A Review of Research on Corporate Digital Transformation and Its Capital Market Effects

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Abstract: *Digital transformation, as a systematic project that deeply integrates digital technology with the real economy, is profoundly affecting the pricing efficiency and resource allocation function of capital markets. This paper systematically reviews the connotation, measurement methods, and transformation paths of corporate digital transformation, and then summarizes its capital market effects from three dimensions: stock price, cost of capital, and information disclosure quality. The study finds that digital transformation significantly influences stock price synchronicity, crash risk, and mispricing by reshaping the information environment and governance mechanisms. Through multiple pathways such as enhancing information transparency, strengthening internal control, and stimulating innovation momentum, digital transformation effectively reduces the costs of equity and debt financing. Moreover, digital transformation generally improves the quality of information disclosure, creating a positive "information governance dividend," which performs prominently in curbing illegal information disclosure and improving the accuracy of earnings forecasts.*

Keywords: *digital transformation, capital market effects, stock price, cost of capital, information disclosure*

Introduction

In the era of the digital economy, data, as a new factor of production, is profoundly reshaping the fundamental logic of economic operations. Corporate digital transformation has transcended the mere scope of technological upgrading and evolved into a systematic project involving strategic restructuring, organizational change, and value creation model innovation, and its economic consequences have become a focal topic of academic discussion. With the continuous iteration of digital technology, digital transformation is redefining enterprises' production methods, management boundaries, and competitive landscape at the micro level.

The capital market, as the core hub for resource allocation, has its pricing efficiency and information transparency directly related to the effectiveness of financial services for the real economy. The efficient market hypothesis holds that in a competitive market with full information disclosure, stock prices can promptly absorb and reflect all valuable information. However, China's capital market has long exhibited relatively pronounced policy-driven market characteristics, where stock price fluctuations contain considerable irrational noise, making it difficult for firm fundamental information to be fully priced, and thus the information content of stock prices still needs improvement. This dilemma not only constrains the price discovery function of the capital market but also weakens its ability to guide optimal resource allocation, thereby affecting corporate financing costs and the effectiveness of investment decisions. Therefore, how to enhance the pricing efficiency of the capital market, reduce corporate capital costs, and improve the market information environment has become an important issue that urgently needs to be addressed. The development of digital technology provides new theoretical perspectives and practical pathways for solving the above dilemma.

Based on this, this paper focuses on the theme of "corporate digital transformation and its capital market effects" and systematically reviews the relevant literature. First, this paper reviews the research on digital transformation from three dimensions: concept definition, measurement methods, and transformation paths. Second, this paper concentrates on the capital market effects and summarizes the core findings and controversial issues of existing research from three levels: stock price, cost of capital, and information disclosure quality. Finally, on the basis of summarizing the research conclusions, this paper proposes future research directions that can be further explored, in order to provide references

and inspiration for subsequent studies.

1. Research on Digital Transformation

As a concentrated reflection of the deep integration of digital technology and the real economy, corporate digital transformation has become a major focus of scholarly attention. Existing research mainly analyzes this phenomenon from three perspectives: conceptual connotation, measurement methods, and transformation paths.

1.1 Definition of Corporate Digital Transformation

Corporate digital transformation is a comprehensive transformation process triggered by the deep integration of digital technology and enterprises. Verhoef et al. (2021) argue that digital transformation goes through three stages: digitization, digitalization, and digital transformation. Digitization refers to the technical process of converting analog signals or physical entity information into digital form. Digitalization refers to the use of digital technology to change business and daily life models, thereby adding value to the economy and society. Digital transformation, on the other hand, refers to a systematic project that uses digital technology clusters as the driving engine to deeply restructure the enterprise system. Zhong Xiaolong et al. (2024) point out that digital transformation, through the deep integration of key technologies such as artificial intelligence, big data, and cloud computing, triggers a paradigm shift in enterprises from the logic of value creation to the operational architecture, achieving a full-dimensional innovation and reshaping of strategic forms, organizational mechanisms, operational processes, product systems, and value delivery methods.

Existing literature mainly defines the connotation of corporate digital transformation from three perspectives: product and business digitalization, organizational structure digitalization, and corporate strategy digitalization. From the perspective of product and business digitalization, Wu Fei et al. (2021) argue that digital transformation refers to the use of digital technology to change traditional production methods, adjust old business processes, build new business platforms, and upgrade existing products. From the perspective of organizational structure digitalization, Xie Zhichun (2022) emphasizes that digital transformation refers to the use of digital technology to change the internal and external production and operation environment of an organization, thereby enhancing the enterprise's management and organizational capabilities and optimizing its organizational structure to adapt to the digital economy era. From the perspective of corporate strategy digitalization, Zhang Zhengang (2022) proposes that digital transformation refers to the use of digital technology to enhance an enterprise's predictive decision-making ability, thereby enabling continuous change and innovation in corporate strategy.

1.2 Measurement Methods of Corporate Digital Transformation

As the understanding of the conceptual connotation of corporate digital transformation deepens, academic research on its quantitative measurement methods is continuously expanding. Existing literature mainly uses four methods to measure the degree of corporate digital transformation: the scale method, the indicator method, the text analysis method, and the maturity model method.

Scholars who adopt the scale method focus on collecting primary data through structured questionnaires. Nasiri et al. (2020) and Chi Maomao et al. (2022) developed a corporate digital transformation scale in their studies, with their questionnaire items closely centered on specific information about corporate digital transformation, thereby quantifying the degree of transformation. In terms of the indicator method, scholars tend to extract relevant data from corporate financial reports for proxy measurement. Qi Huaijin et al. (2020) used the proportion and changes of digital economy-related assets in the detailed list of intangible assets as the measurement basis, while Liu Chang et al. (2023) focused on the investment amount in digital transformation projects, treating it as a key indicator for measuring the degree of digitalization. The application of the text analysis method has been widely expanded in recent years. Barnewold et al. (2020) and Wu Fei et al. (2021) measured the degree of corporate digital transformation by constructing a word frequency matrix related to digitalization. Another group of scholars, leveraging cutting-edge technologies, such as Jin Xingye et al. (2024) and Hu Zhongyi et al. (2025), utilized large language models under generative artificial intelligence technology to accurately parse digital expressions in texts and gain deep insights into their underlying patterns and deep associations. In the application of the maturity model, scholars focus on

constructing actionable evaluation systems. Liu Shuchun et al. (2025) systematically built an indicator system to depict the phased evolution paths and level progression of enterprises in the process of digital transformation, helping enterprises diagnose shortcomings during the transformation process.

1.3 Paths of Corporate Digital Transformation

Corporate digital transformation is a dynamic and multi-level evolutionary process. Its path not only involves adjustments in a single dimension but also emphasizes the collaborative reconstruction among technology, business, and organization. Existing research generally approaches this topic from three types of paths: technology application-oriented, business model-oriented, and organizational change-oriented.

The technology application-oriented path emphasizes driving corporate change with digital technology. Yu Feifei et al. (2022) further propose that enterprises can effectively improve operational efficiency by recombining data resources, digital technologies, and production conditions, and deeply integrating them into organizational systems. The business model-oriented path focuses on the reshaping and reconstruction of business logic through digital transformation. Wang Ziyang et al. (2020) emphasize that this innovation is not a modification of a single link but requires a systematic transformation of the business model based on multi-dimensional business integration and process reengineering. Warner et al. (2018), from a technology empowerment perspective, argue that emerging digital technologies represented by artificial intelligence and cloud computing can reconstruct business processes, improve service efficiency and quality, thereby promoting business simplification and giving birth to new business models. The organizational change-oriented path focuses on the structural restructuring and cultural adaptive adjustment of the organizational system. Zhang Mingyuan (2022) points out that establishing cross-functional digital teams helps improve corporate innovation efficiency and market response speed, and some enterprises further promote the implementation of transformation strategies by setting up specialized positions such as chief digital officer.

2. Research on the Capital Market Effects of Digital Transformation

The impact of digital transformation on capital markets is not confined to a single dimension; rather, it systematically affects the pricing efficiency and resource allocation function of capital markets through multiple pathways, including the reconstruction of the information environment, the optimization of governance mechanisms, and the guidance of market expectations.

2.1 Digital Transformation and Stock Price

Regarding the impact of digital transformation on stock prices, academic discussions focus on three dimensions: stock price synchronicity, stock price crash risk, and stock mispricing. The academic community tends to believe that digital transformation significantly changes the information content of stock prices and their volatility characteristics by reconstructing the information environment and governance structure.

In the field of stock price synchronicity, research diverges on whether digital transformation enhances or weakens the co-movement between individual stocks and overall market fluctuations. Niu Biao et al. (2025), from the perspective of signaling theory, argue that the digital transformation information actively released by enterprises is idiosyncratic and can be absorbed by the market and incorporated into stock prices, thereby weakening the dependence of stock prices on market fluctuations. Zou Xiaofeng et al. (2023), from the perspective of noise trading, propose that digital transformation improves information transparency, purifies the noise component in stock prices, and makes stock prices more closely follow market fundamentals, thereby increasing synchronicity.

In the field of stock price crash risk, the research conclusions show a high degree of consistency. Wen Jun et al. (2026) argue that digital transformation enhances the volatility resilience of listed companies' stock prices by reducing business uncertainty and curbing informed trading. Yue Xiaotong (2024) extends the unit of analysis from individual firms to the industry level and finds that the imitation and diffusion of digital transformation among peer firms can significantly reduce the likelihood of future stock price crashes by alleviating financing constraints and improving governance levels.

In the field of stock mispricing, the controversy is relatively significant. Most studies tend to

support the "correcting" function of digital transformation. Empirical analyses by scholars such as Li Wenfei (2023) and Cao Wenjian (2024) indicate that digital transformation narrows the deviation between stock prices and their intrinsic values by improving the quality of information disclosure, attracting analyst coverage, and optimizing internal governance. However, Xu Gang (2024) provides counter-evidence, arguing that digital transformation may exacerbate stock overvaluation by triggering excessive market attention and boosting investor optimism.

2.2 Digital Transformation and Cost of Capital

Regarding the impact of digital transformation on the cost of capital, existing scholars mainly study the influence of digital transformation on the cost of capital, its transmission mechanisms, and conduct heterogeneity analysis. The academic community believes that digital transformation plays a positive role in reducing the cost of capital, and the strength and direction of this effect are highly dependent on the moderation of multiple factors.

From the perspective of overall effects, the inhibitory effect of digital transformation on the cost of capital has been confirmed by a large number of empirical studies. Li Wendan (2024) and Sheng Mingquan et al. (2024), based on data from A-share listed companies, find that an increase in the level of corporate digitalization can significantly reduce the cost of equity capital, and this conclusion remains robust under various robustness tests. Liu Ting (2023) further extends the analytical boundary to the debt side, confirming that digital transformation can also reduce the cost of debt financing, though its impact on the equity side is more significant.

At the mechanism level, scholars believe that information transparency is the core mediating variable. Chen Weiliang (2024) and Chai Xingtong (2024), from the perspective of agency theory, point out that digital transformation indirectly affects the cost of capital by strengthening internal control, constraining earnings management behavior, and weakening principal-agent conflicts. Qiu Yan et al. (2024) construct a more comprehensive explanatory framework, arguing that the mitigation of information asymmetry, the stimulation of innovation momentum, and the improvement of internal control quality collectively constitute the mechanisms through which digital transformation affects the cost of capital, and that there is a significant superposition effect among these factors.

Heterogeneity analysis further enriches the applicable boundaries of the research conclusions. Li Wendan (2024) points out that in contexts of low environmental richness, intense industry competition, or lagging marketization processes, the effect of digitalization on reducing the cost of equity capital is more pronounced. Chen Weiliang (2024), from the perspective of corporate growth, analyzes that the digitalization effect is more prominent in high-growth enterprises, which may be attributed to their stronger resource integration capabilities and faster market response speed.

2.3 Digital Transformation and Information Disclosure Quality

Existing literature generally believes that digital transformation significantly improves the quality of corporate information disclosure by optimizing information processing capabilities and enhancing internal governance mechanisms, thereby creating a positive information governance effect. From the perspective of information transparency, Xu Yali et al. (2023), based on A-share data, find that digital transformation can enhance corporate information transparency and thereby strengthen risk-taking capacity, with information transparency serving as a key mediating variable. Liu Beibei et al. (2024) further confirm that digital transformation promotes an overall improvement in the information disclosure quality of listed companies by attracting analyst site visits and reducing information asymmetry. Xu Ziyao et al. (2023), from an internal organizational perspective, point out that the digitalization process promotes the standardization of information disclosure behavior by strengthening internal control mechanisms and improving financial stability.

Some scholars analyze this issue from the perspectives of information disclosure violations and governance effects. Ma Defang et al. (2023) find that digital transformation effectively constrains corporate information disclosure violations, and the realization of this governance effect mainly relies on the improvement of accounting information transparency and the enhancement of the internal control system. Song Haitao (2025) constructs a more systematic information disclosure quality framework, incorporating accounting information, earnings forecasts, and forward-looking information into a unified analytical framework, and finds that digital transformation significantly improves information disclosure across different dimensions, with nonlinear characteristics such as a "U-shaped" relationship.

3. Research Conclusions and Prospects

Existing research has formed a relatively systematic body of work on digital transformation and its capital market effects. Regarding digital transformation, scholars define its connotation from three dimensions: product and business restructuring, organizational structure optimization, and corporate strategic transformation. The measurement methods include scale assessment, indicator calculation, text mining, and the maturity model. The transformation paths focus on technology embedding, business model reshaping, and organizational structure adjustment. Regarding capital market effects, digital transformation profoundly influences the stock price formation mechanism by reshaping the information ecosystem. Digital transformation significantly reduces financing costs through three pathways: improving information transparency, strengthening internal control, and stimulating innovation momentum. Digital transformation generates a positive information governance dividend, enhancing information disclosure quality by increasing transparency, curbing illegal information disclosure, and optimizing the accuracy of earnings forecasts.

Looking ahead, future research can be further deepened in the following directions. First, future research should further reveal the heterogeneous transmission mechanisms of digital transformation on stock price synchronicity under different market structures, and clarify the boundary conditions for its dual functions of idiosyncratic information integration and market noise purification. Second, future research should systematically deconstruct the multiple mediating pathways of digital transformation affecting the cost of capital and their interactive superposition effects, thereby constructing a more explanatory integrated analytical framework. Third, future research should deeply explore the nonlinear relationship between digital transformation and information disclosure quality.

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