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Original Paper

Research on the Impact of Tax Incentives on Financial Performance of High-tech Enterprises under the Background of Digital Transformation

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Abstract

This paper selects my country's Shanghai and Shenzhen A-share high-tech listed companies from 2013 to 2024 as research samples, and empirically analyzes the impact of income tax incentives on corporate financial performance under the background of digital transformation. The results show that: There is a significant positive correlation between income tax incentives and corporate financial performance; R&D investment plays a partial intermediary effect between the two; As a moderating variable, digital transformation positively strengthens the direct impact of income tax incentives on financial performance and the incentive effect of income tax incentives on R&D investment.

Key words

digital transformation, tax incentives, R&D investment,financial performance

1. Introduction

With the deepening of a new round of global scientific and technological revolution and industrial transformation, high-tech enterprises, as the core carrier of technological innovation and an important engine of economic growth, have attracted much attention. High-tech enterprises have the characteristics of high investment, high risk and high return, and their innovation activities are highly dependent on financial support and policies. As an important tool of macro-control, preferential tax policies aim to promote the health of high-tech enterprises by reducing corporate tax burdens, guiding resource allocation, and stimulating R&D and innovation. As one of the key policy means, income tax incentives provide support for technological innovation and performance improvement of enterprises through the actual tax burden and internal capital accumulation of enterprises. In recent years, China

has improved the preferential income tax policy system for high-tech enterprises and continuously increased policy support. The microeconomic effect of this policy is gradually becoming an important issue of concern to academia and practice.

At the same time, the wave of digital economy is sweeping the world, and digital technologies represented by artificial intelligence, big data, cloud computing, blockchain, etc. are profoundly changing the production, operation and competition pattern of enterprises. Digital transformation has become a strategic choice for high-tech enterprises to seize the opportunities of the times and enhance their core competitiveness. Under the dual effects of policy support and market drive, high-tech enterprises have accelerated the pace of digital transformation. Through the deep integration of digital technology and R&D innovation, they have reshaped business processes, optimized resource allocation, and improved operational efficiency. So, in the context of digital transformation, what impact will preferential income tax policies have on the financial performance of high-tech enterprises? What is its internal mechanism of action? What role does R&D investment play in this process? What kind of moderating role does digital transformation play between tax incentives and corporate financial performance?

Based on this, this paper selects China's Shanghai and Shenzhen A-share high-tech listed companies from 2013 to 2024 as research samples to empirically examine the impact mechanism of income tax incentives on corporate financial performance under the background of digital transformation. This paper takes income tax incentives as the explanatory variable, measures corporate financial performance with return on assets as the explained variable, and introduces R&D investment as an intermediary variable to explore the internal transmission path of tax incentives affecting corporate financial performance. At the same time, digital transformation is used as a moderating variable to analyze its Moderating effect in the relationship between tax incentives and financial performance.

The main research contributions of this paper are as follows: (1) Different from the research perspective of existing literature, this paper examines the impact mechanism of preferential income tax policies on the financial performance of high-tech enterprises based on the regulatory role of digital transformation, and expands the boundaries of research on the effects of preferential tax policies. (2) Taking R & D investment as an intermediary variable, empirically test the intermediary transmission path of tax incentives to improve financial performance by stimulating R & D investment, so as to reveal the internal mechanism of policy effects. (3) Select a long window period from 2013 to 2024 to examine the effectiveness and dynamic changes of preferential income tax policies, and provide evidence and policy enlightenment for optimizing the design of preferential tax policies for high-tech enterprises, promoting the digital transformation of enterprises, and improving financial performance.

2. Theoretical Analysis and Research Hypotheses

2.1 Tax Incentives and Financial Performance of High-tech Enterprises

As an important policy tool of macro-control, tax incentives directly affect the resource allocation and operating results of enterprises through the actual tax burden level of enterprises. Income tax incentives are mainly through tax rate reductions, tax credits, super deductions, etc., the taxable income or tax payable of the enterprise, so that the after-tax profits of the enterprise can improve the cash flow situation. According to the resource-based theory, an enterprise is a body of heterogeneous resources, and unique resources and capabilities are the source of obtaining competitive advantages. The capital savings brought about by tax incentives are equivalent to providing enterprises with additional internal resources, which will help enterprises optimize the factor allocation structure (Hsieh & Peter, 2009), improve the efficiency of asset operations, and thereby increase the return on assets. At the same time, the signal transmission theory believes that enterprises that can enjoy preferential income tax policies often conform to the guidance of national industrial policies and have good potential, which sends a positive signal to the capital market (Luo & Wang, 2025) and helps to enhance investor confidence and the market valuation of enterprises value, indirectly promoting the improvement of financial performance.

From the perspective of the characteristics of high-tech enterprises, such enterprises generally have the characteristics of long R&D cycle, large capital investment, and high operating risks, and face strong financing constraints. Income tax incentives can directly alleviate the financial pressure of enterprises, enhance the ability of enterprises to resist risks, and improve the output efficiency of stock assets (YU, J. Y., & YU, H. F., 2026). In addition, the cost savings brought by tax incentives can be used to improve production processes, introduce advanced equipment, and optimize management, thereby increasing the overall profitability of assets. Based on the above analysis, this paper puts forward the following assumptions:

H1: There is a significant positive correlation between income tax incentives and financial performance of high-tech enterprises.

2.2 The Intermediary Role of R & D Investment

Preferential tax policies not only directly improve the financial performance of enterprises, but also indirectly improve financial performance by encouraging enterprises to invest in research and development. From the perspective of the mechanism of action, income tax incentives mainly affect the R&D investment of enterprises through two paths: one is the income effect, that is, tax incentives reduce the tax burden of enterprises, internal cash flow, alleviate the financing constraints faced by R&D activities, and provide funds for enterprises to expand their R&D scale Guarantee (Tu, Y. M., & Liu, T. B., 2022); The second is the substitution effect, that is, preferential tax policies increase the relative cost and marginal cost of R & D activities, increase the expected income level of R & D, and thus encourage enterprises to allocate more resources to R & D activities. Existing studies have

generally confirmed that tax incentives have a significant positive incentive effect on enterprise R&D investment.

Further, how does R&D investment affect corporate financial performance? According to the theory of technological innovation, R & D activities are the fundamental way for enterprises to obtain technological advantages and form core competitiveness. R & D investment can promote new products, process improvement and production efficiency improvement, thereby enhancing the market competitiveness and profitability of enterprises (Xie, Dai, & Liu, 2013). Although R&D investment may be manifested as expense expenditure in the current period, which will put some pressure on short-term profits, from a dynamic perspective, R&D investment will eventually be transformed into economic benefits of enterprises through the formation of technological accumulation and innovation achievements, which is reflected in the return on assets. Improvement (Liu & Wang, 2023). Therefore, R & D investment may play a transmission role between tax incentives and financial performance. Based on this, this paper puts forward the following assumptions:

H2: Income tax incentives improve the financial performance of high-tech enterprises through R&D investment, that is, R&D investment plays an intermediary effect between tax incentives and financial performance.

2.3 The Moderating Role of Digital Transformation

In the context of the rapid digital economy, digital transformation has become an important strategic choice for high-tech enterprises to transform production and reshape their competitive advantages. Digital transformation refers to the process in which enterprises use digital technologies such as big data, cloud computing, artificial intelligence, and blockchain to systematically reconstruct business processes, management, and value creation. For high-tech enterprises, digital transformation and technological innovation activities penetrate and promote each other, and may play a regulating effect in the mechanism of tax incentives.

On the one hand, digital transformation can enhance the incentive effect of tax incentives on R&D investment. First of all, the application of digital technology has improved the ability of enterprises to obtain, interpret and utilize policy information, enabling enterprises to more fully understand and use preferential tax policies, and improving the conversion efficiency of policy dividends into R&D investment (Martín-Peña, José-María, & Eloísa, 2020). Secondly, the digital platform helps enterprises build a refined R&D management system, realize the whole process tracking and performance evaluation of R&D projects, manage R&D costs, and improve the efficiency of the use of R&D funds, thereby strengthening the role of tax incentives in promoting R&D investment. Thirdly, the data analysis capabilities spawned by digital transformation can help companies identify more potential R&D directions (XIAO & WEI, 2023) optimize the allocation of R&D resources (Pu, 2025), and enable tax incentives of the same scale to leverage more R&D investment. Therefore, digital transformation may positively adjust the relationship between tax incentives and R&D investment.

On the other hand, digital transformation can enhance the direct promotion effect of tax incentives on corporate financial performance, that is, the synergistic effect between the funds released by tax incentives and the efficiency improvement driven by digital technology can significantly amplify the policy effect. Digital transformation can optimize enterprise resource allocation, production and operation costs, improve asset turnover speed and utilization efficiency (Buchi, Monica, & Rebecca, 2018), thereby amplifying the effect of tax incentives on asset return; At the same time, digital technology helps enterprises accurately grasp market demand, optimize product structure, enhance customer value, enhance profitability, enable funds brought by tax incentives to be allocated to more efficient purposes, and strengthen the transformation of policy dividends to financial performance effect. Therefore, digital transformation may also positively regulate the direct relationship between tax incentives and financial performance. Based on this, this paper puts forward the following assumptions:

H3a: Digital transformation is positively adjusting the relationship between tax incentives and R&D investment.

H3b: Digital transformation is positively reconciling the relationship between tax incentives and financial performance.

3. Study Design

3.1 Sample Selection and Data Collection

This paper selects China's Shanghai and Shenzhen A-share high-tech listed companies from 2013 to 2024 as research samples. After screening, 16722 valid samples were obtained. The screening conditions are as follows: exclude the enterprises that are still missing after being * ST, ST and sorting out during the study period; Exclude enterprises with a sample period of less than 5 years; Continuous variables were tailed by up and down 1%. The data in this article are all from the Guotai'an database. Data and empirical analysis were processed using Stata15.0 software.

3.2 Variable Definition

1.Explained variable: financial performance (ROA). The financial performance of an enterprise reflects the operating ability and profit level of the enterprise in a specific operating period. This paper takes the return on total assets as the main measurement index, and uses the return on net assets (ROE) to measure the financial performance of enterprises for robustness test.

2.Explanatory variables: tax incentives. According to the above analysis, this paper uses corporate income TAX incentives (Tax) as an explanatory variable. In terms of measurement, refer to the existing literature to measure the strength of TAX incentives from the perspective of cash flow. The specific formula is: TAX = ln [profit before interest and taxes × (25% − effective income TAX rate)].

3.Mediating variable: R & D investment (RD). This paper uses the ratio of R&D expenditure to total assets at the beginning of the period to measure the intensity of enterprise R&D investment, that is, RD = total annual R&D expenditure of the company/total assets at the beginning of the period.

4.Moderating variable: digital transformation (Dig). Referring to the practice of Zhao Chenyu (2021), 99 digitalization-related word frequencies in four dimensions of digital technology application, Internet business, intelligent manufacturing, and modern information system are counted, and then logarithmic processing is carried out.

5.Control variables: Referring to the existing literature, this paper selects the following control variables: the shareholding ratio of the largest shareholder (Top1), the degree of equity checks and balances (Balance1), the Growth rate of operating income (Growth), the number of people in the company (Employee), Company Age (FirmAge), Property Rights (Soe), Dual, Cash Flow Ratio (Cashflow), Board size (Board). The variables and their definitions are shown in Table 1.

Table 1. Variables and Their Definitions

Variable type	Variable name	Variable symbol	Variable definition
Explained variable	Financial Performance	ROA	Net Profit Margin of Total Assets
Explanatory variable	Tax incentives	Tax	ln(EBIT *(0.25- EITR))
Mediating variable	R&D investment	RD	Total R&D Expenditure/Total Assets
moderating variable	Digital Transformation	Dig	ln(Number of words in digital transformation+1)
control variable	Shareholding percentage of the largest shareholder	Top1	Number of shares held by the largest shareholder/total number of shares
	Equity balance	Balance1	Shareholding ratio of the second largest shareholder/shareholding ratio of the largest shareholder
	Growth rate of operating income	Growth	Operating income for the year/Operating income for the previous year-1
	Number of companies	Employ	Ln (Number of Employees)
	Company age	FirmAge	ln (current year-company establishment year +1)
	Nature of property rights	Soe	the value of state-owned enterprises is 1, otherwise it is 0
	Combination of two positions	Dual	The chairman concurrently serves as the general manager takes 1, otherwise takes 0

Variable type	Variable name	Variable symbol	Variable definition
	Cash flow ratio	Cashflow	Net cash flows from operating activities/total assets Number of board of directors taken natural logarithm
	Size of Directors	Board	Net cash flows from operating activities/total assets Number of board of directors taken natural logarithm

3.3 Model Building

In order to test Hypothesis 1 and verify the relationship between income tax incentives and the financial performance of high-tech enterprises, model (1) is constructed:

$$ROA_{it}=\beta_0+\beta_1 Tax_{it}+\beta_2 Controls_{it}+\sum Year+\sum Ind+\varepsilon_{it} \quad (1)$$

Among them, the explained variable is financial performance (ROA), the explanatory variable is income Tax benefit (Tax), Controls represents the control variable, Year and Ind represent the Year fixed effect and industry fixed effect respectively, and ε is the random error term. If the coefficient β is significantly positive, it indicates that income tax incentives have a significant positive impact on the financial performance of high-tech enterprises, and hypothesis 1 is proved.

In order to test Hypothesis 2 and verify the intermediary effect of R&D investment between income tax incentives and financial performance, model (2) and model (3) are constructed by drawing on the intermediary effect test method of Wen Zhonglin et al.

$$RD_{it}=\gamma_0+\gamma_1 Tax_{it}+\gamma_2 Controls_{it}+\sum Year+\sum Ind+\varepsilon_{it} \quad (2)$$

$$ROA_{it}=\delta_0+\delta_1 Tax_{it}+\delta_2 RD_{it}+\delta_3 Controls_{it}+\sum Year+\sum Ind+\varepsilon_{it} \quad (3)$$

Among them, RD is the intensity of R&D investment and serves as an intermediary variable. Model (2) is used to test the impact of income tax incentives on R&D investment. If the coefficient γ is significantly positive, it indicates that income tax incentives have promoted R&D investment of enterprises. Model (3) adds the R & D investment variable on the basis of model (1). If the coefficient δ_2 is significantly positive, and the coefficient δ_2 has decreased or is no longer significant compared with the β 1 in model (1), it indicates that R & D investment has played a partial or complete intermediary effect between income tax incentives and financial performance, hypothesis 2 is evidenced.

In order to test Hypothesis 3a and Hypothesis 3b and verify the moderating effect of digital transformation, models (4) to models (6) are constructed:

$$RD_{it}=\theta_0+\theta_1 Tax_{it}+\theta_2 Dig_{it}+\theta_3 Controls_{it}+\sum Year+\sum Ind+\varepsilon_{it} \quad (4)$$

$$RD_{it}=\mu_0+\mu_1 Tax_{it}+\mu_2 Dig_{it}+\mu_3 Tax_{it}*Dig_{it}+\mu_4 Controls_{it}+\sum Year+\sum Ind+\varepsilon_{it} \quad (5)$$

$$ROA_{it}=\alpha_0+\alpha_1 Tax_{it}+\alpha_2 Dig_{it}+\alpha_3 Tax_{it}*Dig_{it}+\alpha_4 Controls_{it}+\sum Year+\sum Ind+\varepsilon_{it} \quad (6)$$

Among them, Dig is the degree of digital transformation and serves as a moderating variable. Model (4)

and (5) are used to examine the moderating effect of digital transformation on the first half of the intermediary path. Model (4) adds the digital transformation variable on the basis of model (2), and model (5) further adds the interaction item (Tax × Dig) between income Tax incentives and digital transformation. If the interaction term coefficient μ_3 in model (5) is significantly positive, it indicates that digital transformation positively adjusts the relationship between tax incentives and R&D investment, that is, the higher the degree of digital transformation, the stronger the promotion effect of tax incentives on R&D investment, assuming 3a evidenced.

Model (6) is used to examine the moderating effect of digital transformation on the direct relationship between tax incentives and financial performance. The model adds digital transformation variables and the interaction term (Tax × Dig) between income Tax incentives and digital transformation on the basis of model (1). If the interaction term coefficient α_3 is significantly positive, it indicates that digital transformation positively adjusts the relationship between tax incentives and financial performance, that is, the higher the degree of digital transformation, the stronger the promotion effect of tax incentives on financial performance, hypothesis 3b proves.

4. Empirical Analysis

4.1 Descriptive Statistics

Table 2 shows the results of descriptive statistical analysis of each variable. As can be seen from Table 2, the maximum value of the explained variable financial performance is 1.285, and the minimum value is-0.662. The gap between the two is large, indicating that there are obvious differences in the financial performance levels of different high-tech enterprises. The average ROA is 0.056, and the median is 0.052. The distribution is relatively close, indicating that the overall profitability of the sample companies is at the lower-middle level, which is in line with the industry characteristics of high-tech enterprises with large initial investment and long profit cycle.

The maximum value of the explanatory variable income Tax preference (Tax) is 30.970, the minimum value is 1.676, the average value is 16.930, and the median is 16.910. There are certain differences in the level of Tax preference among sample companies, but the average value is relatively close to the median, indicating that Tax preference The degree of distribution is relatively concentrated in the sample. The standard deviation is 1.487, indicating that although the intensity of preferential income tax policies enjoyed by various enterprises is different, the overall difference is limited.

From the statistical results of control variables, in terms of ownership structure, the average shareholding ratio of the largest shareholder is 0.324, and the average equity balance degree is 0.395, indicating that the equity of sample companies is relatively concentrated; In terms of enterprise characteristics, the average growth rate is 0.151, the average enterprise size is 7.565, the average enterprise age is 2.952, and the average cash flow is 0.057, reflecting that the overall operating conditions of the sample enterprises are good and stable; In terms of governance structure, the

proportion of state-owned enterprises is 0.210, the proportion of two positions in one is 0.363, and the average size of the board of directors is 8.193. The distribution characteristics of the above indicators are basically consistent with the existing literature, indicating that the sample selection is representative.

Table 2. Descriptive Statistics of Relevant Variables

variable	N	mean	sd	min	p50	max
ROA	16722	0.056	0.063	-0.662	0.052	1.285
Tax	16722	16.930	1.487	1.676	16.910	30.970
Top1	16722	0.324	0.140	0.034	0.303	0.885
Balance1	16722	0.395	0.287	0.003	0.317	1.000
Growth	16722	0.151	0.281	-0.421	0.113	1.426
Employ2	16722	7.565	1.068	5.416	7.479	10.510
FirmAge	16722	2.952	0.308	1.609	2.996	4.205
SOE	16722	0.210	0.408	0.000	0.000	1.000
variable	N	mean	sd	min	p50	max
dual	16722	0.363	0.481	0.000	0.000	1.000
Cashflow	16722	0.057	0.060	-0.104	0.054	0.224
Board	16722	8.193	1.514	0.000	9.000	18.000

4.2 Benchmark Regression Analysis

Table 3 reports the baseline regression results of the impact of income tax incentives on the financial performance of high-tech enterprises. When column (1) does not add control variables and does not control year and industry fixed effects, the coefficient of income Tax benefit (Tax) is 0.014, which is significantly positive at the level of 1%; After controlling the fixed effects of year and industry in column (2), the coefficient of Tax rises to 0.015, and the significance remains unchanged; Column (3) adds control variables but does not control year and industry fixed effects, and the coefficient of Tax is 0.015, which is still significant at the level of 1%; Number (4) is listed as a full model that incorporates control variables at the same time and controls for year and industry fixed effects, with a coefficient of 0.016 for Tax, which is significantly positive at the 1% level. The above results show that no matter whether control variables are added, year and industry fixed effects are controlled, there is a significant positive correlation between income tax incentives and financial performance of high-tech enterprises, that is, the greater the intensity of income tax incentives, the higher the return on assets of enterprises. Hypothesis 1 is verified.

Table 3. Benchmark Regression Results

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA
Tax	0.014***	0.015***	0.015***	0.016***
	(45.50)	(48.80)	(44.61)	(47.40)
Controls	No	No	Yes	Yes
Observations	16,722	16,722	16,722	16,722
R-squared	0.110	0.177	0.398	0.422
year FE	No	Yes	No	Yes
industry FE	No	Yes	No	Yes

Note. * * *, * * and * indicate significant at the level of 1%, 5% and 10% respectively, the same below.

4.3 Robustness Test

4.3.1 Replace Explanatory Variables

In order to alleviate the possible reverse causality problem, the explanatory variable income Tax preference (Tax) lags one period as the core explanatory variable for regression. The results in column (1) of Table 4 show that the lag income tax preference (lag _ Tax) coefficient is 0.015, which is significantly positive at the level of 1%, indicating the existence of the impact of tax preference on financial performance, and the benchmark conclusion is robust.

4.3.2 Replace the Explained Variable

In order to avoid the impact of the single financial performance measurement index on the research conclusion, the return on equity (ROE) is used to replace the return on assets (ROA) as the explained variable to regress again. The results in column (2) of Table 4 show that the coefficient of income Tax preference (Tax) is 0.024, which is significantly positive at the level of 1%, indicating that no matter what financial performance indicator is used, Tax preference has a significant positive impact on it.

4.3.3 Eliminate Special Period Samples

Considering that the new crown epidemic from 2020 to 2022 may have an abnormal impact on business operations and financial performance, it will return after excluding the samples from this period. The results in column (3) of Table 4 show that the coefficient of income Tax benefit (Tax) is 0.013, which is significantly positive at the 1% level, which is basically consistent with the baseline regression results.

Table 4. Robustness Test

VARIABLES	(1) ROA	(2) ROE	(3) ROA
lag_Tax	0.015***		

	(38.47)		
Tax		0.024***	0.013***
		(45.08)	(35.73)
Controls	Yes	Yes	Yes
Observations	14,714	16,721	11,422
R-squared	0.404	0.388	0.402
year FE	Yes	Yes	Yes
industry FE	Yes	Yes	Yes

4.4 Mechanism Analysis

4.4.1 Mediation Effect Test of R & D Investment

The previous theoretical analysis pointed out that income tax incentives may improve financial performance by encouraging enterprises to invest in R&D. In order to test the mediating effect of R & D investment, this paper uses stepwise test regression method to build models (1) to (3) for testing. Regression results for mediating effects are reported in Table 5.

Column (1) is a test of the total effect of income tax incentives on financial performance. The regression coefficient of income Tax preference (Tax) is 0.016, which is significantly positive at the level of 1%, indicating that Tax preference has a significant positive impact on financial performance, which meets the prerequisites for the intermediate effect test.

Column (2) presents the regression results of income tax benefits on the mediating variable research and development (RD) investment.The coefficient of income Tax preference (Tax) is 0.001, which is significantly positive at the level of 1%, indicating that Tax preference has significantly promoted the R&D investment of enterprises.

Column (3) lists the regression results of including both income tax incentives and RD investment on financial performance.The coefficient of R & D investment (RD) is 0.167, which is significantly positive at the level of 1%; At the same time, the coefficient of income Tax benefit (Tax) is 0.015, which is still significant at the level of 1%, but compared with the total effect coefficient of column (1), it has decreased. The above regression coefficients are all significantly positive, indicating that R & D investment plays a partial intermediary effect between income tax incentives and financial performance. The mediating effect accounted for 1.04% of the total effect (0.001 × 0.167/0.016).

The above results are in line with the expectation of Hypothesis 2, that is, income tax incentives improve the financial performance of high-tech enterprises through R & D investment, and R & D investment plays an intermediary role in it.

Table 5. Mediating Effects Test

	(1)	(2)	(3)

VARIABLES	ROA	RD	ROA
Tax	0.016***	0.001***	0.015***
	(47.40)	(6.84)	(46.98)
RD			0.167***
			(8.67)
Controls	Yes	Yes	Yes
Observations	16,722	16,722	16,722
R-squared	0.422	0.192	0.425
year FE	Yes	Yes	Yes
industry FE	Yes	Yes	Yes

4.4.2 Moderating Effect Test of Digital Transformation

The previous analysis shows that R & D investment plays an intermediary effect between income tax incentives and financial performance. In order to further examine the boundary role of digital transformation in the above mechanism, this paper examines the moderating effect of digital transformation on the first half of the intermediary path and the direct effect. Regression results for moderating effects are reported in Table 6.

Column (1) is a test of the moderating effect of digital transformation on the first half of the mediation path. The interaction term (Tax × Dig) coefficient between income Tax incentives and digital transformation is 0.0003, which is significantly positive at the 1% level. This result shows that digital transformation positively mediates the relationship between tax incentives and R&D investment, hypothesis 3a is verified.

Column (2) is a test of the moderating effect of digital transformation on the direct relationship between tax incentives and financial performance.The interaction term (Tax × Dig) coefficient between income Tax incentives and digital transformation is 0.0007, which is significantly positive at the 1% level. This result shows that digital transformation positively mediates the relationship between tax incentives and financial performance, with hypothesis 3b validated.

Table 6. Moderating Effects Test

	(1)	(2)
VARIABLES	RD	ROA
Tax	0.0009***	0.0156***
	(6.60)	(47.31)
Dig	0.0024***	-0.0000

	(14.81)	(-0.03)
Tax×Dig	0.0003***	0.0007***
	(3.24)	(3.27)
controls	Yes	Yes
R-squared	0.203	0.423
year FE	Yes	Yes
industry FE	Yes	Yes

5. Research Conclusion

Taking China's Shanghai and Shenzhen A-share high-tech listed companies from 2013 to 2024 as research samples, this paper empirically examines the impact mechanism of income tax incentives on corporate financial performance under the background of digital transformation, focusing on the intermediary role of R&D investment and the moderating effect of digital transformation. The main conclusions of the study are as follows:

First, income tax incentives have a significant positive impact on the financial performance of high-tech enterprises. Baseline regression results show that there is a significant positive correlation between income tax incentives and return on assets (ROA) regardless of whether control variables are added, year and industry fixed effects are controlled. After a series of robustness tests such as lagging explanatory variables (Tax), replacing explained variables (ROE), and excluding special period samples (2020-2022), this conclusion is still valid, indicating that preferential Tax policies have effectively improved the performance of high-tech enterprises. level of profitability.

Second, R & D investment plays a partial intermediary effect between income tax incentives and financial performance. The results of step-by-step regression method show that income tax incentives significantly promote the R&D investment of enterprises, and the improvement of R&D investment further promotes the growth of financial performance. The mediating effect accounts for about 1.04% of the total effect, which verifies the transmission path of "tax incentives-R&D investment-financial performance".

Third, digital transformation positively adjusts the direct impact of tax incentives on financial performance, and also positively adjusts the incentive effect of tax incentives on R&D investment. The moderating effect test shows that the interaction between income tax incentives and digital transformation has a significant positive impact on financial performance and R&D investment. This means that enterprises with a higher degree of digital transformation can make full use of the capital dividends released by preferential tax policies, and achieve greater improvements in financial performance by optimizing resource allocation and strengthening R&D and innovation.

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