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Research on the Impact of New Quality Productivity on Enterprise Owners' Equity—An Empirical Analysis Based on Chinese A-Share Listed Companies

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Abstract: ***Based on data from Chinese A-share listed companies from 2015 to 2023, this paper constructs a micro-level indicator of new quality productivity and uses a panel fixed effects model to test its impact on owners' equity. The study finds that new quality productivity has a significant positive impact on owners' equity: for every 1% increase in new quality productivity, the logarithm of owners' equity increases by approximately 0.559%, and this growth is achieved through increased operating revenue and capitalizable R&D investment. Regional and industry heterogeneity tests show that the impact of new quality productivity on owners' equity is most significant in western regions; the impact of new quality productivity on owners' equity is also significant in non-heavily polluting enterprises. This study enriches the theoretical perspective on the relationship between technological factors and financial data, providing practical reference for enterprises to optimize technological investment and for regulatory authorities to improve innovation policies.***

Keywords: New Quality Productivity, Owners' Equity, Financial Indicators**.**

1. Introduction

In the context of the deep adjustment of the global economic pattern, a new round of scientific and technological revolution and the accelerated evolution of industrial transformation, "new quality productivity", as the core driving force to promote high-quality development, is becoming a key force in reshaping the competitive advantage of enterprises. The report of the 20th National Congress of the Communist Party of China clearly proposed to "promote the high-end, intelligent and green development of the manufacturing industry", and the "14th Five-Year Plan" also regards "cultivating new technologies, new products, new formats and new models" as an important way to enhance the core competitiveness of enterprises. With scientific and technological innovation as the core, through the deep integration of digital technology, green technology and the real economy, new quality productivity not only reconstructs the production organization mode of enterprises from the aspects of intelligent manufacturing and platform operation, but also has a profound impact on the financial fundamentals of enterprises.

However, the existing research mostly focuses on the analysis of the efficiency improvement and innovation performance of new quality productivity, and there are not many related studies on the relationship between it and corporate financial data. E specially at the micro level, how new quality productivity affects the rights and interests of enterprise owners through the optimization of resource allocation, the appreciation of technical assets, and the improvement of risk control capabilities, so as to judge the improvement of enterprise operation and financial stability, has not yet formed a clear theoretical framework and empirical evidence. In the context of enterprises facing intensified financing constraints and fierce market competition, revealing the interaction between new quality productivity and financial data is of great practical significance for enterprises to achieve value appreciation and improve financial stability through technology investment.

This paper takes "how does new quality productivity affect the equity of enterprise owners" as the main line, and discusses the following questions: (1) Can the new quality productivity of enterprises improve the level of enterprise owners' equity? (2) Through which channels does new quality productivity affect owners' equity? (3) Is there industry heterogeneity in the degree of impact of new quality productivity on the equity of enterprise owners?

The research goal of this paper is to construct a theoretical analysis framework between new quality productivity and enterprise owner's equity, reveal the causal relationship and action path between the two, verify the benchmark impact of new quality productivity on owner's equity through empirical research, and improve the reliability of conclusions with the help of robustness test and mechanism test, so as to provide theoretical support and decision-making reference for enterprises to optimize technology investment strategies and improve financial resilience.

2. Literature Review

2.1 Research on New Quality Productivity

In 2023, General Secretary Xi Jinping proposed to integrate scientific and technological innovation resources to accelerate the formation of new quality productive forces, affirming the important role of science and technology and scientific and technological innovation in the formation and development of productive forces (Zhou Wen et al., 2023), which also means that the proposal of new quality productivity aims to empower production through science and technology to achieve breakthrough value creation (Gao Fan, 2023), so as to solve the "poverty trap" similar to the low-income stage caused by the "weakness" of total factor productivity caused by

insufficient innovation or solve the structural contradiction of the "middle-income trap" after food and clothing (Liu Wei, 2024).

In terms of measuring new-quality productivity, scholars have analyzed it from different perspectives. Wang Jue and Wang Rongji (2024) examined the characteristics of laborers, labor objects, and means of production in new-quality productivity and constructed an indicator system to analyze the level of new-quality productivity in Chinese provinces. Wu Jifei and Wan Xiaoyu (2024) constructed an indicator system for the development level of new-quality productivity at the provincial level based on four dimensions: new-quality human resources, new-quality science and technology, new-quality industrial forms, and new-quality production methods. They systematically explored the development of new-quality productivity using the Critic-Topsis comprehensive evaluation method. Han Wenlong et al. (2024) divided the indicator system of new-quality productivity into two dimensions: physical elements and permeable elements to construct provincial-level indicators. Song Jia et al. (2024) selected strategic emerging industries and future industries closely related to new-quality productivity as samples for calculating new-quality productivity at the enterprise level. Based on the two-factor theory of productivity, they used the entropy method to calculate weights and constructed an indicator system for new-quality productivity.

In promoting the development of new-quality productivity, scholars have studied how to better realize new-quality productivity from many perspectives, such as data element-driven (Zhang Bin et al., 2024), digital empowerment, digital economy, and artificial intelligence (Li Meng, 2024). Song Jia et al. (2024) found that ESG development can improve the development level of new-quality productivity in enterprises and has obvious spatial spillover effects. In terms of the impact of new-quality productivity, it can serve as a strong driving force for economic growth (Xu Zheng et al., 2023), improve the efficiency of factor allocation (Yang Zhicai and Bai Peiwen, 2017; Huang Yongchun et al., 2022), break the traditional economic growth model (Zhai Yun and Pan Yunlong, 2024), and thus achieve high-quality development (Dai Xiang, 2023). In addition, research has found that new-quality productivity can promote structural transformation (Li Haixia et al., 2025), accelerate the comprehensive revitalization of rural areas (Chen Jian et al., 2024), and empower Chinese-style modernization (Wu Zheng, 2024).

2.2 Research on the Rights and Interests of Enterprise Owners

Within the framework of contract theory, owner's equity is generally defined as "residual claim." Fama and Jensen (1983) pointed out in their classic literature that, under conditions of incomplete contracts, shareholders have the right to claim the residual income of the enterprise and bear the corresponding operating risks. This definition emphasizes the shareholders' ownership of net assets. From a theoretical perspective, owner's equity can reveal the contractual relationship between shareholders, creditors, and management. Enterprise owner's equity is usually composed of four aspects: share capital, capital reserve, surplus reserve, and undistributed profits. This composition reflects the rules and constraints of the enterprise's capital financing, investment, management, and exit (Fu Rao, 2017), and is the financial manifestation of the company's capital system (Zhao Deyong, 2014). Total company capital includes company liabilities and owner's equity. Under the condition of a fixed debt scale or debt value, the greater the value created by the enterprise, the greater the owner's equity. Or, under the condition of a certain investment by the enterprise's owners, if the growth rate of the enterprise's value creation is faster than the growth rate of the debt value, the owner's equity will increase. There are many ways for enterprises to operate with debt and capital. They can directly obtain leverage returns through the financial leverage effect of debt financing, or expand control through mergers, acquisitions, and restructuring via capital operations, controlling a larger scale of assets with less owner equity, ultimately leading to an increase in owner equity (Qu Ming, 2022).

2.3 The Impact of New Quality Productivity on Enterprises

New-quality productivity, as a new type of productivity driven by technological innovation and meeting the requirements of high-quality development, is profoundly reshaping the survival rules and competitive landscape of enterprises. It drives enterprises to transform and upgrade towards high-end, intelligent, and green development in all aspects of production and operation. The dynamic resource base view advocates that enterprises can flexibly develop and adjust their resource and capability architecture through innovation and adaptation strategies, thereby effectively responding to environmental changes and maintaining a continuous competitive advantage (Hart, 1996). New-quality productivity achieves optimal resource allocation and industrial chain upgrading through the introduction of innovative production factors and the construction of digital infrastructure (Jiang Changyun, 2024). As the basic unit of the social economy, enterprises should better develop new-quality productivity to achieve emission reduction, energy conservation, and the creation of higher value. New quality productivity is the ability of enterprises to achieve high-efficiency, high-quality, and high-value-added production goals by introducing new technologies, processes, and management models (Hong Yinxing et al., 2024). However, if enterprises rely excessively on the simple imitation of low-end technologies, it is not sustainable given the current reality of rapidly rising costs of various production factors (Kou Zonglai and Sun Rui, 2023).

3. Theoretical Analysis and Research Hypotheses

Owner's equity, also known as shareholders' equity, is the core element of a company's balance sheet, and the remaining part of an enterprise's assets after deducting liabilities is the owner's equity. From the perspective of composition, owner's equity mainly includes paid-in capital, capital reserve, surplus reserve, undistributed profit, etc. I t essentially reflects the owner's ownership of the net assets of the enterprise, is the core carrier of the enterprise's own capital, reflects the capital strength of the enterprise, and also reflects the value accumulated by the long-term operation of the enterprise. The

growth of owner's equity is mainly achieved through two major paths: "internal accumulation" and "external injection". The core logic of internal accumulation is that enterprises create value and retain income through their own business activities, and its core logic is: enterprises directly increase the owner's equity by improving operation and profitability, increasing output, optimizing costs, expanding the scale of net profit, and retaining the remaining profits as undistributed profits or withdrawing surplus reserves after reasonable distribution of dividends. External injection is the direct increase of paid-in capital or capital reserve by enterprises through the introduction of external capital (such as equity financing, government subsidies). Enterprises absorb investors' funds through equity financing, or obtain government subsidies that do not need to be repaid, asset revaluation and appreciation, and directly expand the total owner's equity.

New quality productivity is a new form of productivity formed under the background of a new round of scientific and technological revolution and industrial transformation, and its characteristics are reflected in the driving force of scientific and technological innovation, through the optimal allocation of production factors, the reconstruction of production methods and the upgrading of value creation models to achieve high-quality economic growth. I n terms of mechanism, new quality productivity has an enabling effect on the two paths of owner's equity growth. I n the internal accumulation dimension, new quality productivity breaks through the functional boundaries of traditional products through technological innovation, gives products higher technical content and differentiated advantages, and enhances product market pricing power and competitiveness. A t the same time, relying on digital transformation to optimize market, customer service and supply chain coordination, promote revenue scale expansion and cost structure optimization, and finally strengthen the accumulation of undistributed profits and surplus reserves through net profit growth. I n the external injection dimension, R&D and innovation driven by new quality productivity form technical assets such as patents and software copyrights, and achieve continuous appreciation through industrial application, licensing transfer and capital operation, and directly increase capital reserves. In addition, the high growth and development potential contained in new quality productivity are more likely to be recognized by the market, attracting external equity financing and expanding the scale of paid-in capital.

As a new production form driven by scientific and technological innovation, new quality productivity has built a core mechanism for the growth of owner's equity through the improvement of enterprise operating efficiency, the appreciation of asset value and the significant enhancement of investment attractiveness, which constitutes an important reason for the increase of enterprise owner's equity. Therefore, this paper assumes the following,

H1: New quality productivity is significantly positively correlated with enterprise owners' equity, that is, the higher the level of new quality productivity, the larger the size of its owners' equity.

In the "internal accumulation" of owner's equity, the operating income of the enterprise is an important bridge between the relationship between new quality productivity and owner's equity, and the operating income is the total inflow of economic benefits obtained by the enterprise through the main business activities in a certain accounting period, and is an important indicator reflecting the scale of the enterprise's operation and market competitiveness. From the perspective of financial logic, operating income is the basis for profit formation. Therefore, changes in operating income levels have a direct and lasting impact on the expansion of owners' equity. New quality productivity can significantly improve the production efficiency and product competitiveness of enterprises through technological innovation and optimal allocation of factors. In addition, the technological progress brought about by new quality productivity can not only reduce the unit production cost, but also enhance market pricing power through product differentiation and quality improvement, thereby expanding sales scale and market share. Therefore, new quality productivity can improve the operating level of enterprises and promote the continuous growth of operating income.

In the relationship between new quality productivity and owner's equity, R&D investment is another important transmission mechanism, especially in the external injection path. R &D investment refers to various R&D expenditures incurred by enterprises to achieve technological innovation, product upgrades and process improvements, usually including personnel costs, material costs, equipment depreciation expenses and other expenses directly related to R&D activities. On the one hand, new quality productivity emphasizes scientific and technological innovation as the core drive, and its essence requires enterprises to continuously increase investment in R&D resources to maintain a leading position in technology. In the process of technological innovation, new quality productivity not only improves R&D efficiency (such as using artificial intelligence to accelerate algorithm iteration and digital platform to achieve cross-departmental collaboration), but also improves the conversion rate of R&D results by optimizing resource allocation. This continuous investment in R&D can bring intangible assets in the form of patents, software copyrights, know-how, etc., which are usually capitalized R&D expenditures in accounting and directly promote the growth of capital reserve in the process of asset appreciation. On the other hand, the high-value technological achievements produced by R&D investment can be transformed into the expansion of owner's equity through a variety of external injection methods: first, the industrial application of technological achievements can significantly improve the growth and market valuation of enterprises, thereby improving the attractiveness of equity financing and increasing the scale of paid-in capital; Second, high-quality technical assets often show high value-added potential in asset appraisal and revaluation, thereby increasing capital reserve. Therefore, new quality productivity promotes the output and capitalization of high-value technological achievements by promoting enterprises to increase R&D investment, and further realizes external capital injection through equity financing, technology licensing and asset revaluation, thereby expanding the scale of owner's equity. This paper selects the capitalization of operating income and R&D input expenditure as the mediating variables for the study of new

quality productivity and owner's equity, and puts forward the following hypotheses.

H2: The capitalization of corporate operating revenue and R&D expenditure plays a mediating role in the impact path of new quality productivity on owners' equity.

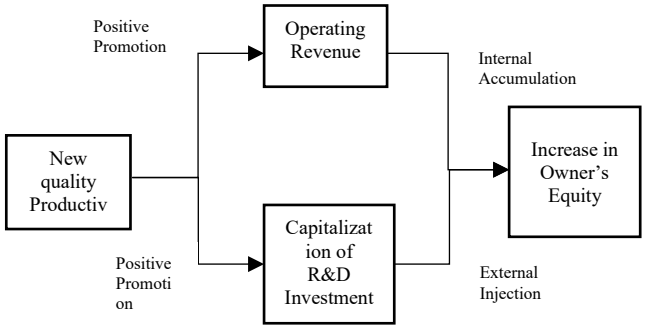

Figure 1: Mechanism of New Quality Productivity Affecting Owner's Equity

4. Research Design

4.1 Data Sources

1) Sample Selection and Data Sources

This paper uses a sample of 5335 Chinese A-share listed companies from 2015 to 2023 as the initial research object. After removing 133 financial industry companies, 9359 ST or *ST companies, and 313 companies listed for less than one year, a final sample of 19851 companies was obtained. The data used in this study are from CNRS and CSMAR databases. In order to reduce the impact of outliers, this paper performs a 1% tail reduction on all continuous variables. In addition, this paper adopts enterprise-level clustering adjustment for the standard error in the benchmark regression.

4.2 Variable Selection

1) Explained variable: In the benchmark regression, owners' equity (Equ) is used as the explained variable. We use the cumulative amount of owners' equity at the end of each year to measure it. It is the net value after deducting total liabilities from total assets, representing the book value owned by shareholders in the enterprise. This data can be directly obtained from the company's financial statements and has strong reliability. In the robustness analysis, we also use return on equity, current asset turnover, and equity ratio to indirectly reflect the profitability and turnover of owners' equity. Return on equity (ROE) equals net profit divided by average shareholders' equity, which is the average of the ending and beginning balances of shareholders' equity. Current asset turnover is measured by dividing operating revenue by the average current asset holding. Equity ratio is reflected by dividing total liabilities by total shareholders' equity.

2) Core explanatory variable (Produ): Corporate new quality productivity. Referring to the research results of Zhang Xiu'e (2024), 12 indicators were selected from three dimensions — new quality workers, new quality labor objects, and new quality labor data—to construct the corporate new quality productivity index. The specific reference indicators are shown in Table 1.

Table 1: Enterprise New Quality Productivity Indicators

Variables	Factors	Sub-factors	Indicators	Measurement Methods
New Quality Productivity	New Labor Force	Employee Quality	High-Quality Employees	Percentage of Graduate Students and Above
			Percentage of R&D Personnel	Percentage of R&D Personnel in Total Employees
		Management Quality	Management Digital Background	Whether the Senior Management Team Has a Digital Background
			CEO functional experience richness	CEO functional experience count
	New Labor Objects	Ecological environment	Environmental performance	Environmental score in Huazheng ESG scoring system
		Future development	Proportion of fixed assets	Fixed assets/total assets
			Bot penetration	Robot penetration rate at the enterprise level
	New quality labor materials	technology Labor Resources	Enterprise Innovation Level	Ln(number of patent applications by the enterprise + 1)
			Green Technology Level	Ln(number of green patent applications by the enterprise + 1)
		Green Labor Resources	Green Patent Ratio	Number of Green Patents Applied by Enterprises / Number of Patents Applied by Enterprises
		Intelligentization Level	Intelligentization Level	Ln (Intelligentization level frequency + 1)
		Digital Asset Ratio	Digital Asset Ratio	Digital Related Assets / Total Intangible Assets

3) Control Variables: This paper references Zhang Xiue (2023) and selects a series of relevant variables that can affect corporate shareholders' equity: listing age, measured by subtracting the company's founding year from the current year; ownership nature, 1 for state-owned enterprises, 0 for non-state-owned enterprises; dual roles, 1 for chairman and general manager, 0 otherwise; management shareholding ratio, measured by the proportion of shares held by directors, supervisors, and senior management (directors, supervisors, and senior executives) to the total share capital; book value ratio, measured by the ratio of book value to total market capitalization; board size: Ln (number of board members).

4.3 Model Establishment

This paper references Han Wenlong (2024) Model Construction: The Impact of New Productive Forces on Enterprise Owners' Equity:

$$E_{\mathrm{qu}it} = \beta_0 + \beta_1 Pr\,o\,du_{it} + \beta_2 Control_{it} + \mu_i + \varepsilon_t + e_{it} \quad (1)$$

Where, the subscripts i and t represent the sample individuals and year, respectively; Equ is the enterprise's owner's equity; Produ is the enterprise's new quality productivity development level. Control represents the control variable vector group, which includes listing age, ownership nature, dual-role structure, management shareholding ratio, book value ratio, board size, etc. μ_i、ε_t Represents individual fixed effects and time fixed effects, respectively, e_{it} is the

time-varying error term. We performed descriptive statistics on the variables, and the statistical results are shown in Table 2.

Table 2: Descriptive Statistics of Indicators

Variables	Obs	Mean	Std.Dev.	Min	Max
Owners' Equity	19851	21.686	1.183	15.152	27.5
New Quality Productivity	19851	0.114	0.099	0.004	0.514
Property Rights	19851	0.368	0.482	0.000	1.000
Dual Roles in One	19851	0.236	0.425	0.000	1.000
Listing Age	19851	2.071	0.91	0.000	3.434
Management Shareholding Ratio	19851	12.984	18.915	0.000	89.99
Book Value	19851	0.619	0.254	0.018	1.559
Board Size	19851	2.126	0.196	1.386	2.89

5. Empirical Results

5.1 Benchmark Regression Results

Table 3 reports the test results of the research hypothesis. The first column only contains the explanatory variable new quality productivity (Produ). The results show that the coefficient of new quality productivity is positive and significant at the 1% level, indicating that owners' equity changes in the same direction as the change in new quality productivity. After adding relevant control variables at the firm level in the second column, the coefficient of new quality productivity is positive and significant at the 1% level. For every 1% increase in the level of new quality productivity, the equity of the firm will increase by 0.559%. This indicates that the level of new quality productivity will increase the equity of the firm, verifying hypothesis H1.

Table 3: Benchmark Regression Results

Variables	(1) Owners' Equity	(2) Owners' Equity
New Quality Productivity	0.634***	0.559***
	(0.119)	(0.111)
Listing Age		0.163***
		(0.019)
Property Rights		-0.106**
		(0.05)
Dual Roles in One		0.03
		(0.019)
Management Shareholding Ratio		0.001
		(0.001)
Book-to-Market Ratio		0.903***
		(0.053)
Board Size		0.289***
		(0.058)
Constant Term	21.613***	20.131***
	(0.014)	(0.136)
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Sample Size	19851	19851
R^2	0.900	0.909

Note: The Numbers in Parentheses in the Table Report Robust Standard Errors. ***, **, And * Indicate That the Regression Results Passed the Significance Test at the 1%, 5%, and 10% Significance Levels, Respectively. The Same Applies to the Following Tables.

5.2 Mechanism Test

The empirical results are shown in the figure. In list (1), the coefficient of the impact of the new quality productivity of the enterprise on the enterprise's operating income is 0.551, which is significant at the 1% level. This indicates that for every 1% increase in the level of new quality productivity, the enterprise's operating income will increase by 0.551%. New quality productivity can promote the improvement of the enterprise's operating level, which in turn has a positive impact on the enterprise's revenue capacity. In the "internal accumulation" stage, the improvement of the level of new quality productivity increases the enterprise's revenue, expands the profit scale, and increases the enterprise's owner's equity. Operating income plays a "bridge" effect between new quality productivity and owner's equity. List (2) shows the impact of new quality productivity on the amount of R&D investment capitalization, that is, the impact of new quality productivity on the part of R&D investment that can be identified as intangible assets. The results show that it is significant at the 1% level. For every 1% increase in new quality productivity, the enterprise's R&D investment amount will increase by 1.196%. The improvement of New Quality Productivity has a significant impact on the capitalizable portion of R&D investment. Increased New Quality Productivity significantly increases the value of intangible assets formed from R&D investment, directly increasing capital reserves and consequently increasing corporate equity. This verifies its important function in the "external injection" stage, validating hypothesis H2.

Table 4: Regression Results of Mechanism Test

Variables	(1) Operating Revenue	(2) Capitalization of R&D Investment
New Quality Productivity	0.551***	1.196***
	(0.127)	(0.435)
Listing Age	0.326***	0.248**
	(0.022)	(0.111)
Property Rights	-0.088*	0.076
	(0.052)	(0.147)
Dual Roles in One	-0.002	-0.032
	(0.023)	(0.067)
Management Shareholding Ratio	0	0.005
	(0.001)	(0.004)
Book-to-Market Ratio	0.589***	0.417**
	(0.067)	(0.17)
Board Size	0.349***	0.444*
	(0.065)	(0.228)
Constant Term	19.802***	14.675***
	(0.159)	(0.572)
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Sample Size	19851	5041
R^2	0.919	0.811

5.3 Robustness Test

To make the empirical results more robust, this paper conducts a robustness study. First, the dependent variable is replaced. Monetary funds (Cbh) are used to replace the dependent variable, corporate equity (Equ), in the regression. The results are shown in the first column of the table. Second, the explanatory variable is replaced by changing the measurement method of New Quality Productivity. Principal component analysis is used to recalculate the New Quality Productivity of listed companies from 2015 to 2023 as the explanatory variable (Produwj). The results are shown in the second column of the table. Third, the sample data is filtered, and the New Quality Productivity level is truncated by 1%. The third column of the table shows the regression results. After applying the robustness test method described above, the regression results all showed a significant positive effect, indicating the robustness of the conclusion that New Quality Productivity can promote the increase of corporate owner's equity.

Table 5: Robustness Regression Results

Variables	Replace the Explained Variable Cash and Cash Equivalents	Replace the Explained Variable Owners' Equity	Remove Samples Owners' Equity
New Quality Productivity	0.559***		0.618***
	(0.111)		(0.121)
New Quality Productivity (Principal Component Analysis)		0.095***	
		(0.022)	
Control Variables	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Sample Size	19851	19851	19455
R^2	0.909	0.909	0.900

In addition, to verify the robustness of the research results, this paper also uses the financial performance indicators of the firm as the dependent variable for further testing. Specifically, we start from the three dimensions of firm profitability, operating efficiency and solvency, and select return on net assets, current asset turnover and equity ratio as the measurement indicators of each dimension. The relevant test results are as follows. Table 6 List (1) The dependent variable is return on net assets (ROE). The regression coefficient of new quality productivity of the firm on return on net assets is 0.075, and it is significant at the 5% significance level. List (2) The dependent variable is current asset turnover. The regression coefficient is 0.239, and it is significant at the 5% significance level. List (3) The dependent variable is equity ratio. The regression coefficient was -1.581, significant at the 10% significance level. All empirical results are consistent with the baseline regression results. The series regression results indicate that the conclusions of this study are robust.

Table 6: Regression Results of Financial Performance

Variables	(1) Return on Equity	(2) Current Asset Turnover	(3) Equity Ratio
New Quality Productivity	0.075**	0.239**	-1.581*
	(0.034)	(0.108)	(0.92)
Control Variables	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Sample Size	19851	19851	19851
R^2	0.327	0.80	0.326

5.4 Endogeneity Test

This paper considers a series of instrumental variables, such as the total factor productivity of enterprises as an instrumental variable of new quality productivity. However, the main endogeneity problem is that they are mutually causal: the improvement of new quality productivity directly promotes the growth of enterprise owners' equity. Conversely, the increase in owners' equity prompts enterprises to increase investment to expand revenue, and these investments directly or indirectly promote the further improvement of new quality productivity. To alleviate the above problems, this paper follows the approach of Han Wenlong (2024) and uses the first and second lag terms of new quality productivity as instrumental variables. The results are shown in Table 7. The regression estimation results after introducing instrumental variables are shown in columns (1) and (2), which represent the first-lag first and second-stage regression results of new quality productivity, and columns (3) and (4), which represent the second-lag first and second-stage regression results of new quality productivity. The Kleibergen-Paaprk LM statistic tests the correlation between instrumental variables and endogenous variables, while the Kleibergen-Paaprk Wald F statistic is used to test whether there is a weak identification problem of instrumental variables. The regression results are shown in the table. All results passed the test criteria, therefore there were no issues of "insufficient instrumental variable identification" or "weak instrumental variable identification," and the instrumental variables were selected appropriately. After introducing instrumental variables, the coefficients of the core explanatory variables were significantly positive, indicating that new quality productivity has a promoting effect on owner's equity, and the regression results are robust.

Table 7: Endogeneity Regression Results

VARIABLES	first stage new quality productivity	Second stage owner's rights	first stage new quality productivity	Second stage owner's rights
New Quality Productivity		1.020***		1.534***
		(0.243)		(0.719)
L. New Quality Productivity	0.484***			
	(0.015)			
L2. New Quality Productivity			0.173***	
			(0.02)	
Listing Age	-0.002	0.146***	-0.004	0.0279
	(-0.002)	(0.032)	(0.005)	(0.045)
Property Rights	0.001	-0.136***	0.006	-0.115***
	(0.003)	(0.050)	(0.006)	(0.048)
Dual Roles in One	-0.003**	0.030**	-0.002	0.039***
	(0.001)	(0.021)	(0.002)	(0.020)
Management Shareholding Ratio	0.000	0.001	-0.000	0.000
	(0.000)	(0.001)	(0.000)	(0.001)
Book-to-Market Ratio	0.002	0.754***	0.005	0.730***
	(0.003)	(0.534)	(0.005)	(0.057)
Board Size	0.015***	0.257***	0.019***	0.271***
	(0.004)	(0.05)	(0.007)	(0.068)
Kleibergen-Paaprk LM statistic	628.503 [0.000]		98.581 [0.000]	
Kleibergen-Paaprk Wald F statistic	827.635 [16.38]		88.594 [16.38]	
N	15,466	15,466	13,097	13,097
R-squared	0.864	0.070	0.834	0.048
code FE	YES	YES	YES	YES
year FE	YES	YES	YES	YES

6. Further Analysis

6.1 Heterogeneity Analysis

1) Regional Classification. Enterprises were classified into eastern, western, and central regions. Statistical results show that new quality productivity in the eastern and western regions has a significant positive impact on the growth of enterprise owners' equity. Specifically, the regression coefficient for the eastern region was 0.577, significant at the 1% significance level; the regression coefficient for the western region was 0.589, significant at the 5% significance level; while the regression coefficient for the central region was only 0.309, not significant (failed statistical testing). These results indicate that new quality productivity has a significant promoting effect on the owners' equity of

enterprises in the eastern and western regions, while enterprises in the central region did not show the same strong effect.

According to data from the National Bureau of Statistics, my country's R&D intensity in 2022 was 2.54%, with Shanxi, Anhui, Jiangxi, Henan, Hubei, and Hunan having R&D intensity rates of 1.07%, 2.56%, 1.74%, 1.86%, 2.33%, and 2.41%, respectively. Except for Anhui, the R&D intensity of the other five provinces was lower than the national average. This indicates that R&D investment by enterprises in the central region is generally low. This low R&D intensity has prevented provinces from efficiently transforming their scientific and educational advantages into industrial advantages, thus hindering the endogenous driving force for the development of new productive forces. Furthermore, the central region lacks innovative "lighthouse" enterprises that can play a demonstrative and leading role. Local enterprises have a weak willingness to invest in innovation, and there is a lack of industry leaders and high-tech enterprises, resulting in a slow transition between old and new growth drivers and making it difficult to quickly translate new productive forces into growth in owner's equity. Therefore, although the new productive forces of the sample enterprises in the central region have certain potential, this has not yet been effectively reflected in their financial data.

Table 8: Regression Results of Enterprises by Region

Variables	(1) East	(2) West	(3) Central
New Quality Productivity	0.577***	0.589**	0.309
	(0.131)	(0.297)	(0.241)
Control Variables	YES	YES	YES
Firm Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Sample Size	14040	2611	3110
R^2	0.914	0.908	0.905

2) Whether or not they are heavily polluting. After grouping the sample enterprises by pollution level, it was found that the relationship between new quality productivity and owner's equity was not significant for the heavily polluting enterprise group. Specifically, the regression results showed that the regression coefficient for the heavily polluting enterprise group was -0.069, which was not significant; while the coefficient for the non-heavily polluting enterprise group was 0.571, which was significant at the 1% level. This means that the new quality productivity of non-heavily polluting enterprises can significantly promote equity growth, but heavily polluting enterprises did not show a similar positive effect.

This difference can be explained by the nature of enterprise innovation investment and external regulatory pressure. Wang Yulin et al. (2023)

Studies have shown that when facing strict environmental regulations and green credit policies, the innovation investment of heavily polluting enterprises tends to be biased towards short-term compliance transformation rather than substantial technological value-added. Under green finance policies, financial institutions are more cautious in lending to heavily polluting enterprises. These enterprises face higher financing costs and environmental upgrade burdens, and their innovation funds are more often invested in end-of-pipe treatment rather than core technology upgrades. As a result, their New Quality Productivity achievements are difficult to effectively translate into profit and equity growth. At the same time, the policy and regulatory pressures on heavily polluting industries disperse corporate resource allocation and suppress their financial performance. In the context of green finance, the innovation-promoting effect of heavily polluting enterprises is not significant, while non-heavily polluting enterprises show significant performance improvements. Due to differences in innovation focus and external constraints, the New Quality Productivity of heavily polluting enterprises is unlikely to have a significant pulling effect on owners' equity.

Table 9: Regression Results on Whether Enterprises are Heavily Polluting Enterprises

Variables	(1) Heavily Polluting Enterprises	(2) Non-Heavily Polluting Enterprises
New Quality Productivity	-0.069	0.571***
	(0.419)	(0.114)
Control Variables	Yes	Yes
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Sample Size	2015	17836
R^2	0.946	0.905

7. Conclusions and Implications

7.1 Conclusions

Based on the data of A-share listed companies from 2015 to 2023, this paper systematically examines the impact of new quality productivity on corporate financial data and its internal mechanism. The main conclusions are as follows: (1) New quality productivity significantly increases corporate equity. The benchmark regression and robustness test results are consistent with the results, showing that for every 1% increase in the level of new quality productivity, corporate equity increases by an average of 0.559%, which verifies the positive empowering effect of new quality productivity on corporate equity accumulation. (2) From the perspective of regions, the positive impact of new quality productivity on equity of enterprises in the eastern and western regions is significant, while that in the central region is not significant; from the perspective of industries, the effect of non-heavily polluting enterprises is significantly positive, while there is no significant correlation for heavily polluting enterprises, reflecting that the role of new quality productivity is constrained by the regional development foundation and industry attributes.

7.2 Practical Implications

Enterprises should optimize their technology investment strategies, balancing short-term costs and long-term value. They should treat the cultivation of new productive forces as a long-term strategy, increasing investment in core elements such as new-quality workers, digital assets, and green technologies. They should strengthen internal accumulation capabilities by improving R&D efficiency and achievement transformation. Simultaneously, they should attract external equity financing through the capitalization of technology assets to achieve a virtuous cycle of "technology investment - equity growth - financial stability." For enterprises in different regions and industries, enterprises in the eastern and

western regions can accelerate technology implementation by leveraging policy and resource advantages. Non-heavily polluting enterprises should focus on innovation-driven development, while heavily polluting enterprises need to explore technology adaptation paths in conjunction with green transformation needs.

In addition, it is necessary to improve innovation support policies and optimize resource allocation mechanisms. Regulatory departments should further improve the measurement standards for intangible assets, clarify the accounting standards for the capitalization of R&D investment, and enhance the financial transparency of technology assets. Addressing the shortcomings in the effects on the central region and heavily polluting enterprises, special subsidies and tax incentives can be used to guide capital towards innovation, thus solving the imbalance of regional innovation resources and the dilemma of industry transformation. At the same time, it is necessary to establish a "technology-finance" linkage evaluation system to avoid simply measuring the innovation value of enterprises based on short-term financial indicators. This provides a new approach for constructing a dynamic and multi-dimensional enterprise value evaluation framework.

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