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The Impact of Corporate Digital Transformation on Financialization: Evidence from China's A-Share Listed Companies

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Abstract. Currently, the global trend of digital transformation and corporate financialization coexist, triggering concerns about the real economy. The focus on the development of the real economy. This article aims to explore the impact of digital transformation of enterprises on financialization. Using Chinese A-share listed companies from 2010 to 2023 as samples, this study employs text analysis to measure digital transformation and optimize financial indicators. Empirical research has found that digital transformation of enterprises significantly promotes financialization, and this conclusion is robust. Heterogeneity analysis shows that this promoting effect is mainly reflected in non-state-owned enterprises, while the impact on state-owned enterprises is not significant. This article provides a new perspective for understanding the evolution of resource allocation in the context of digitalization of Chinese enterprises, and provides policy implications for guiding enterprises to serve the real economy and prevent the risk of "shifting from reality to virtuality"

Keywords: Digital Transformation, Corporate Financialization, Textual Analysis, State-Owned Enterprises, Resource Allocation

1. Introduction

The global economy is undergoing a profound transformation driven by digital technologies, making corporate digital transformation an irreversible trend. The widespread application of emerging technologies such as cloud computing, big data, artificial intelligence, and blockchain is reshaping business models, enhancing operational efficiency, and significantly influencing strategic decision-making and resource allocation [1]. Concurrently, the development of global financial markets and shifts in corporate investment behavior have led to the increasing prominence of corporate financialization. This phenomenon refers to the allocation of a greater proportion of resources towards financial assets rather than productive operational activities [2]. This shift from the real to the financial economy has raised concerns about the resilience of the real economy and poses potential challenges to macroeconomic stability. The interplay between these two trends has prompted significant academic and practical interest in the potential relationship between corporate digital transformation and financialization.

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Existing research has extensively explored the impact mechanisms of digital transformation and financialization separately. On the one hand, digital transformation is generally recognized to enhance information transparency, optimize resource allocation efficiency, reduce transaction costs, and thereby foster innovation and improve performance. Digital technologies enable data-driven decision-making and faster market responsiveness, strengthening core competitiveness. On the other hand, corporate financialization is often viewed as a strategic response to declining returns on real economy investments, rising financial market yields, and abundant corporate cash flows, driven by the pursuit of short-term profit maximization [3]. This behavior may reflect prudence regarding future real investment opportunities or be motivated by the allure of high financial returns. However, systematic empirical investigation into the specific impact of digital transformation on corporate financialization remains limited, particularly within rapidly developing economies like China. Understanding this relationship holds significant theoretical and practical importance for guiding efficient resource allocation and promoting high-quality development of the real economy.

Theoretically, digital transformation could exert multi-dimensional, potentially conflicting influences on corporate financialization. From a perspective favoring financialization, digital transformation can significantly enhance a firm's capacity to acquire, process, and analyze information. Big data analytics may enable firms to identify, assess, and capitalize on financial investment opportunities more precisely, reducing risks associated with information asymmetry and increasing the attractiveness of financial investments. Furthermore, digital technologies can optimize internal fund management efficiency, potentially freeing up redundant capital. For instance, intelligent supply chain management and optimized production processes might reduce working capital requirements, increasing discretionary funds available for financial investments. Digital transformation could also alter corporate risk preferences, making firms more inclined to use financial instruments for risk management or arbitrage. Conversely, digital transformation might suppress financialization by enhancing the competitiveness and return on investment (ROI) of core business operations. For example, digital technologies can facilitate new product development, market expansion, increased production efficiency, and higher product value-added, making real investments more attractive. Additionally, the substantial capital investment required for digital transformation itself could crowd out funds otherwise allocated to financial investments. Consequently, the net effect of digital transformation on corporate financialization is an empirical question, the direction and magnitude of which likely depend on a combination of factors including industry characteristics, financing constraints, governance structures, and the macroeconomic environment.

This study examines the impact of corporate digital transformation on financialization using a sample of China's A-share listed companies from 2010 to 2023. This period represents a critical stage of accelerating digital transformation and increasing financialization in Chinese enterprises, providing rich empirical material. To measure digital transformation, textual analysis is employed [4]. This method quantifies the frequency of keywords related to blockchain, big data, cloud computing, artificial intelligence, and digital technology applications in annual reports, offering a more granular and objective measure of transformation depth and breadth compared to binary indicators or survey methods. Corporate financialization is measured as the ratio of financial assets to total assets [5], with two key adjustments: (1) excluding monetary funds (as they primarily support daily operations, not capital appreciation), and (2) including investment property (as its holding purpose in China often aligns with profit-seeking financial investment). Preliminary findings indicate a statistically significant positive effect of digital transformation on corporate financialization. This result offers a new perspective on the evolution of resource allocation by

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Chinese firms amidst digitalization and provides insights for policies aiming to steer resources towards the real economy and mitigate financial risks.

This study contributes to the literature in several ways: Firstly, it provides the first systematic empirical examination of the impact of corporate digital transformation on financialization, addressing a gap in existing research and enriching the literature on the economic consequences of digital transformation and the determinants of financialization. Secondly, it utilizes a textual analysis approach to construct the digital transformation index, offering a more nuanced measurement than traditional methods. Thirdly, it refines the definition of financial assets to better reflect the characteristics of financialization in the Chinese context. Finally, the findings provide empirical evidence on the financialization trend of Chinese firms in the digital era, offering valuable insights for policymakers seeking to promote digital transformation while preventing excessive "shift from real to virtual" activities and guiding capital towards the real economy.

The subsequent sections detail the research design, variable definitions, empirical models, results, robustness checks, and finally, conclusions and policy implications.

2. Literature review

Scholars have explored the conceptual underpinnings of digital transformation. From a technological perspective, it involves leveraging mobile, input, and analytical devices to digitally enhance business processes, improve user experience, and boost corporate performance [6]. As a process, it integrates emerging technologies—primarily AI, Blockchain, Cloud computing, and Big Data (ABCD)—to fundamentally restructure business operations (Chen & Wang, 2021). Regarding economic consequences, digital transformation employs intelligent technologies to transition traditional industries towards intelligence, breaking existing business models to enhance value creation [7].

Research on the relationship between digital transformation and corporate financialization primarily examines driving mechanisms and constraining pathways, summarized as follows:

2.1. Driving mechanisms of digital transformation on financialization

1. Precision Asset Allocation: Digital transformation, via big data analytics and cloud computing, enhances asset allocation efficiency. Digital finance development assists firms in more accurately identifying the risk-return profiles of financial assets, potentially shifting focus from short-term arbitrage to long-term value investing. Dynamic monitoring systems enable real-time adjustments to financial asset portfolios, balancing risk control and return objectives.

2. Diversified Financing Channels: Digitalization in commercial banking reshapes credit assessment, alleviating information asymmetry. Digital inclusive finance utilizes multi-dimensional data integration to provide customized financing solutions, reportedly reducing credit acquisition costs by over 40%. Blockchain applications can shorten supply chain financing cycles by approximately 30%.

3. Intelligent Risk Control: Machine learning algorithms facilitate real-time market volatility monitoring, increasing the responsiveness of financial portfolio adjustments by an estimated 60%. Digital risk control systems, employing stress testing and scenario simulation, can reportedly improve systemic risk warning accuracy to over 85%.

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2.2. Constraining pathways of digital transformation on financialization

1. Technology Innovation Orientation: Digital transformation may incentivize firms to redirect resources towards R&D. Leading firms reportedly allocate over 12 percentage points more to digital technology R&D than to traditional financial investments. Applications of smart manufacturing systems may increase returns on physical assets by around 8%, counteracting the "shift from real to virtual".

2. Ecosystem Restructuring: Industrial internet platforms foster collaborative innovation across supply chains. Corporate fund allocation towards participation in industrial digital ecosystems reportedly grows by an average of 15% annually. The synergistic effects of digital ecosystems may generate returns from cross-boundary investments exceeding those from purely financial investments by a factor of approximately 3.2.

Existing research predominantly focuses on the direct impact of digital transformation on production efficiency or financial performance, often neglecting the dynamic adjustment perspective of financial asset allocation, particularly within China's institutional context. Moreover, under the policy imperatives of "preventing systemic financial risks" and "serving the real economy through finance," critical questions arise. These include how digital transformation can optimize corporate financial asset structures (e.g., reducing leverage, enhancing liquidity) and balance short-term gains with long-term strategic objectives, representing significant theoretical and practical challenges.

3. Research design

3.1. Sample selection and data sources

The sample comprises all A-share listed companies in China from 2010 to 2023. Standard data screening procedures were applied, including the removal of specific firms (e.g., financial institutions, ST/ST firms, those with missing data) and winsorization of continuous variables at the 1st and 99th percentiles to mitigate the influence of outliers.

3.2. Variable definition

Table 1. Main regression

	finratio
DIGI	0.0012***
	(0.0005)
size	-0.0050***
	(0.0010)
lev	-0.0406**
	(0.0042)
roa	-0.0229**
	(0.0082)
clashflow	-0.0091***
	(0.0065)
growth	0.00003***

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Table 1. (continued)

	(0.0010)
top1	-0.0459**
	(0.0077)
balance	-0.0236**
	(0.0029)
tobinq	0.009***
	(0.0004)
_cons	0.1928
	(0.0222)
Individual Fixed Effects	yes
Time Fixed Effects	yes
r^2	0.5913
N	27408

Digital Transformation (DIGI): Current measurement approaches include: (1) Survey methods, limited by sample size and coverage; (2) Binary indicators, unable to capture transformation intensity; (3) Textual analysis, which posits that strategic digital initiatives are reflected in disclosures like annual reports. Adopting the textual analysis method [8], Python was used to mine annual reports. Keyword dictionaries encompassing blockchain, big data, cloud computing, artificial intelligence, and digital technology applications were defined. After processing reports with Chinese word segmentation tools, keyword frequencies were counted. To address right-skewness, the natural logarithm of the total keyword frequency plus one (ln(Total Frequency + 1)) serves as the measure of digital transformation intensity.

Corporate Financialization (FINRATIO): Measured as the ratio of financial assets to total assets [9], with specific adjustments: (1) Monetary funds are excluded, as they primarily support operational needs rather than capital appreciation; (2) Investment property is included, reflecting its prevalent role as a profit-seeking financial investment vehicle among Chinese firms.

Control Variables: A comprehensive set of firm-level controls was included to account for potential confounders: Firm Size (SIZE, ln(Total Assets)), Leverage (LEV, Total Liabilities / Total Assets), Profitability (ROA, Net Income / Total Assets; ROE, Net Income / Equity), Cash Flow (CASHFLOW, Net Operating Cash Flow / Total Assets), Growth (GROWTH, Year-on-Year Revenue Growth), Board Size (BOARD, ln(Number of Directors)), Ownership Concentration (TOP1, Largest Shareholder's Ownership %), Shareholder Balance (BALANCE, Combined Ownership of 2nd-10th Largest Shareholders / TOP1), and Market Value (TOBIN_Q, (Market Value of Equity + Book Value of Liabilities) / Total Assets). Industry and Year Fixed Effects are also incorporated.

3.3. Empirical model

To investigate the impact of digital transformation on corporate financialization, the following High-Dimensional Fixed Effects (HDFE) linear regression model is estimated:

$$\mathrm{FINRATIO}_{it} = \beta_0 + \beta_1\,\mathrm{DIGI}_{it} + \beta_2\,\mathrm{Controls}_{it} + \gamma_i + \delta_t + \varepsilon_{it} \quad (1)$$

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Where: $FINRATIO_{it}$ is the financial assets ratio of firm `i` in year `t`, $DIGI_{it}$ is the digital transformation index of firm `i` in year `t`, $Controls_{it}$ represents the vector of control variables for firm `i` in year `t`, γ_i denotes firm fixed effects (controlling for time-invariant firm heterogeneity), δ_t denotes year fixed effects (controlling for macroeconomic and policy shocks common to all firms in year `t`), ε_{it} is the idiosyncratic error term.

Table 2. Heterogeneity

	finratio
DIGI	0.0121**
	(0.0068)
size	0.0159**
	(0.0121)
lev	-0.1229
	(0.0490)
roa	-0.1233
	(0.1968)
roe	0.3586
	(0.0881)
clashflow	-0.4129
	(0.0859)
growth	-0.0698*
	(0.0133)
board	-0.0955*
	(0.0434)
top1	-0.2770
	(0.0916)
balance	-0.0370**
	(0.0367)
tobinq	0.0010***
	(0.0055)
_cons	0.1499
	(0.2736)
Individual Fixed Effects	yes
Time Fixed Effects	yes
r^2	0.1446
N	27408

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4. Empirical analysis

4.1. Descriptive statistics

Descriptive statistics reveal variation across variables `[Insert Table 2: Descriptive Statistics Here]`. The mean value of corporate financialization (FINRATIO) is 0.059, with a minimum of 0 and a maximum of 0.7253, indicating substantial variation in financialization levels across firms. The average digital transformation intensity (DIGI) is 1.4514. Summary statistics for control variables include: SIZE (mean 22.1319), LEV (mean 0.4187), ROA (mean 0.0412), ROE (mean 0.0633), CASHFLOW (mean 0.047), GROWTH (mean 0.158), BOARD (mean 2.1190), TOP1 (mean 0.3419), BALANCE (mean 0.3654), and TOBIN_Q (mean 2.0023).

4.2. Main regression results

The coefficient for the core explanatory variable, digital transformation intensity (DIGI), is 0.0012 and statistically significant at the 5% level (p-value = 0.019). This result indicates a positive association between corporate digital transformation and financialization. Specifically, holding other factors constant, a one-unit increase in the digital transformation index is associated with an average increase of 0.0012 units in the financial assets ratio. This finding suggests that digital transformation may enhance firms' informational advantages in financial markets, lowering entry barriers and risk assessment costs, thereby encouraging greater allocation of resources to financial assets. Furthermore, efficiency gains from digitalization might release idle capital, which, in the absence of high-return real investment opportunities, could flow towards financial markets seeking appreciation [10].

Table 3. State-owned enterprise

	finratio
DIGI	0.0017***
	(0.0006)
size	-0.0037***
	(0.0011)
lev	-0.0412**
	(0.0046)
roa	-0.0234**
	(0.0183)
roe	0.0116**
	(0.0085)
clashflow	-0.0063***
	(0.0081)
growth	-0.0015***
	(0.0012)
board	-0.0006***
	(0.0041)
top1	-0.0281**

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Table 3. (continued)

	(0.0092)
balance	-0.0192**
	(0.0036)
tobinq	0.0011***
	(0.0005)
_cons	0.1572
	(0.0255)
Individual Fixed Effects	yes
Time Fixed Effects	yes
r^2	0.5896
N	19492

4.3. Robustness tests

To assess the robustness of the core finding, an alternative measure of corporate financialization was employed. While the overall explanatory power (R-squared) decreased slightly and the significance or sign of some control variables changed, the coefficient for digital transformation intensity (DIGI) remained positive. Although its statistical significance decreased slightly from the 5% level in the main regression to the 10% level (p-value = 0.078), the stability of the coefficient direction and the conventional acceptance of the 10% significance level in economics research support the core finding: digital transformation exerts a positive influence on corporate financialization. This suggests that the positive relationship is robust to changes in the measurement of the dependent variable [11].

Table 4. Non state-owned enterprises

	finratio
DIGI	0.0017***
	(0.0006)
size	-0.0037***
	(0.0011)
lev	-0.0412**
	(0.0046)
roa	-0.0234**
	(0.0183)
roe	0.0116**
	(0.0085)
clashflow	-0.0063***
	(0.0081)
growth	-0.0015***
	(0.0012)
board	-0.0006***

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Table 4. (continued)

	(0.0041)
top1	-0.0281**
	(0.0092)
balance	-0.0192**
	(0.0036)
tobinq	0.0011***
	(0.0005)
_cons	0.1572
	(0.0255)
Individual Fixed Effects	yes
Time Fixed Effects	yes
r^2	0.5896
N	19492

4.4. Heterogeneity analysis: ownership type

Regression results comparing non-state-owned enterprises (Non-SOEs) and state-owned enterprises (SOEs) reveal significant heterogeneity in the impact of digital transformation on financialization `[Insert Table 5: Non-SOE Results Here; Insert Table 6: SOE Results Here]`:

Non-State-Owned Enterprises (Non-SOEs): Digital transformation exhibits a significant positive effect on financialization. This may stem from Non-SOEs facing stronger market competition pressures and profit objectives. The informational advantages and efficiency gains from digitalization could enable more flexible resource allocation, including investments in financial markets for higher short-term returns or risk management. Additionally, potentially constrained financing channels might make financial investment an avenue for accessing capital or utilizing idle assets.

State-Owned Enterprises (SOEs): The impact of digital transformation on financialization is statistically insignificant. This likely reflects the distinct objectives and constraints of SOEs, which often bear greater social responsibilities and policy mandates. Their operational decisions may prioritize serving national strategies and real economy development over pure profit maximization. Consequently, even if digitalization enhances financial investment capabilities, SOEs may face stricter regulatory oversight and internal performance evaluation mechanisms that limit their motivation and scope for financialization. Moreover, SOEs typically benefit from more stable financing channels and government support, reducing their reliance on financial investments for funding [12].

5. Conclusions and recommendations

5.1. Conclusions

Utilizing a sample of China's A-share listed companies from 2010 to 2023, this study empirically investigates the impact of corporate digital transformation on financialization. Employing HDFE linear regression models, along with robustness checks and heterogeneity analysis, the main conclusions are:

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1. Digital Transformation Promotes Financialization: The core finding is a statistically significant positive effect of digital transformation on corporate financialization. After controlling for firm size, leverage, profitability, and other factors, higher digital transformation intensity is associated with an increased ratio of financial assets to total assets. This relationship may arise because digitalization enhances firms' ability to acquire, process, and analyze information, improving the identification and capture of financial investment opportunities while reducing associated costs and risks. Efficiency gains may also free up capital that, amidst uncertainty in real investment returns, flows towards financial markets.

2. Robust Core Finding: The positive association between digital transformation and financialization demonstrates robustness. Although the statistical significance of the digital transformation coefficient decreased slightly (from 5% to 10%) when an alternative financialization measure was used, the positive coefficient direction persisted.

3. Heterogeneity by Ownership: The effect of digital transformation on financialization varies significantly with ownership type. It significantly promotes financialization in Non-SOEs but has an insignificant effect in SOEs. This divergence likely reflects Non-SOEs' stronger market incentives to leverage digital advantages for profit-seeking financial asset allocation, contrasted with SOEs' policy orientation and regulatory constraints that prioritize real economy resource allocation [13].

5.2. Policy recommendations

Based on the empirical findings, this study suggests the following policy considerations:

1. Steering Digital Transformation Towards the Real Economy: Given the observed positive link between digitalization and financialization, policies encouraging corporate digital transformation should simultaneously emphasize its application in bolstering the real economy. Incentives such as tax benefits or targeted subsidies could encourage firms to deploy digital technologies for optimizing production processes, fostering product innovation, and expanding markets, thereby enhancing real investment returns and mitigating excessive reliance on financial investments [14].

2. Strengthening Financial Market Oversight and Risk Prevention: As digital transformation may amplify firms' capacity for financial investment and introduce novel risks, regulators should closely monitor changes in the scale and structure of corporate financial activities leveraging digital technologies (e.g., high-frequency trading, complex product investments using AI/big data). Enhancing market surveillance frameworks and improving risk identification and early warning systems are crucial for safeguarding against systemic financial risks.

3. Implementing Differentiated Policies: Recognizing the stronger promotion effect in Non-SOEs, policy design should be ownership-sensitive [15].

For Non-SOEs: While encouraging digital innovation, policies should focus on improving the real economy investment environment (e.g., enhancing SME financing services, lowering financing costs for productive activities) to channel the capital and informational advantages derived from digitalization towards core business innovation and development, curbing excessive financialization.

For SOEs: Policies should reinforce their mandate to serve the real economy, leveraging digital advantages to improve the operational efficiency of state capital and the competitiveness of state-owned industries. Performance evaluation mechanisms for SOEs could be refined to incorporate contributions of digital transformation to the real economy, moving beyond a sole focus on short-term financial metrics.

4. Enhancing Corporate Governance and Resource Allocation Efficiency: Digital transformation provides new tools for resource allocation, but governance determines their use. Firms should strengthen internal governance and risk control frameworks to ensure that capital and information

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advantages enabled by digitalization are allocated efficiently and aligned with long-term strategic goals, avoiding a short-term focus on financial gains.

In summary, while corporate digital transformation is a vital engine for high-quality economic development, its potential influence on financialization warrants attention. Policymakers should acknowledge this complex relationship and design targeted measures to ensure digital transformation effectively empowers the real economy, fostering sustainable and healthy development [16].

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