted on

financial performance, market performance and innovation performance to construct a comprehensive evaluation model of corporate performance of high-tech listed companies and calculate a comprehensive score of corporate performance.

4.1. Financial Performance Modelling

In the process of constructing the financial performance model, KMO and Barlett's test were first

used to analyse the strength of correlation between the selected financial indicators and to test whether the selected indicators were suitable for factor analysis among themselves. Then principal component analysis was used to extract the principal factors, and the factor loading matrix was rotated using the orthogonal rotation method to determine the extracted principal factors, obtain the score coefficients of each indicator in each factor, calculate the score of each principal factor of the sample companies, and finally construct the financial performance evaluation model of high-tech listed companies according to the variance contribution of each factor. Among them, the evaluation model of each principal factor was constructed as follows.

$$F1 = 0.417 * ROA + 0.365 * ROE + 0.376 * CPR - 0.03 * CR - 0.031 * QR - 0.065 * OIGR + 0.002 * OGR - 0.003 * TNA + 0.037 * TAT - 0.053 * VET(1)$$

$$F2 = 0.013 * ROA - 0.009 * ROE - 0.022 * CPR + 0.025 * CR + 0.026 * QR + 0.001 * OIGR - 0.027 * OGR + 0.393 * TNA + 0.393 * TAT + 0.393 * VET(2)$$

$$F3 = -0.024 * ROA - 0.064 * ROE + 0.008 * CPR + 0.5 * CR + 0.5 * QR + 0.009 * OIGR + 0.001 * OGR + 0.077 * TNA - 0.016 * TAT + 0.006 * VET (3)$$

$$F4 = -0.021 * ROA - 0.031 * ROE - 0.021 * CPR + 0.004 * CR + 0.005 * QR + 0.63 * OIGR + 0.604 * OGR - 0.024 * TNA - 0.012 * TAT + 0.007 * VET (4)$$

Based on the variance contribution of each factor, a comprehensive evaluation model of the financial performance of high-tech listed companies was constructed as follows.

$$F = (22.474 * F1 + 21.767 * F2 + 20.096 * F3 + 13.3 * F4)/77.637 (5)$$

4.2. Modeling Corporate Performance of High-tech Listed Companies

In the process of constructing a model of corporate performance of high-tech listed companies, including financial performance (F), market performance (M) and innovation performance (I), the principal factors are still extracted using principal component analysis, and the score coefficients of each index in the factors are obtained to construct an evaluation model of the financial performance of high-tech listed companies.

Table 2 .KMO and Barlett tests for corporate performance models

KMO		0.530
Barlett tests	χ^2	888.833
	Df	3
	Sig.	0.000

The results showed that the KMO test value was greater than 0.5, the Barlett's sphericity test passed, and the correlation between the selected indicators was strong and suitable for factor analysis. Finally, a master factor was extracted, and its cumulative variance contribution rate reached 43.22%, indicating that the master factor can reflect 43.22% of the information of the company's performance indicators, naming the master factor as corporate performance (PE). Innovation performance (I) scored 0.737, financial performance (F) scored 0.435 and market performance (M) scored 0.751. Therefore, the comprehensive evaluation model of corporate performance of high-tech listed companies was constructed as follows.

$$PE = 0.737 * I + 0.435 * M + 0.751 * F (6)$$

The relevant data indicators of the sample companies were substituted into each model to calculate their final corporate performance scores.

5. AN EMPIRICAL PROCESS OF THE RELATIONSHIP BETWEEN THE PROPORTION OF FINANCIAL ASSETS AND PERFORMANCE OF HIGH-TECH LISTED COMPANIES

5.1. Model Building

In order to verify the impact of the proportion of financial assets allocated to high-tech listed companies on their corporate performance scores, the following model is constructed by selecting the size of the company and the age of the company as control variables.

$$PE = \alpha_0 + \alpha_1 Fin + \alpha_2 Size + \alpha_3 Lev + \alpha_4 Cfo + \alpha_5 Sale + \alpha_6 Age + \alpha_7 Fixed + \varepsilon (7)$$

Where PE stands for corporate performance, Fin stands for the proportion of financial assets allocated to high-tech listed companies, Size stands for firm size, Lev stands for gearing, Cfo stands for firm cash flow position, Sale stands for business size, Age stands for firm age, and Fixed stands for capital intensity. α_0 stands for the constant term, $\alpha_1-\alpha_6$ are the coefficients of the respective variables and control variables, and ε represents random error.

5.2. Descriptive Statistical Analysis

The descriptive statistics for each variable in the model were analysed as follows.

Table 3. Descriptive statistical analysis

Variable	Mean	Std. Dev.	Min	Max
Lev	0.394	0.194	0.008	1.687
Fin	0.069	0.091	-0.365	0.775
Sale	21.269	1.2394	14.1166	27.602

Fixed	0.199	0.132	0.000	0.872
Cfo	0.046	0.068	-0.650	0.874
Age	8.983	5.930	1	29
Size	21.958	1.060	19.007	27.813
PE	1.832	1.236	0.061	37.579

The results show that: corporate performance (PE) has a great value of 37.57948, a very small value of 0.0613, a mean of 1.8323 and a standard deviation of 1.23. It is clear that corporate performance is uneven and varies widely across the sample companies; the percentage of financial assets held (Fin) has a great value of 0.7755, a very small value of -0.3658, a mean of 0.0686 and a standard deviation of 9.1421%. The standard deviation is 9.1421%. This reflects the uneven allocation of financial assets across the sample companies, with large

Table 4. Correlation analysis

	PE	Fin	LEV	Size	Cfo	Sale	Age	Fixed
PE	1	-0.011	-0.531***	-0.426***	0.158***	-0.284***	-0.242***	-0.272***
Fin	0.043***	1	-0.074***	0.033***	0.058***	-0.018*	0.164***	-0.171***
Lev	-0.453***	-0.125***	1	0.492***	-0.170***	0.498***	0.319***	0.088***
Size	-0.336***	-0.014	0.496***	1	0.030***	0.872***	0.460***	0.017*
Cfo	0.142***	0.057***	-0.184***	0.036***	1	0.137***	-0.006	0.196***
Sale	-0.243***	-0.081***	0.493***	0.884***	0.133***	1	0.432***	0.096***
Age	-0.171***	0.124***	0.316***	0.438***	-0.009	0.423***	1	0.129***
Fixed	-0.252***	-0.195***	0.097***	0.059***	0.184***	0.120***	0.140***	1

The results show that the Spearman correlation coefficient between the performance of high-tech enterprises (PE) and the percentage of financial assets held (Fin) is -0.011, which is the same as the hypothesis but not significant, while the Pearson correlation coefficient is 0.043, which is positively correlated, and there is a difference between the two, which needs to be further tested to reach a result.

5.4. Regression Analysis

To further investigate the impact of financial asset allocation ratios on the performance of high-tech listed companies, regression analysis was conducted using Stata15. The panel data was first processed by stating the panel data cross-section and time series, and the results showed that the panel was balanced. The Hausman test was conducted on the panel data, and the test rejected the original hypothesis (Prob>chi2=0.0000), indicating that the requirement that individual effects are not correlated with the explanatory variables was not satisfied and the model was a fixed effects model. The regression results are shown in Table 6 (t-values in parentheses, "***" represents a significance level of 1%, below).

differences. In addition, there is some variation in the remaining control variables.

5.3. Relevance Analysis

After Winsorize shrinkage of all continuous variables at the 1% and 99% levels, in order to gain a preliminary understanding of the impact of each factor on business performance, correlation analysis was conducted between the variables, and this paper was conducted with Pearson and Spearman correlation coefficients and a two-tailed test, as shown in the table below, with the lower left corner representing Pearson correlation coefficients and the upper right corner representing Spearman correlation coefficients, and "***" representing a significance level of 1%.

Table 5. Regression results

	PE	t statistics
Fin	-0.7295***	-7.45
Lev	-1.4002***	-23.48
Size	-0.4141***	-18.11
Cfo	0.8584***	7.99
Sale	0.3054***	15.18
Age	-0.0208***	-6.91
Fixed	-1.0618***	-11.68
_cons	5.3508***	16.39
N	11892	
adj. R ²	-0.0072	
F	280.4047	

The regression results show that the financial asset allocation ratio (Fin) is significantly negatively related to firm performance with a regression coefficient of -0.7295. The control variables of the regression equation are also significantly related to firm performance, but the model R² is only -0.0072, indicating that the independent variables have a weak degree of explanation for firm performance.

5.5. Robustness Tests

This paper uses a composite score of financial performance (F) as a proxy for firm performance (PE) and performs a robustness test. The results show that financial asset allocation (Fin) is significantly negatively related to firm financial performance with a correlation coefficient of -0.9645, which indicates that the results do not change significantly after changing the dependent variable and the model in this paper is robust.

Table 6. Robustness test results

	F	t statistics
Fin	-0.9645***	-12.34
Lev	-1.7611***	-36.99
Size	-0.2224***	-12.18
Cfo	0.2859***	3.33
Sale	0.2920***	18.18
Age	-0.0376***	-15.62
Fixed	-1.6142***	-22.25
_cons	1.1938***	4.58
N	11892	
adj. R^2	0.1122	
F	507.3180	

6. RESEARCH CONCLUSIONS AND SUMMARY

This paper takes the high-tech listed companies listed on A-shares in China from 2011 to 2020 as the research sample, integrates financial performance, market performance and innovation performance, and establishes the performance evaluation model of high-tech listed companies through factor analysis. Through correlation analysis, regression analysis and robustness test, we conclude that the proportion of financial assets allocated to high-tech listed companies in China is significantly negatively related to their performance. The main reason for this is the "crowding out" effect of financial assets on R&D investment: in general, when high-tech enterprises in China are not well-funded, the increase in financial assets crowds out R&D investment, reduces the innovation ability of enterprises, shakes the foundation of high-tech enterprises' development, and thus affects their financial performance and market performance.

In summary, the proportion of financial assets allocated to high-tech listed companies is negatively correlated with corporate performance. High-tech enterprises should allocate a reasonable proportion of financial assets, attach importance to R&D investment, and should not abandon the fundamental competitiveness of R&D and innovation in favour of unilateral pursuit of high returns; at the same time, the allocation of financial

assets should also beware of risks and establish relevant prevention and control mechanisms; relevant departments should also introduce relevant policies and strengthen supervision to help high-tech enterprises focus more on real business and R&D innovation, enhance the long-term value of enterprises and create greater The relevant departments should also introduce relevant policies and strengthen regulation to help high-tech enterprises focus more on real business and R&D innovation, enhance their long-term value and create greater social benefits.

PROJECT FUNDS

This paper is the result of a research project (202210004135) of the Student Innovation and Entrepreneurship Programme of Beijing Jiaotong University.

REFERENCES

- [1] Wang Hongjian, Cao Yuqiang, Yang Qing, and Yang Zheng. Does the Financialization of Non-financial Enterprises Promote or Inhibit Corporate Innovation. *Nankai Business Review*, 2017, 20 (01):155-166.
- [2] Huang Xianhuan, Wu Qiusheng, and Wang Yao. Financial Asset Allocation and Financial Risks of Enterprises: "Precautions" or "Bartering" [J]. *Journal of Finance and Economics*, 2018, 44 (12):100-112+125.
- [3] Liu Guanchun. Financial Asset Allocations and Firms' R & D Activity in China: Crowding-out or Crowding-in? [J]. *Statistical Research*, 2017, 34 (07): 49-61.
- [4] Sheng Mingquan, Wang Shun, and Shang Yuping. Financial Assets Allocation and Entity Enterprises' Total Factor Productivity: "Integration of Industrial-finance Capital" or "Removing Reality to Virtual" [J]. *Finance and Trade Research*, 2018,29 (10):87-97+110.
- [5] Li Wenjing, and Li Mangmang. Combination of Entity Enterprise and Financial Institution: FinancialConstraints, Policies to Cater or Marker Competition? Based on the Empirical Research of Different Property Rights Perspective [J]. *Financial Research*, 2017 (08):100-116.
- [6] Peng Yuchao, Ni Xiaoran, and Shen Ji. The Effect of Transforming the Economy from Substantial to Fictitious on Financial Market Stability: An Analysis on Stock Price Crash Risk. *Economic Research Journal*, 2018,53(10):50-66.
- [7] Qi Yudong, and Zhang Renzhi. The Empirical Research on the Impact of the Financial Asset Allocation on Firm value [J]. *Finance & Trade*

- Economics, 2018,39 (05):38-52.
- [8] Liang Xiaolin, Jiang Chunxia, Wang Yuan, Ma Lin. Research on the Relationship between Financing Constraints and Enterprise Performance of High-tech Enterprises– Based on the moderating effect of enterprise growth and the mediating effect of technological innovation [J]. Friends of Accounting, 2019(18):79-85.
- [9] Chen Ying. Government Support, High-tech and Enterprise Performance - Evidence of High-tech Listed Companies [J]. FINANCE AND ACCOUNTING MONTHLY, 2016 (15): 57-62.
- [10] Sun Sijia, and Men Qingjun. Research on Performance Evaluation of High-tech Enterprises based on Financial Index [J]. Economic Research Guide, 2017(14):112-116.
- [11]Ye Hongyu, Wang Xun. An empirical study on the influence of high-tech listed companies' executive incentives on corporate performance – – Based on the intermediary role of R&D investment [J]. Technology and Innovation Management, 2017,38(05):520-525.
- [12] Liu Yun, Ma Zhiyun, Zhang Mengya, and Bai Xu. Research on the Impact of R&D Investment on Enterprise Performance-Based on the Empirical Analysis of Zhongguancun High-tech Enterprises [J]. China Science and Technology Forum, 2020(12):67-75+85.
- [13] Wu Zhiyong, and Li Fengkun. International Business, R&D Investment and Enterprise Performance: An Empirical Study based on High-tech Listed Companies [J]. Communication of Finance and Accounting, 2017 (21):32-36.
- [14] Kuang Yuning, Wang Xinli. Application of Balanced Scorecard in Performance Management of High-tech Enterprises [J]. Modern Marketing, 2018(05):167.
- [15] Sun Yanbing. Application of BSC in Performance Management of High-tech Enterprises [J]. FINANCE AND ACCOUNTING MONTHLY, 2019(01):33-39.
- [16] Zhao Liwei, and Gan Shengdao. Effect of Financialization on Technology Innovation of High-tech Enterprises. FINANCE AND ACCOUNTING MONTHLY, 2018(10):37-41.
- [17] Liang Lu, and Liu Xihao. Research on the Correlation between Financial Asset Allocation and Financial Performance of High-tech Enterprises [J]. Accounting and Finance, 2019 (05):1-7+12.
- [18] Hu Haiqing, Wang Yu., Wei Wei. Network Connection, Intellectual Property Protection and Innovation Performance [J]. Science & Technology Progress and Policy, 2018,35(23):1-8.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

