Original Research Article

# Analysis of the impact pathways of public data openness on corporate financial transparency

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***Abstract:*** Against the backdrop of digital economy growth and data element market reform, how public data openness enhances corporate financial transparency is a critical research topic with theoretical and practical significance. This paper integrates information asymmetry, resource-based, and agency theories to build a framework explaining how public data openness impacts corporate financial transparency. Through international model comparisons and Chinese case studies, it reveals mechanisms and effectiveness disparities. The findings are as follows:(1)Public data openness improves corporate financial transparency via institutional pressure ("data verification - exposure - punishment") and resource empowerment ("complementarity - iteration - reconstruction"), but policy tool suitability and industry heterogeneity persist.(2)Government-led models strengthen external regulation with broad data; market-driven models motivate with high-value data; hybrid models optimize within secure frameworks.(3)Data openness effectiveness is constrained by standardization, governance, and revenue distribution, requiring solutions like tiered access, dynamic incentives, and trustworthy technology to address "information opacity" and "data abuse."This paper puts forward the optimization path of "institutional innovation-scenario-driven-ecological synergy", which provides theoretical support and policy enlightenment for improving the governance rules of data elements and building China's plan for enterprise transparency construction.

***Keywords:*** Public data disclosure; Corporate financial transparency; Institutional pressure; Resource enablement; Data governance model

## 1. Introduction

Fueled by the digital economy and governance modernization, public data openness, vital for unlocking data value, has drawn academic and policy attention. Research indicates it affects corporate decisions and market performance by optimizing information, resource allocation, and oversight (Li Ronghua, Wang Jiaojiao, 2025). By 2023, China had over 200 local data platforms, covering enterprise registration, credit, and industry stats. In September 2024, the CPC and State Council called for leveraging public data to empower the real economy, aligning with the 20th CPC Congress's goal to build a foundational data system, shifting focus from infrastructure to value extraction.

Yet, how public data openness impacts corporate financial transparency is theoretically disputed and practically paradoxical. While policymakers expect it to resolve disclosure opacity, some scholars argue it may cause information overload and "noise trading." Studies also reveal that in regions with weak data governance, public data misuse may foster rent-seeking, distorting transparency incentives (Zhang Xiangjian, et al., 2025). These gaps highlight limitations in current research on theoretical frameworks and policy logic.

This paper addresses: How does public data openness reshape corporate transparency mechanisms via institutional pressure and resource empowerment? What are the effectiveness differences among data openness models? How can incentive-compatible policies optimize public data openness and corporate transparency?

Answering these can support China's digital economy rule-making globally.

# 2. Theoretical linkages between public data openness and corporate financial transparency

## 2.1. Definition of core concepts

Public data openness is governments and public institutions giving non-confidential data to entities for free or a fair cost via standard ways. Providers are mainly government departments, public institutions, and authorized state-owned enterprises.

Corporate financial transparency is a composite concept encompassing the following dimensions: disclosure quality, including information accuracy, timeliness, and completeness; comparability, such as consistency in accounting policies and standardization of industry data; and verifiability, reflected in the credibility of third-party audit opinions and the feasibility of cross-verification with public data.

## 2.2. Economic consequences of public data openness

As a core component of market-oriented allocation of data elements, the economic consequences of public data openness have shifted from macro-institutional discussions to micro-mechanism analyses. With the introduction of relevant policies, academic attention has increasingly focused on its role in reshaping market actors' behaviors, with research expanding to areas such as corporate innovation, investment decisions, and risk-taking (Zhong Jiaqin, et al., 2025). Notably, most literature supports the positive effects of public data openness. However, this consensus has yet to emerge in the field of financial transparency, as studies often overlook the counter-mechanism whereby enterprises may strategically reduce transparency due to risks associated with data exposure.

## 2.3. Theoretical mechanisms of public data openness influencing corporate behavior

Information Governance. Using information asymmetry theory, public data openness limits firms' information manipulation via industry benchmarks and government regulations. This supports our study on external pressures driving corporate financial transparency changes.

Resource Reconfiguration. Resource-based theory sees public data as a new factor enabling firms to upgrade. Zhong Jiaqin et al. (2025) note data openness boosts innovation via digital investments; Chen Xingshu et al. (2024) find it improves investment efficiency by cutting institutional costs. Financial transparency changes may stem from strategic shifts during resource reconfiguration.

Risk Response. Agency theory research shows public data openness may make management risk-averse. For instance, it can widen internal income gaps, hinting at management using compensation manipulation to counter data exposure risks. Yet, it also boosts firms' risk-taking by easing financing (Sun Xinyan et al., 2024). These insights help explain micro-level reasons for financial transparency drops.

# 3. Typical models of public data openness and international comparison

In global public data openness, varied models arise from governance, market, and security differences.

The government-led model, seen in the U.S. and Singapore, uses top-down laws to define openness and responsibilities, treating data as public assets. For example, U.S. Data.gov focuses on public interest. However, it relies on law and efficiency, and self-reported data quality varies. In 2023, 30% of financial fraud cases had inconsistent open and internal data.

The market-driven model, like the EU's Enterprise Data Space, uses the PSI Directive for market-oriented

data allocation, promoting supply chain data reuse. But it needs advanced processing, challenging developing countries.

China's hybrid model under the Twenty Articles on Data framework uses a "government + platform" structure. For instance, Beijing's Financial Data Zone integrates 5 billion data entries to empower inclusive finance, cutting small business loan times from months to 5 minutes. Yet, it must avoid administrative interference distorting markets and worsening information distortion.

International comparisons show models differ in openness scope and utilization effectiveness. The government-led model strengthens oversight but often leads to information asymmetry in SMEs. The market-driven model empowers corporate controls with precise data but risks monopolies. Data shows IDS participants increased environmental disclosure by 18% and reduced restatements by 7%, validating technological synergy for transparency. China's hybrid model prioritizes high-value data release but needs revenue distribution and application improvements.

All models must balance openness with security. The EU's GDPR weakens the market-driven model, while China needs market-oriented pricing in its "data fiscal" pathway to enhance the hybrid model.

# 4. Practical pathways for how public data openness influences corporate financial transparency

## 4.1. Direct regulatory pathway: Transmission and strengthening of institutional pressure

Public data openness establishes a regulatory closed loop of "data verification–violation exposure–deterrent punishment," imposing mandatory constraints on corporate financial transparency. In the EU's Enterprise Data Space, cross-border tax data sharing has improved the efficiency of identifying transfer pricing violations by multinational enterprises, compelling companies to enhance the standardization of revenue recognition and the completeness of related-party transaction disclosures. In China's "Golden Tax Phase IV" system, the cost of financial fraud through fictitious transactions and false invoicing has significantly increased.

However, the effectiveness of the direct regulatory pathway is constrained by three key conditions: First, insufficient data standardization undermines regulatory efficacy; second, variations in regulatory coordination capabilities affect the transmission of institutional pressure; and third, the intensity of penalties must align with market responses. For instance, the U.S. SEC's dual penalties of "clawback of illicit gains + market entry bans" are significantly stricter than the current penalty caps under China's Securities Law.

## 4.2. Indirect governance pathway: Dynamic response of resource empowerment

Public data openness urges firms to boost transparency management via a "data complementarity–tech iteration–ecosystem rebuild" chain. In IDS, this progresses as: data complementarity improves disclosure quality, aiding steel firms in precise carbon cost calculation; tech synergy enhances efficiency, with Singapore's IRAS pre-filled tax system automating tax-financial data reconciliation, cutting manual adjustment time by 82%; and ecosystem rebuild fosters new models like Shanghai Data Exchange's "data asset recognition" service, improving balance sheet verifiability.

Notably, the resource empowerment pathway exhibits significant industry heterogeneity. Highly digitized industries can rapidly integrate public data with commercial scenarios, whereas traditional manufacturing industries experience a 6–8 month lag in transparency improvements. The case of Shenyang Blower Group illustrates that implementing a "master data management + blockchain traceability" system improved the accuracy of after-sales maintenance cost disclosures.

### 4.3. Synergetic optimization strategies for dual pathways

Achieving a dynamic balance between institutional pressure and resource empowerment requires innovation in policy tools and the cultivation of data ecosystems. Key strategies include: Differentiated hierarchical authorization mechanisms, implementing unconditional openness for basic data to strengthen inclusive social oversight, while adopting a "government-led + licensed operation" model for high-value data to balance security and commercial value; Development of incentive-compatible policy toolkits, such as introducing a "data capability certification" system; Implementation of a "data fiscal" feedback mechanism to reinvest data revenues; and Pilot programs in free trade zones, allowing multinational enterprises to conduct consolidated financial statement audits based on trusted data spaces.

EU's DGA shows a "DPIA + multi-party secure computing" mechanism raises public data openness's economic benefit-to-security risk ratio to 5.3: 1. China, under the Twenty Articles on Data, should speed up developing a public data openness efficacy evaluation index, including corporate transparency in local governments' digital governance assessment.

## 5. Optimization pathways for enhancing corporate financial transparency through public data openness

The optimization pathways for public data openness should be rooted in institutional innovation, driven by model breakthroughs, supported by capacity building, underpinned by security safeguards, and extended through international cooperation.

1. Institutional Level: Establish a hierarchical and classified dynamic openness mechanism, categorizing data into a three-tier framework of "prohibited, restricted, and unconditional" based on sensitivity and value attributes to strengthen institutional rigidity and constraints.

2. Model Innovation: Promote a hybrid operation model of "government-led + licensed operation," leveraging blockchain technology to ensure the trustworthiness of cross-entity data verification.

3. Capacity Building: Focus on enterprise data assetization management, promoting the recognition and inclusion of data resources in financial statements, and utilizing technologies such as federated learning to enable the secure use of highly sensitive data.

4. Security Safeguards: Implement a comprehensive protection architecture throughout the data lifecycle, encompassing dynamic desensitization at the front end, AI-driven behavior monitoring at the middle tier, and blockchain-based evidence preservation at the back end.

5. International Collaboration: Launch pilot programs in free trade zones to promote mutual recognition of data spaces and technical standard exports between China and the EU. Simultaneously, advance cross-border scenarios, such as the ASEAN Digital Trade Port, through the "Belt and Road" data corridor, ultimately forming a secure, controllable, value-releasing, and interconnected public data openness ecosystem.

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