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A study on the impact of new quality productive forces on organizational resilience in enterprises

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Abstract: Based on sample data from A-share listed companies on the Shanghai and Shenzhen stock exchanges from 2011 to 2022, this study systematically examines the impact of new quality productive forces on organizational resilience in enterprises. The findings indicate that improvements in the level of new quality productive forces significantly enhance organizational resilience, and a robust positive correlation exists between the two. This effect is primarily realized through three mechanism pathways: alleviating financing constraints, improving investment efficiency, and promoting digital transformation. Heterogeneity analysis further reveals that the positive impact of new quality productive forces on organizational resilience is more pronounced among state-owned enterprises, large-scale enterprises, and enterprises located in regions with a well-developed technology market. This study adopts a micro-level perspective to explore how new quality productive forces affect organizational resilience at the enterprise level, enriching the relevant research in this domain. It provides both theoretical guidance and practical pathways for enhancing organizational resilience and offers scientific evidence and practical references for government policy-making aimed at supporting the development of new quality productive forces and strengthening enterprise resilience.

Keywords: new quality productive forces, organizational resilience, financing constraints, investment efficiency, digital transformation

1. Introduction

The world today is witnessing a critical phase of great-power rivalry and competition, while China is undergoing profound changes unseen in a century. Global challenges—such as environmental pollution, resource shortages, technological transformation, and financial crises—have intensified, exerting significant influence on the global macroeconomic environment [1]. As microeconomic entities directly facing market risks, enterprises are confronted with enormous challenges in surviving and developing within increasingly fierce international competition. Thus, how enterprises can effectively respond to various risks and challenges has become a key issue urgently needing resolution in China. In this context, the strength of an enterprise's organizational resilience is particularly vital. Enhancing such resilience can improve a firm's capacity to prevent and mitigate diverse risks, contributing meaningfully to China's goal of sustainable economic development.

Organizational resilience refers to an enterprise's capacity for recovery, adaptation, and sustained innovation in uncertain and turbulent environments. At its core, it is the ability to maintain normal operations under pressure, continuously deliver products and services, and foster ongoing innovative development [2]. Essentially, it supports the stable and healthy operation of the economy and promotes high-quality, sustainable development [3]. In other words, organizational resilience is a key success factor that enables firms to quickly identify crises, respond effectively, and recover—or even exceed—their pre-crisis state [4]. Resilient enterprises are more likely to institutionalize crisis awareness and proactively leverage technological innovation to seize opportunities and overcome adversity [5]. Therefore, it is of significant theoretical and practical importance to explore the various influencing factors and mechanisms that enhance organizational resilience in enterprises.

In recent years, research on organizational resilience has flourished and become a prominent topic in Chinese academia. Numerous scholars have investigated its definitions, characteristics, critical roles, and influencing factors, generating a rich body of findings. For instance, studies have examined the effects of enterprise digital transformation, ESG performance, and technological innovation on organizational resilience [6-14]. Although scholars have investigated organizational resilience from various dimensions, the scope and depth of research into its influencing factors remain limited. This study builds on existing literature to enrich and expand the discussion.

In the face of today's complex and volatile internal and external environments, the concept of "new quality productive forces" (NQPF) has emerged in response to the times. In September 2023, during an inspection tour in Heilongjiang Province, General Secretary Xi Jinping emphasized the need to integrate technological innovation resources, guide the development of strategic emerging and future industries, and accelerate the formation of NQPF to foster new momentum for growth. Since then, the term "new quality productive forces" has been formally incorporated into central policy documents and elaborated upon in several key contexts. NQPF refers to a contemporary form of productivity driven by revolutionary technological breakthroughs, innovative allocation of production factors, and deep industrial transformation and upgrading. At its essence, NQPF represents advanced productive forces, with improved total factor productivity (TFP) as its core indicator [15]. According to Yang Liu, the "new" in NQPF signifies its foundation in advanced technologies, its support for new economies, industries, and business models, and its ability to create new value and reshape momentum for industrial growth. The "quality" refers to new forms and structures generated through scientific and technological innovation and industrial upgrading in the context of informatization, digitalization, and intelligentization [16].

Since the concept was introduced, scholars have delved into its connotation, theoretical and practical significance, and implementation pathways. Wen Zhou and Lingyun Xu, from the perspective of Marxist political economy, argue that NQPF is a major theoretical proposition in the Sinicization and modernization of Marxist theory. They believe NQPF transcends traditional productive forces and embodies productivity driven by critical, disruptive technologies [17]. Qingping Pu and Yuanyuan Huang maintain that NQPF represents a contemporary evolution of Marxist productivity theory, marking a qualitative leap and offering strategic direction for enhancing China's innovation-driven industrial upgrading and global competitiveness [18]. Shujie Yao and Xiaoqian Zhang, adopting a more strategic viewpoint, emphasize that the core of NQPF development lies in modernizing national governance systems and capacities, enhancing public service capabilities through digital technology diffusion and policy implementation [19]. Thus, from a theoretical standpoint, NQPF can transform traditional industries, reshape industrial competitiveness, support Chinese-style modernization, bolster national security and development, and drive high-quality economic growth at the macro level. However, relatively little literature has explored its micro-level impact on enterprise organizations.

In summary, although some scholars have recognized the impact of NQPF on organizational resilience, studies remain limited. Therefore, this paper builds on existing research by selecting data from A-share listed companies on the Shanghai and Shenzhen stock exchanges from 2011 to 2022 to conduct an empirical analysis of the effects of NQPF on enterprise organizational resilience, its influencing mechanisms, and heterogeneity. The paper makes the following contributions and innovations:

(1) Previous studies have largely focused on the impact of digital transformation, ESG performance, and similar factors on organizational resilience. This paper connects the emerging concept of NQPF with enterprise resilience, providing empirical evidence on how developing NQPF can promote resilience and enriches the existing literature.

(2) Most existing research explores the impact of NQPF from a macro perspective, such as on economic or supply chain resilience. This study shifts to a micro-level analysis, examining the effect of NQPF on enterprise organizational resilience, thus expanding the scope of inquiry.

(3) By constructing a multidimensional impact mechanism model, this paper proposes that NQPF enhances resilience through three pathways: alleviating financing constraints, improving investment efficiency, and promoting digital transformation. These pathways offer practical strategies for enterprises to develop NQPF and strengthen resilience.

2. Theoretical analysis and research hypothesis

2.1. New quality productive forces and organizational resilience

Based on the above analysis and prior theoretical research, there is a close relationship between new quality productive forces (NQPF) and organizational resilience in enterprises.

First, according to Stakeholder Theory [20], enterprises are viewed as a collection of interrelated stakeholders, including shareholders, employees, customers, communities, and governments. The interests and behaviors of these stakeholders significantly influence the survival and development of the enterprise [21]. From the perspective of employees, NQPF—through digital technology, artificial intelligence, and other tools—enhances individual employees' capabilities and confidence in adapting to change, thereby strengthening their resilience when facing crises. For customers, NQPF enables enterprises to use big data analytics to gain more accurate insights into customer needs, deliver personalized products and services, improve satisfaction and loyalty, and enhance market resilience during crises. From the viewpoint of communities and governments, the development of NQPF leads enterprises to invest more in environmentally friendly technologies and reduce pollution, thereby improving the ecological environment of local communities and enhancing the firm's reputation and image. At the same time, by actively responding to government policies and fulfilling social responsibilities, enterprises can adjust business strategies promptly to mitigate risks and enhance organizational resilience.

Second, according to the Resource-Based Theory [22], an enterprise's ability to acquire, integrate, allocate, and utilize its core resources is key to value creation and sustainable competitive advantage in the modern era. This ability also serves as the "fundamental cornerstone" for improving NQPF [23]. From the perspective of resource acquisition, NQPF makes extensive use of digital technologies, enabling enterprises to break geographic limitations, integrate high-quality global resources via various online platforms, and broaden the channels and boundaries for acquiring resources. This improves the enterprise's capacity to sustain operations and resist supply-side risks [24]. In terms of resource integration and allocation, NQPF leverages intelligent production management systems to dynamically adjust internal human, material, and financial resources based on real-time market demand, promoting efficient and responsive resource allocation. It also facilitates smoother information flows within enterprises and between external partners, breaking down traditional silos and enabling coordinated resource sharing. In terms of resource utilization efficiency, NQPF promotes the adoption of green technologies, allowing enterprises to use raw materials more effectively, reduce waste and pollution, and enhance innovation in both technology and management. This drives deeper value extraction and comprehensive resource utilization, boosting firms' ability to survive and grow in complex environments [25].

Finally, the Strategic Management Theory [26] emphasizes that to achieve long-term goals, enterprises must systematically analyze internal resources and external environments to formulate, implement, and evaluate strategy. This theory encompasses elements such as strategic positioning, resource allocation, competitive advantage, and sustainable development [27]. From the perspective of strategic positioning, NQPF—driven by digital and intelligent technologies—allows enterprises to gain deeper and more accurate insights into market trends, customer needs, and competitive dynamics. This enables precise strategic repositioning and encourages firms to explore emerging markets and new business areas, thereby expanding strategic boundaries, fueling sustainable development, and enhancing organizational resilience. From the perspective of competitive advantage, NQPF helps enterprises develop cost advantages and pursue differentiation strategies. By leveraging digital and intelligent technologies, enterprises can drive technological innovation and increase R&D investment, optimize and refine production processes, and offer distinctive products and services. These advantages collectively enhance a firm's ability to respond and recover in volatile market environments, significantly boosting its organizational resilience and ensuring steady advancement amid fierce competition. From a sustainability perspective, NQPF supports the implementation of green development concepts, enabling enterprises to fulfill social responsibilities through various channels and develop sustainable strategies. This contributes to stable, long-term development for the enterprise and promotes sustainable economic and social progress [28].

Based on the above analysis, this study proposes the following research hypothesis:

H1: Enhancing the level of new quality productive forces significantly improves organizational resilience in enterprises.

2.2. New quality productive forces, financing constraints, and organizational resilience

Information Asymmetry Theory [29] posits that, in market economic activities, there are inherent differences in the amount and quality of information held by different agents. New quality productive forces (NQPF), driven primarily by technological innovation, help reduce the degree of information asymmetry in multiple ways. Problems caused by information asymmetry—such as adverse selection and moral hazard—often exacerbate firms' financing constraints [30]. First, in the process of developing NQPF, cutting-edge technologies such as digital technology and artificial intelligence are extensively applied across enterprise production, management, and operations. This enables firms to more comprehensively and accurately understand their operational status and market outlook. Consequently, during information exchanges with financial institutions, firms are able to provide more detailed and reliable information, thereby reducing the problems caused by information asymmetry due to incomplete or inaccurate disclosures [31]. Second, NQPF promotes a transformation in how information is disseminated, greatly enhancing information transmission efficiency. Technologies such as the Internet and the Internet of Things (IoT) form a vast information network that enables rapid and wide dissemination of information. Key data on corporate financial health, operational performance, and innovation capabilities can now be transmitted in real time to financial institutions, investors, and other stakeholders. With access to up-to-date operational data, financial institutions are able to dynamically assess corporate risk, reducing information lags and related asymmetry, thus making financing more accessible [32]. Finally, NQPF drives industrial upgrading and innovation, resulting in increasingly diversified and complex business models and structures. This evolution compels enterprises to place greater emphasis on information disclosure and transparency, further mitigating the risks posed by information asymmetry.

By reducing information asymmetry, NQPF effectively alleviates firms' financing constraints. With better and more transparent information, financial institutions are able to assess corporate credit risks more accurately. Equipped with comprehensive and accurate corporate data, these institutions can utilize risk evaluation models more scientifically to assess firms' repayment capacity and willingness. This, in turn, reduces financing costs, eases funding pressure, and helps resolve financing difficulties for firms [33]. The easing of financing constraints brought about by NQPF further enhances organizational resilience. With reduced financial barriers, enterprises can access more adequate funding to increase investment in technological innovation. Firms can introduce advanced technologies and talent, purchase cutting-edge R&D equipment, conduct frontier research, and develop new products and services with competitive advantages. This process boosts product added value and

market competitiveness, thereby enhancing the firm's adaptability to rapid changes in market demand and improving its organizational resilience [34].

Based on the above analysis, this study proposes the following research hypothesis:

H2: New quality productive forces enhance organizational resilience by alleviating financing constraints.

2.3. New quality productive forces, investment efficiency, and organizational resilience

Signaling theory suggests that under conditions of information asymmetry between firms and stakeholders, the effective signals transmitted by firms can influence decision-making and resource allocation [35]. New quality productive forces (NQPF) can serve as critical carriers of such signals, influencing investment efficiency through multiple dimensions and ultimately enhancing organizational resilience.

In markets characterized by information asymmetry, firms may find it difficult to accurately access the resources they need, while stakeholders may struggle to allocate resources effectively due to insufficient information. This often results in low investment efficiency, idle capital, and underutilized equipment. However, NQPF—by leveraging technological innovation and business model transformation—emerges as a strong and credible signal of a firm's high growth potential. For example, when a firm adopts artificial intelligence to automate its production processes or implements digital management platforms to enhance operational efficiency, these behaviors send a clear signal to external parties—such as suppliers and investors—that the firm possesses advanced management concepts and technological capabilities. This increases stakeholder confidence and willingness to collaborate or invest. Internally, the application of new technologies enables firms to better understand their own resource conditions, thereby reducing resource misallocation [36]. The signaling effect brought by NQPF attracts external resource inflows and further compels firms to optimize their resource allocation processes, improving investment efficiency. External investors, impressed by a firm's technological strength, may increase financial support. Suppliers, encouraged by the firm's potential for stable demand through technological upgrades, are more likely to offer higher-quality materials and services. In response, firms will adjust their internal resource planning by channeling financial and material resources into high-value-added projects and prioritizing resource allocation in core production segments. As a result, overall investment efficiency is significantly enhanced [37].

Improved investment efficiency, driven by NQPF, also provides a strong foundation for enhanced organizational resilience. Efficient resource utilization allows firms to generate greater value from the same level of input, enabling them to accumulate stronger material and technological capabilities. When confronted with external shocks such as intensified market competition or economic downturns, firms can swiftly reallocate resources to resilient business areas or invest in R&D to launch new products and services—effectively navigating crises. Internally, when facing challenges such as managerial transformation or technical bottlenecks, efficient resource allocation ensures that firms have adequate capacity to optimize internal processes or overcome technological hurdles. This enables them to maintain stable operations in a highly uncertain environment and significantly strengthen their organizational resilience [38].

Based on the above analysis, this study proposes the following research hypothesis:

H3: New quality productive forces promote organizational resilience by improving investment efficiency.

2.4. New quality productive forces, digital transformation, and organizational resilience

Dynamic capabilities theory [39] emphasizes a firm's ability to integrate, build, and reconfigure internal and external resources to adapt to rapidly changing environments [40]. Digital transformation refers to a high-level transformation based on digital conversion and upgrading, focusing on reshaping a company's core business processes with the goal of creating new business models [41]. As a novel form of productive force that departs from traditional economic growth models and developmental paths, new quality productive forces (NQPF) are closely linked to digital transformation and organizational resilience.

Driven by technological innovation, NQPF fosters the emergence and development of next-generation digital technologies such as big data, artificial intelligence, and cloud computing. These technologies provide strong technical support for digital transformation and accelerate its implementation within enterprises. Under the influence of NQPF, firms are able to comprehensively transform production, management, and marketing processes using digital tools. For example, big data analytics help identify customer needs and market trends, enabling precise marketing and product customization; AI technologies optimize production processes, improving both efficiency and product quality; cloud computing allows for flexible and shared resource allocation, reducing operating costs [42]. This comprehensive transformation shifts the operational model from experience-driven to data-driven, making decision-making more scientific and efficient, and better equipping firms to respond to dynamic market changes [43].

By promoting digital transformation, NQPF lays a solid foundation for enhancing organizational resilience. As digital transformation deepens, internal information flows more smoothly, interdepartmental collaboration becomes more efficient, and organizational structures gradually evolve toward greater flattening. These changes enable firms to more rapidly perceive shifts in market demand or competitor strategies in the external environment. Meanwhile, digital transformation empowers firms to

swiftly integrate internal and external resources and make timely responses and adjustments, reducing losses during crises and strengthening risk resistance capabilities [44]. Furthermore, NQPF drives continuous innovation in business models and operational processes, which is a core component of organizational resilience. With the support of NQPF, many firms explore new business models through digital transformation. This not only opens up new sources of revenue growth but also enhances firms' survival and development potential in complex and volatile environments [45]. When the external environment undergoes major changes, firms equipped with innovative business models can more rapidly adjust strategic directions, achieve business transformation and upgrading, and demonstrate greater organizational resilience.

Based on the above analysis, this study proposes the following research hypothesis:

H4: New quality productive forces promote organizational resilience by facilitating digital transformation.

3. Research design

3.1. Research sample and data sources

Referring to the study by Xinru Li et al [46]., this paper selects A-share listed companies on the Shanghai and Shenzhen stock exchanges from 2011 to 2022 as the research sample. Before conducting regression analysis, the following adjustments were made to the sample: (1) Samples from the financial industry, insolvent firms, samples with missing data, as well as PT, ST, and *ST samples were excluded; (2) Continuous variables were winsorized at the 1% and 99% quantiles to reduce the influence of outliers. A total of 25,279 observations were obtained after these adjustments. The original data used to measure organizational resilience, new quality productive forces, and control variables were sourced from the China Securities Market and Accounting Research (CSMAR) database and the Wind database. Additionally, empirical analyses were conducted using Stata 16 statistical software.

3.2. Variable description and definitions

3.2.1. Dependent variable

Organizational Resilience (Res). Referring to the study by Xiaobo Wu and Xiaoya Feng [47], organizational resilience is constructed from two dimensions: growth and volatility. Growth is measured by the cumulative sales revenue growth over three years, while volatility is measured by the standard deviation of monthly stock returns within one year. The final organizational resilience score is calculated using the entropy method to comprehensively combine these two dimensions.

3.2.2. Independent variable

New Quality Productive Forces (Npro). Following the approach of Jia Song et al. [48], based on the two-factor productivity theory and employing the entropy method, this study constructs an evaluation index system for enterprise new quality productive forces from two dimensions: labor and labor tools, as detailed in Table 1.

Table 1. Evaluation index system for enterprise new quality productive forces

Objective Layer	First-level Indicator	Second-level Indicator	Third-level Indicator	Measurement Method
New Quality Productive Forces	Labor	Living Labor	Proportion of R&D personnel salary	R&D personnel salary / Operating income
			Proportion of R&D personnel	Number of R&D personnel / Total employees
			Proportion of highly educated employees	Number of employees with bachelor degree or above / Total employees
		Materialized Labor	Proportion of fixed assets	Fixed assets / Total assets
			Proportion of manufacturing expenses	(Fixed asset depreciation + intangible asset amortization + cash outflows from operating activities + impairment provisions - cash paid for goods and services - wages paid to employees) / (Fixed asset depreciation + intangible asset amortization + cash outflows from operating activities + impairment provisions)
	Labor Tools	Hard Technology	Proportion of direct R&D investment	Direct R&D investment / Operating income
			Proportion of R&D depreciation and amortization	R&D depreciation and amortization / Operating income
			Proportion of R&D leasing expenses	R&D leasing expenses / Operating income
		Soft Technology	Proportion of intangible assets	Intangible assets / Total assets
			Total asset turnover	Operating income / Average total assets
			Reciprocal of equity multiplier	Owner's equity / Total assets

3.2.3. Mechanism variables

(1) Financing Constraint Level (FC). Referring to the study by Fugang Xiang and Yifeng Zhang [49], this paper uses the FC index to measure the level of financing constraints. The FC index is calculated as the absolute value of the SA index; a larger FC value indicates a higher level of financing constraint. The FC index is calculated based on the firm's listing age and size, with the specific formula as follows:

$$FC_{i,t} = \left| -0.737 * Size_{i,t} + 0.0425 * Size^{2}_{i,t} - 0.040 * Age_{i,t} \right|$$

where Size=ln(Total assets/1,000,000), and Age is the number of years since the company's listing.

(2) Investment Efficiency Level (Inv). Based on the study by Xing Liu and Kangtao Ye [50], investment efficiency is measured by the absolute value of the residuals from an investment efficiency model constructed as follows:

$$INV_{i,t} = \hat{a}_0 + \hat{a}_1 INV_{i,t-1} + \hat{a}_2 CASH_{i,t-1} + \hat{a}_3 SIZE_{i,t-1} + \hat{a}_4 LEV_{i,t-1} + \hat{a}_5 GROW_{i,t-1} + \hat{a}_6 RET_{i,t-1} + \hat{a}_7 AGE_{i,t-1} + YEAR + INDUSTRY + \mathring{a}_{i,t}$$

Where: $INV_{i,\,t-1}$ is the firm's capital investment in the previous year; $CASH_{i,\,t-1}$, is the cash holdings from the previous year; $SIZE_{i,t-1}$ is the natural logarithm of total assets at the end of the previous year; $LEV_{i,t-1}$ is the asset-liability ratio of the previous year; $GROW_{i,t-1}$ is firm growth of the previous year; $RET_{i,t-1}$ is the stock return of the previous year; $AGE_{i,t-1}$ is the firm's age in the previous year; YEAR and INDUSTRY are year and industry dummy variables. The absolute value of the residual $\varepsilon_{i,\,t}$from this regression represents the firm's investment efficiency level—the smaller the residual, the higher the investment efficiency.

(3) Digital Transformation Level (DCG). Based on the study by Fei Wu et al [51]., digital transformation progress is measured using a word frequency method that covers five categories of keywords: artificial intelligence, big data, cloud computing, blockchain, and digital technology applications. These keyword categories are aggregated to form a comprehensive index system for measuring the level of digital transformation.

Table 2. Digital transformation level indicator system

Objective Layer	Structured Feature Words	Keywords
Digital Transformation	Artificial Intelligence Technology	Artificial intelligence, business intelligence, image recognition, investment decision support systems, intelligent data analysis, intelligent robots, machine learning, deep learning, semantic search, biometric technology, facial recognition, speech recognition, authentication, autonomous driving, natural language processing
	Big Data Technology	Big data, data mining, text mining, data visualization, heterogeneous data, credit reporting, augmented reality, mixed reality, virtual reality
	Cloud Computing Technology	Cloud computing, stream computing, graph computing, in-memory computing, multiparty secure computing, brain-like computing, green computing, cognitive computing, integrated architecture, hundreds of millions of concurrent connections, EB-level storage, Internet of Things, cyber-physical systems
	Blockchain Technology	Blockchain, digital currency, distributed computing, differential privacy technology, smart financial contracts
	Digital Technology Applications	Mobile Internet, industrial Internet, mobile connectivity, telemedicine, e-commerce, mobile payment, third-party payment, NFC payment, smart energy, B2B, B2C, C2B, C2C, O2O, networked cars, smart wearables, smart agriculture, smart transportation, smart healthcare, smart customer service, smart home, intelligent investment advisory, smart tourism, smart environmental protection, smart grid, smart marketing, digital marketing, unmanned retail, Internet finance, digital finance, Fintech, financial technology, quantitative finance, open banking

3.2.4. Control variables

Referring to the study by Da Liu et al. [52], this paper selects six firm-level control variables: Firm Age (Age), Board Size (Board), Proportion of Independent Directors (Indep), Ownership Concentration (TOP1), Leverage Ratio (LEV), and Return on Assets (ROA). The detailed variable definitions are presented in Table 3.

Table 3. Main variable definitions

Variable Type	Variable Name	Variable Symbol	Variable Definition
Dependent Variable	Organizational Resilience	Res	Composite index calculated by entropy method based on cumulative sales revenue growth over 3 years and standard deviation of monthly stock returns over 1 year
Independent Variable	New Quality Productivity	Npro	Enterprise new quality productivity index system calculated by entropy method
Mechanism Variables	Financing Constraint Level	FC	Absolute value of SA index
	Investment Efficiency Level	Inv	Absolute value of residuals from investment efficiency model
	Digital Transformation Level	DCG	Logarithmic transformation of digital transformation level index system
Control Variables	Firm Age	Age	Natural logarithm of the difference between the study year and the firm's establishment year
	Board Size	Board	Natural logarithm of the number of board members
	Proportion of Independent Directors	Indep	Ratio of independent directors to total board members
	Ownership Concentration	TOP1	Shareholding ratio of the largest shareholder
	Leverage Ratio	LEV	Ratio of total liabilities to total assets
	Return on Assets	ROA	Ratio of net profit to average total assets

3.3. Empirical model construction

Based on the above theoretical analysis and research hypotheses, this study constructs the following econometric models to investigate the effect and mechanisms of new quality productivity on enterprise organizational resilience.

Model 1: Tests the direct effect of new quality productivity on organizational resilience.

$$Res_{i,t} = \alpha_0 + \alpha_1 Npro_{i,t} + \alpha_2 controls_{i,t} + \delta_{Year} + \eta_{Firm} + \varepsilon_{i,t} \quad (1)$$

Models 2 to 4: Test the mediating effects of the three mechanism paths through which new quality productivity affects organizational resilience.

$$FC_{i,t} = \alpha_0 + \alpha_1 Npro_{i,t} + \alpha_2 controls_{i,t} + \delta_{Year} + \eta_{Firm} + \varepsilon_{i,t} \quad (2)$$

$$Inv_{i,t} = \alpha_0 + \alpha_1 Npro_{i,t} + \alpha_2 controls_{i,t} + \delta_{Year} + \eta_{Firm} + \varepsilon_{i,t} \quad (3)$$

$$DCG_{i,t} = \alpha_0 + \alpha_1 Npro_{i,t} + \alpha_2 controls_{i,t} + \delta_{Year} + \eta_{Firm} + \varepsilon_{i,t} \quad (4)$$

Where: i, t denote firm and year respectively; Res is organizational resilience; Npro is new quality productivity; FC is financing constraint level; Inv is investment efficiency level; DCG is digital transformation level; controls are control variables; δ_{Year} is year fixed effects; η_{Firm} is firm fixed effects; ε is the error term.

4. Empirical analysis

4.1. Descriptive statistics

The descriptive statistics of the main variables are presented in Table 4. The results show that the mean value of organizational resilience is 0.892, with a median of 0.901 and a standard deviation of 0.051. The minimum and maximum values are 0.757 and 0.975, respectively, indicating considerable variability in organizational resilience across the sample firms. The new quality productivity (Npro) indicator has a mean value of 0.011 and a standard deviation of 0.005, with a minimum of 0.002 and a maximum of 0.029, reflecting significant differences in the development level of new quality productivity among Chinese firms.

Table 4. Descriptive statistics of main variables

Variable	Sample Size	Mean	Median	Std. Dev.	Min	Max
Organizational Resilience	25279	0.892	0.901	0.051	0.757	0.975
New Quality Productivity	25279	0.011	0.011	0.005	0.002	0.029
Firm Age	25279	18.696	18.000	5.774	7.000	36.000
Board Size	25279	8.483	9.000	1.618	5.000	14.000
Proportion of Independent Directors	25279	0.376	0.364	0.053	0.333	0.571
Ownership Concentration	25279	33.996	31.920	14.679	8.430	73.700
Leverage Ratio	25279	39.542	38.760	19.224	5.249	83.235
Return on Assets	25279	4.682	4.364	5.990	-18.342	23.092

4.2. Correlation analysis

To analyze the correlations among the core variables, this study conducts a Pearson correlation test, with results shown in Table 5. The correlation coefficient between new quality productivity and organizational resilience is 0.073, significant at the 1% level, indicating a significant positive relationship between new quality productivity and organizational resilience, preliminarily supporting Hypothesis 1.

Table 5. Pearson correlation coefficients

	Organizational Resilience	New Quality Productivity	Firm Age	Board Size	Indep.Directors Ratio	Ownership Concentration	Leverage Ratio	Return on Assets
Organizational Resilience	1							
New Quality Productivity	0.073***	1						
Firm Age	0.081***	0.016***	1					
Board Size	0.027***	0.099***	0.055***	1				
Indep. Directors Ratio	0.000	0.018***	-0.027***	-0.523***	1			
Ownership Concentration	0.027***	-0.009	-0.111***	0.025***	0.041***	1		
Leverage Ratio	0.020***	0.143***	0.136***	0.160***	-0.015**	0.038***	1	
Return on Assets	0.008	-0.019***	-0.081***	-0.003	-0.005	0.124***	-0.341***	1

*Notes: *, *, *** denote significance at the 10%, 5%, and 1% levels, respectively.

4.3. Baseline regression

The baseline regression results of the effect of new quality productivity on organizational resilience are shown in Table 6. Column (1) reports the regression coefficient of new quality productivity on organizational resilience as 68.472 without adding control variables. Column (2) adds year and individual fixed effects on top of column (1), and the coefficient decreases to 15.067. Column (3) further includes control variables, and the coefficient of new quality productivity on organizational resilience is 14.203. In all three specifications, the coefficients are significant at the 1% level, indicating a significant positive effect of new quality productivity on organizational resilience, thus supporting Hypothesis H1.

Table 6. Baseline regression results

Variable	(1) Organizational Resilience	(2) Organizational Resilience	(3) Organizational Resilience
New Quality Productivity (Npro)	68.472***	15.067***	14.203***
	(11.68)	(2.87)	(2.71)
Firm Age			-0.110*
			(-1.73)
Board Size			0.032
			(1.23)
Independent Directors Ratio			-0.778
			(-1.23)
Ownership Concentration			0.008**
			(2.35)
Leverage Ratio			-0.013***
			(-6.40)
Return on Assets			-0.033***
			(-6.91)
Constant	88.390***	87.616***	89.314***
	(1,210.07)	(1,086.39)	(98.00)
Year Fixed Effects	Not Controlled	Controlled	Controlled
Firm Fixed Effects	Not Controlled	Controlled	Controlled
Observations	25,279	25,279	25,279
Adj. R^2	0.788	0.788	0.788

*Note: *, *, *** denote significance at the 10%, 5%, and 1% levels, respectively.

4.4. Robustness tests

4.4.1. Propensity Score Matching (PSM) method

This study applies the Propensity Score Matching (PSM) method to alleviate endogeneity caused by sample selection bias. The research design is as follows: first, the full sample is divided into a high-variation group (treatment group) and a low-variation group (control group) based on the median of new quality productivity. Second, a Logit model is constructed to estimate the propensity scores of firms entering the high-variation group, with organizational resilience as the dependent variable, and firm age, board size, independent directors ratio, ownership concentration, leverage ratio, return on assets, and net asset return as independent variables. Finally, 1:1 nearest-neighbor matching without replacement is used to match samples, resulting in a balanced panel data set with 21,722 observations.

The regression results of the matched samples are shown in Table 7. Column (1) shows that without control variables, the coefficient of new quality productivity on organizational resilience is 14.838, significant at the 1% level. Column (2) adds control variables based on column (1), with a coefficient of 13.090, significant at the 5% level. These results demonstrate that after controlling for sample selection bias and omitted variable interference, the positive effect of new quality productivity on organizational resilience remains robust, further supporting Hypothesis H1.

Table 7. Propensity score matching results

Variable	(1) Organizational Resilience	(2) Organizational Resilience
New Quality Productivity (Npro)	14.838***	13.090**
	(2.63)	(2.33)
Firm Age		-0.102*
		(-1.68)
Board Size		0.026
		(0.96)
Independent Directors Ratio		-0.981
		(-1.44)
Ownership Concentration		0.007*
		(1.85)
Leverage Ratio		-0.013***
		(-5.89)
Return on Assets		-0.032***
		(-6.34)
Constant	87.592***	89.345***
	(985.40)	(103.07)
Observations	21,722	21,722
Adjusted R^2	0.790	0.790

*Note: *, *, *** denote significance at the 10%, 5%, and 1% levels, respectively.

4.4.2. Lagged independent variable

To address potential endogeneity issues in the baseline model, such as sample self-selection, reverse causality, and omitted variables, and to ensure unbiased and consistent parameter estimation, this study employs the instrumental variable method with two-stage least squares (2SLS) testing. The lagged value of new quality productivity is selected as the core instrumental variable. The regression results are presented in Table 8. The first-stage regression shows that the coefficient of the instrumental variable is significantly positive. The second-stage regression shows that the coefficient of new quality productivity is significantly positive at the 1% level, indicating a significant positive effect of new quality productivity on organizational resilience.

Table 8. Results of lagged independent variable

Variable	(1) First Stage: New Quality Productivity	(2) Second Stage: Organizational Resilience
New Quality Productivity		12.434***
		(2.864)
Lagged New Quality Productivity	0.749***	
	(173.507)	
Firm Age	-0.000***	0.034***
	(-3.414)	(9.869)
Board Size	0.000***	0.143***
	(7.193)	(11.022)
Independent Directors Ratio	0.002***	1.170***
	(4.573)	(3.055)
Ownership Concentration	0.000	0.017***
	(0.968)	(14.383)
Leverage Ratio	0.000***	0.000
	(8.951)	(0.138)
Return on Assets	0.000***	0.002
	(3.231)	(0.545)
Constant	-0.002***	84.938***
	(-5.388)	(367.562)
Observations	21,157	21,157
Adjusted R^2	0.626	0.764

*Note: *, *, *** denote significance at the 10%, 5%, and 1% levels, respectively.

4.4.3. Replacement of explanatory variable

Considering that a significant increase in total factor productivity (TFP) is a core indicator of new quality productivity development, this study follows Zhang Shushan and Liu Zhaoning (2025) to calculate the TFP of sample firms using the LP method, and uses TFP as the core explanatory variable for robustness testing. The regression results are shown in Table 9 [53]. Column (1) indicates that after replacing the core explanatory variable with TFP, the coefficient of TFP on organizational resilience is 16.735, still positive and significant at the 1% level, confirming that new quality productivity significantly promotes organizational resilience.

4.4.4. Controlling for provincial fixed effects

To mitigate the impact of new quality productivity development on organizational resilience variations across different regions, this study further controls for provincial fixed effects following Yang Yang et al. [54]. Column (2) shows that after additionally controlling for provincial fixed effects, the coefficient of new quality productivity on organizational resilience is 18.597, significantly positive at the 1% level, indicating a robust promoting effect.

4.4.5. Adjusting sample period

Since the COVID-19 pandemic in 2020 might have affected the regression results, this study excludes samples from 2020 to 2022. Column (3) shows that with a shortened sample period, the coefficient of new quality productivity on organizational resilience is 14.966, significantly positive at the 5% level, further confirming the promoting effect.

Table 9. Robustness test results

Variable	(1) Organizational Resilience	(2) Organizational Resilience	(3) Organizational Resilience
Total Factor Productivity	16.735***		
	(7.41)		
New Quality Productivity		18.597***	14.966**
		(5.68)	(2.10)
Firm Age	-0.107*	0.047***	0.040***
	(-1.67)	(14.37)	(8.99)
Board Size	0.033	0.142***	0.152***
	(1.27)	(11.20)	(7.91)
Independent Directors Ratio	-0.802	1.447***	1.678***
	(-1.27)	(3.88)	(2.97)
Ownership Concentration	0.010***	0.017***	0.012***
	(2.78)	(14.36)	(4.71)
Leverage Ratio	-0.016***	0.001	0.006***
	(-7.84)	(0.57)	(4.27)
Return on Assets	-0.036***	-0.008**	0.025***
	(-7.60)	(-2.54)	(4.69)
Constant	88.303***	84.924***	84.603***
	(95.20)	(362.59)	(206.50)
Observations	25,279	25,247	15,510
Adjusted R^2	0.851	0.851	0.851

*Note: *, *, *** denote significance at the 10%, 5%, and 1% levels, respectively.

4.5. Mechanism test

The regression results examining the mechanisms through which new quality productivity affects organizational resilience are presented in Table 10. Column (1) shows that the coefficient of new quality productivity on financing constraints is -1.748, significant at the 1% level, indicating that new quality productivity enhances organizational resilience by alleviating financing constraints; thus, hypothesis H2 is supported. Column (2) shows that the coefficient of new quality productivity on investment efficiency is 0.190, significant at the 10% level, suggesting that new quality productivity promotes organizational resilience by improving investment efficiency; hence, hypothesis H3 is supported. Column (3) shows that the coefficient of new quality

productivity on digital transformation level is 42.076, significant at the 1% level, indicating that new quality productivity enhances organizational resilience through facilitating digital transformation; thus, hypothesis H4 is supported.

Table 10. Mechanism test results

Variable	(1) Financing Constraints	(2) Investment Efficiency	(3) Digital Transformation Level
New Quality Productivity	-1.748***	0.190*	42.076***
	(-5.13)	(1.72)	(21.09)
Firm Age	0.006	-0.001	0.063***
	(1.24)	(-1.34)	(2.92)
Board Size	-0.006***	-0.000	0.035***
	(-3.66)	(-0.70)	(3.30)
Independent Directors Ratio	-0.027	0.001	-0.187
	(-0.63)	(0.10)	(-0.79)
Ownership Concentration	0.002***	0.000***	-0.005***
	(5.21)	(3.07)	(-2.66)
Leverage Ratio	-0.007***	0.000***	0.004***
	(-43.13)	(7.04)	(4.28)
Return on Assets	0.003***	0.001***	0.003**
	(9.86)	(13.10)	(2.26)
Constant	0.787***	0.044***	-0.738**
	(12.22)	(3.34)	(-2.29)
Observations	25,279	25,279	25,247
Adjusted R^2	0.331	0.331	0.331

*Note: *, *, *** denote significance at the 10%, 5%, and 1% levels, respectively.

4.6. Heterogeneity analysis

There are significant differences in new quality productivity levels and organizational resilience among different enterprises. Given that enterprises vary in characteristics and development models, the economic effects of developing new quality productivity may exhibit substantial heterogeneity. This study conducts heterogeneity analysis of the impact of new quality productivity on organizational resilience by grouping firms based on ownership nature, firm size, and technology market development level. The results are shown in Table 11.

4.6.1. Ownership nature

Columns (1) and (2) divide the sample into “state-owned enterprises (SOEs)” and “non-state-owned enterprises (non-SOEs)” for separate regressions. Column (1) shows that for SOEs, the coefficient of new quality productivity on organizational resilience is 27.969, significant at the 1% level and positive. Column (2) indicates that for non-SOEs, the coefficient is not statistically significant. This suggests that new quality productivity significantly enhances organizational resilience in SOEs, whereas the impact is insignificant in non-SOEs. Possible reasons include: First, SOEs have multi-dimensional resource advantages in accessing and allocating resources, such as government funding, low-interest loans, and targeted subsidies, providing low-cost capital for R&D and transformation of new quality productivity. In contrast, non-SOEs face difficulties and higher costs in financing. Second, SOEs receive stronger government policy support for the development of new quality productivity, while non-SOEs encounter uncertainty in market acceptance and are more sensitive to policy changes.

4.6.2. Firm size

Columns (3) and (4) categorize the sample into “large enterprises” and “small and medium-sized enterprises (SMEs)” based on the median firm size, and run separate regressions. Column (3) shows that in large enterprises, the coefficient of new quality productivity on organizational resilience is 23.025, significant at the 1% level and positive; whereas in SMEs, the coefficient is not significant (Column 4). This indicates that developing new quality productivity significantly improves organizational resilience in large enterprises but has an insignificant effect in SMEs. This may be because large enterprises typically have more mature management systems that can effectively leverage improvements in new quality productivity to enhance organizational resilience. SMEs, however, may face internal management challenges and resource constraints, as well as difficulties in risk management, limiting the positive effect of new quality productivity on resilience.

4.6.3. Technology market development level

Columns (5) and (6) classify enterprises into groups of "high" and "low" technology market development levels, measured by the ratio of technology market transaction value to regional GDP, and conduct separate regressions. Column (5) shows that for enterprises in regions with high technology market development, the coefficient of new quality productivity on organizational resilience is 19.225, significant at the 5% level and positive. Column (6) shows that in regions with low technology market development, the coefficient is not significant. This suggests that in regions with a highly developed technology market, new quality productivity significantly enhances organizational resilience, whereas in less developed regions, the effect is insignificant. Possible reasons include: In high-development regions, enterprises tend to have strong technology dependence, making their resilience more sensitive to technological innovation and new quality productivity. They also tend to be market leaders capable of rapidly identifying and adapting to new technology trends, effectively utilizing new quality productivity. Furthermore, high R&D investment provides a solid foundation for technological innovation and application of new quality productivity. Conversely, in regions with low technology market development, lower technology dependence and R&D investment limit the efficient utilization of new quality productivity, thereby reducing its effect on organizational resilience.

Table 11. Heterogeneity analysis results

Variable	(1) SOEs - Resilience	(2) Non-SOEs - Resilience	(3) Large Firms - Resilience	(4) SMEs - Resilience	(5) High Tech Market Level - Resilience	(6) Low Tech Market Level - Resilience
New Quality Productivity (Npro)	27.969***	7.391	23.025***	1.163	19.225**	10.370
Firm Age (Age)	(3.08)	(1.15)	(3.39)	(0.13)	(2.35)	(1.42)
Board Size (Board)	-0.205*	-0.026	-0.120	-0.178	-0.141	-0.025
Independent Directors Ratio (Indep)	(-1.80)	(-0.47)	(-1.37)	(-1.63)	(-1.11)	(-0.47)
Ownership Concentration (TOP1)	0.054	0.011	0.087***	-0.017	-0.016	0.066*
Leverage Ratio (LEV)	(1.37)	(0.31)	(2.71)	(-0.37)	(-0.41)	(1.91)
Return on Assets (ROA)	-0.480	-1.072	0.337	-1.818*	-1.800*	0.177
Constant	(-0.45)	(-1.33)	(0.39)	(-1.78)	(-1.95)	(0.21)
Observations	0.006	0.011**	0.009*	0.006	0.005	0.014**
Adj. R^2	(0.89)	(2.34)	(1.76)	(0.89)	(1.00)	(2.56)
New Quality Productivity (Npro)	-0.012***	-0.013***	-0.019***	-0.010***	-0.010***	-0.010***
Firm Age (Age)	(-3.12)	(-4.98)	(-6.04)	(-3.01)	(-3.37)	(-3.39)
Board Size (Board)	-0.026**	-0.035***	-0.038***	-0.032***	-0.027***	-0.037***
Independent Directors Ratio (Indep)	(-2.39)	(-6.36)	(-5.32)	(-4.77)	(-3.79)	(-5.50)
Ownership Concentration (TOP1)	91.195***	88.151***	89.324***	90.471***	90.507***	87.253***
Leverage Ratio (LEV)	(50.50)	(104.22)	(66.78)	(63.66)	(51.42)	(105.85)
Return on Assets (ROA)	7,407	17,872	12,638	12,641	12,036	13,243
Constant	0.794	0.794	0.794	0.794	0.794	0.794

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

5. Conclusions and implications

This study takes A-share listed companies in Shanghai and Shenzhen from 2011 to 2022 as the research sample, focusing on the impact of new quality productivity on corporate organizational resilience, while further exploring how new quality productivity influences organizational resilience through three mechanisms: the level of financing constraints, investment efficiency, and digital transformation. Through theoretical analysis and empirical tests including baseline regression, mechanism analysis, endogeneity test, robustness test, and heterogeneity analysis, the results show that the improvement of new quality productivity can significantly enhance corporate organizational resilience. This conclusion remains valid after a variety of robustness checks such as propensity score matching and lagged independent variable processing. From the perspective of the influencing mechanism, new quality productivity can enhance firms' ability to resist risks and recover in complex environments through three paths: alleviating financing constraints, improving investment efficiency, and promoting digital transformation.

Heterogeneity analysis indicates that this impact varies significantly among different types of firms and regions: State-owned enterprises (SOEs) benefit more from the improvement of organizational resilience due to their advantages in resource acquisition and policy support brought by new quality productivity; large enterprises, with mature management systems and strong resource integration capabilities, exhibit more pronounced improvement in resilience; regions with high levels of technological market development, due to strong technological dependence and high R&D investment, can make more effective use of new quality productivity to strengthen organizational resilience. In contrast, non-state-owned enterprises, small and medium-sized enterprises (SMEs), and regions with low levels of technological market development are restricted by financing capabilities, management levels, and technological foundations, and the role of new quality productivity has not been fully realized.

Based on the research conclusions, in order to further improve the level of new quality productivity and thereby enhance corporate organizational resilience, the following suggestions are proposed:

(1) Enterprises should actively invest in new quality productivity, using technological innovation as the engine to accelerate the formation and optimized combination of new quality labor, new quality means of production, and new quality objects of labor. Enterprises should strengthen the leading role of technological innovation, increase investment and advancement in innovation, build a talent introduction and cultivation mechanism based on capability, contribution, and fairness, stimulate innovative vitality, and optimize the innovation ecosystem. They should focus on key core technologies, deepen basic research, and improve the quality of innovation. It is also necessary to accelerate digital transformation and green development, improve production efficiency, reduce resource consumption and environmental impact, and lay a solid foundation for organizational resilience.

(2) Develop new quality productivity to alleviate financing constraints and strengthen support for organizational resilience. On the one hand, through technological innovation and performance improvement, firms can enhance their attractiveness to external resources, broaden financing channels, and reduce financing costs. On the other hand, by optimizing business models and upgrading asset structures driven by new quality productivity, firms can improve intrinsic value and credit levels, alleviate information asymmetry, and tackle financing constraints from both internal and external aspects. This provides funding guarantees for the construction of organizational resilience and enhances enterprises' risk resistance capabilities.

(3) Enhance investment efficiency through new quality productivity to optimize the path of organizational resilience. By leveraging the digital and innovative advantages of new quality productivity, enterprises can reshape their investment decision-making and execution systems. With data-driven precision judgment, they can focus on high-value and high-efficiency investment areas, reduce blind and inefficient investments; empower production processes through technological innovation, accelerate the transformation of investment results, and improve investment returns. High-efficiency investment helps optimize resource allocation and activate growth momentum, making investment behavior a positive driving force for enhancing organizational resilience and promoting stable enterprise development.

(4) Promote digital transformation through the development of new quality productivity to expand the boundaries of organizational resilience. Technological innovation should accelerate the construction of digital infrastructure and the reshaping of business processes to improve operational efficiency and flexible response capability. Through digital tools, enterprises can integrate internal and external resources, expand the scope of resource acquisition and collaboration, and break traditional development boundaries. At the same time, digital transformation fosters new businesses and models, opening up new growth tracks. From multiple dimensions such as operational efficiency, resource integration, and business innovation, it broadens the development space of organizational resilience and strengthens enterprises' ability to adapt to changes and resist risks.

References

[1] Xia, X., Song, X. R., Dong, J. C., & Yuan, X. F. (2024). Digital economy development and organizational resilience of enterprises: The mediating role of breakthrough innovation and internal control. *Financial Theory and Practice*, (6), 53–64.

[2] Niu, X. N., & Mao, Y. (2025). The impact of the digital economy on the organizational resilience of paper-making enterprises. *Papermaking Science and Technology*, 44(5), 118–122.

[3] Wang, Y. G., & Gao, J. (2020). The shock of COVID-19, economic resilience, and China's high-quality development. *Economic Management*, 42(5), 5–17.

[4] Liang, L., & Duan, S. Y. (2024). Stronger through adversity: How do China's born-global firms build organizational resilience under continuous suppression?—An exploratory case study of TikTok's response to the U.S. ban. *Management Review*, 36(2), 273–288.

[5] Lü, Z., Huang, Y. C., Chen, C. M., et al. (2024). Corporate ESG performance, organizational resilience, and innovation efficiency: The moderating role of enterprise digitalization. *Modern Management Science*, (4), 127–137.

[6] Wang, H. Y., Zou, D. F., & Yan, C. (2025). The impact of digital transformation on organizational resilience and its mechanisms. *Farm Economy Management*, (1), 35–39.

[7] Yun, L. X., Dong, X. Y., Xu, H. Q., et al. (2024). How does digital transformation empower organizational resilience?—A dynamic capabilities perspective. *Finance and Accounting Monthly*, 45(14), 102–108.

[8] Wang, Q., Wang, Z. X., & Liu, Y. Q. (2023). The realization mechanism of digital transformation enhancing enterprise organizational resilience. *Journal of Management Sciences in China*, 26(11), 58–80.

[9] Mo, Y. L., & Ni, H. (2024). Research on the impact of corporate ESG performance on organizational resilience. *Industrial Technology and Economy*, 43(12), 92–102.
[10] Huang, M. H., He, S. Z., Dai, Y. W., et al. (2023). The impact of ESG performance on organizational resilience under the "dual carbon" goals: Empirical evidence from high-carbon industry listed companies. *Modernization of Management*, 43(6), 85–97.
[11] Liu, B., & Tan, S. Q. (2022). The impact of corporate social responsibility on organizational innovation resilience: A multidimensional empirical analysis of China's listed manufacturing enterprises. *Enterprise Economy*, 41(1), 113–121.
[12] Li, K. F., Zhang, Y. Q., & Chen, S. F. (2024). Intelligent digital transformation and organizational resilience of manufacturing enterprises under the background of green technology innovation. *Journal of Xi'an University of Finance and Economics*, 37(4), 84–96.
[13] Jia, Y., Fu, Q., Wang, L., & Li, D. S. (2023). Technological innovation and enterprise resilience: Based on the COVID-19 scenario. *Management Science*, 36(2), 17–34.
[14] Feng, W. N., & Chen, H. (2022). The impact of ambidextrous innovation on organizational resilience in high-tech enterprises: The moderating role of knowledge breadth and balance. *Science of Science and Management of S&T*, 43(4), 117–135.
[15] Luo, C. Y. (2025). Research on the impact of new quality productive forces on China's economic growth [Master's thesis, Hangzhou Dianzi University].
[16] Liu, Y. (2023). Deeply understanding and grasping the connotation and essence of developing new quality productive forces. *Red Flag Manuscript*, (24), 20–22.
[17] Zhou, W., & Xu, L. Y. (2023). On new quality productive forces: Connotation, characteristics, and key focal points. *Reform*, (10), 1–13.
[18] Pu, Q. P., & Huang, Y. Y. (2023). The logic, theoretical innovation, and contemporary value of Xi Jinping's important discourses on new quality productive forces. *Journal of Southwest University (Social Sciences Edition)*, 49(6), 1–11.
[19] Yao, S. J., & Zhang, X. Q. (2024). The contemporary connotation, strategic value, and realization path of new quality productive forces. *Journal of Chongqing University (Social Sciences Edition)*, 30(1), 112–128.
[20] Windsor, D. (2001). Stakeholder theory. *Proceedings of the International Association for Business and Society*, (12), 527–538.
[21] Wu, W. F., & Sun, J. L. (2025). On the scope of mandatory ESG information disclosure: Taking employee protection information as an example. *Journal of Shanghai University (Social Sciences Edition)*, 42(3), 1–17.
[22] Das, T., & Teng, B. (2000). A resource-based theory of strategic alliances. *Journal of Management*, 26(1), 31–61.
[23] Zhao, Q. Z., & Guo, Z. Q. (2025). Digital transformation empowers the development of new quality productive forces in manufacturing: An empirical study based on resource-based and dynamic capability theories. *Industrial Technology and Economy*, 44(1), 12–24.
[24] Zhang, X. H., & Ma, Y. (2024). Generative AI technology empowering the emergence of new quality productive forces: Value implications, operating mechanism, and practical paths. *E-Government*, (4), 17–25.
[25] Chen, M. G., & Zhang, K. (2024). New quality productive forces and the construction of a modern industrial system. *Reform*, (6), 58–69.
[26] Grattan, F. R. (2005). Strategy in the Battle of Britain and strategic management theory. *Management Decision*, 43(10), 1432–1441.
[27] Zhou, F. (2025). Innovative models of strategic management empowered by artificial intelligence. *Laozihao Brand Marketing*, (8), 142–144.
[28] Zhang, Y. L., Cheng, T. J., & Cai, J. Y. (2024). Do environmental costs promote high-quality development of enterprises?—The moderating role of carbon emission trading. *Business Studies*, 31(5), 87–100.
[29] Sadananda, P. (1998). Asymmetric information and the functioning of credit market. *SEDME (Small Enterprises Development, Management & Extension Journal)*, 25(3), 47–53.
[30] Wang, M., Zeng, J., & Zhao, K. W. (2024). The impact of digital-real integration on organizational resilience. *Western Finance*, (12), 53–62+84.
[31] An, L. (2024). Research on the development of new quality productive forces empowered by digital finance [Master's thesis, Shijiazhuang Tiedao University].
[32] Yao, W. X., Xia, J., & Sun, T. T. (2017). Research on financing constraints and their mitigation for technology-based SMEs from a supply chain finance perspective. *Science & Technology Progress and Policy*, 34(4), 105–110.
[33] Li, H. (2014). Bond financing, information asymmetry, and financing constraints—Empirical research based on non-financial listed companies. *Friends of Accounting*, (34), 50–54.
[34] Yan, F. (2023). Research on the impact of digitalization on the resilience of retail enterprises [Master's thesis, Nanjing Audit University].
[35] Liu, X. T. (2024). Research on the impact of corporate ESG responsibility on new quality productive forces [Master's thesis, Dalian Maritime University].
[36] Zhao, Y. Z., Qiao, Y. J., Zhou, L., et al. (2021). How emission reduction measures enhance the financial performance of high energy-consuming enterprises: The mediating role of carbon performance. *Systems Engineering*, 39(6), 14–24.
[37] Zhang, S. F., Xu, M. S., Zhu, Y., et al. (2023). Technological innovation, organizational resilience, and high-quality development of manufacturing enterprises. *Science & Technology Progress and Policy*, 40(13), 81–92.
[38] Wang, G. H., Lin, H., & Huang, H. (2024). The impact of resource orchestration on organizational resilience of SMEs from a digitalization perspective. *Science & Technology Progress and Policy*, 41(18), 77–86.
[39] Teece, D., & Pisano, G. (1994). The dynamic capabilities of firms: An introduction. *Industrial and Corporate Change*, 3(3), 537–556.
[40] Liu, C. (2024). Organizational resilience, internal control, and innovation performance [Master's thesis, Shandong University of Finance and Economics].
[41] Chen, J., Yang, W. C., & Yu, F. (2019). Ecosystem collaborative innovation strategy in digital transformation: Strategic discussion based on Huawei EBG China. *Tsinghua Business Review*, (6), 22–26.
[42] Wang, C. (2023). Digital transformation of manufacturing, organizational resilience, and the reconstruction of competitive advantage. *Economic Management*, 45(7), 76–93.
[43] Cao, Y., Liu, Y., Dong, Z. C., et al. (2022). Research on the impact of organizational inertia on the digital transformation of manufacturing enterprises from the perspective of dynamic capabilities. *Forum on Science and Technology in China*, (10), 85–94.

[44] He, Z. Y. (2023). The relationship among digital capability, organizational resilience, and enterprise performance in manufacturing enterprises [Master's thesis, Southwestern University of Finance and Economics].
[45] Gao, H., & Zhou, M. S. (2024). How digital transformation enhances enterprise resilience: An investigation based on dynamic capability theory and technological application context. *Research on Scientific Management*, 42(3), 53–65.
[46] Li, X. R., Tian, Z. R., & Chang, B. Q. (2024). New quality productive forces, resource utilization, and organizational resilience of enterprises. *Western Forum*, 34(4), 35–49.
[47] Wu, X. B., & Feng, X. Y. (2022). The impact of operational slack on organizational resilience in a VUCA context—The moderating role of sustained innovation capability. *Journal of Systems Management*, 31(6), 1150–1161.
[48] Song, J., Zhang, J. C., & Pan, Y. (2024). The impact of ESG development on new quality productive forces of enterprises—Empirical evidence from China's A-share listed companies. *Contemporary Economic Management*, 46(6), 1–11.
[49] Xiang, F. G., & Zhang, Y. F. (2025). ESG performance, financing constraints, and new quality productive forces of enterprises. *Enterprise Economy*, 44(5), 50–59.
[50] Liu, X., & Ye, K. T. (2013). Do corporate tax avoidance activities affect investment efficiency? *Accounting Research*, (6), 47–53+96.
[51] Wu, F., Hu, H. Z., Lin, H. Y., et al. (2021). Corporate digital transformation and capital market performance—Empirical evidence from stock liquidity. *Management World*, 37(7), 130–144+10.
[52] Liu, D., Wang, X. D., Wang, S. Y., et al. (2025). Empowering enterprise resilience with new quality productive forces—An analytical framework based on new production relations and factors. *Collected Essays on Finance and Economics*, (1), 15–25.
[53] Zhang, S. S., & Liu, Z. N. (2025). The impact and mechanism of regional new quality productive forces on total factor productivity of enterprises. *China Business and Market*, 39(1), 100–114.
[54] Yang, Y., Guo, J. Q., & Gao, Y. (2025). Mechanisms and effects of new quality productive forces empowering high-quality economic development. *Statistics and Decision*, 41(4), 109–113.