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A Study on the Impact of Data Asset Disclosure on the Efficiency of Corporate Capital Allocation

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Abstract

Disclosure of data asset information helps unlock the value of data as a production factor. Through a review of the literature and theoretical analysis, this paper constructs a framework linking "disclosure of data asset information - alleviation of financing constraints/reduction of agency costs - efficiency of capital allocation". Theoretical analysis indicates that disclosure of data asset information can enhance the efficiency of capital allocation in firms; this effect operates through the alleviation of financing constraints and the reduction of agency costs. The digital economy positively moderates this effect, and the strength of the effect varies with the verifiability and proprietary nature of the disclosed data assets. Based on these findings, this paper proposes recommendations at the levels of firms, governments, and investment institutions.

Keywords

Disclosure of Data Asset Information, Efficiency of Capital Allocation, Financing Constraints, Agency Costs, Digital Economy

1. Introduction

Data assets have become a core strategic resource for enterprises. High-quality disclosure of data asset information can effectively alleviate information asymmetry in the capital markets, guide social capital toward high-quality listed companies, and attract sustained attention and oversight from analysts and institutional investors, thereby improving the overall market environment and enhancing pricing efficiency in the capital markets. However, according to the *Tracking Report on the Recognition of Data Assets on the Balance Sheets of Chinese Enterprises* released by the Shanghai Advanced Institute of Finance at Shanghai Jiao

Tong University, as of April 30, 2025, only 100 of the more than 5000 A-share listed companies had disclosed information regarding the recognition of data assets on their balance sheets, accounting for less than 2 percent. This phenomenon not only reflects the technical challenges that still exist at the operational level—such as the recognition, measurement, and presentation of data assets—but also highlights the lack of intrinsic motivation among listed companies to proactively disclose information regarding their data assets.

The efficiency of capital allocation directly determines the effectiveness of a firm's resource utilization and serves as the core driver for facilitating the smooth circulation of the domestic economy and promoting the quality improvement and upgrading of the real economy. Existing research on data assets primarily focuses on perspectives such as corporate value, stock price volatility, and financing costs; however, few studies have systematically examined the intrinsic relationship between data asset disclosure and the efficiency of capital allocation. Theoretical explanations regarding its transmission mechanisms, external regulatory effects, and scenarios of differentiated impacts remain insufficient. Therefore, based on a review of the literature and theoretical analysis, systematically addressing questions such as "Does the disclosure of data assets affect a firm's capital allocation efficiency, and if so, how?" "Through which mechanisms does this effect occur?" and "Under what circumstances is this effect more pronounced?" holds significant theoretical and practical value.

Based on this, this paper employs literature review and theoretical analysis methods. By reviewing relevant research on data asset disclosure, information asymmetry, principal-agent problems, financing constraints, and capital allocation efficiency, the paper constructs a theoretical analytical framework of "data asset disclosure—alleviation of financing constraints and reduction of agency costs—capital allocation efficiency." It further introduces the level of the digital economy as a moderating variable and distinguishes between data asset types to examine how the verifiability and proprietary nature of disclosed data shape the effect. This paper aims to reveal, from a theoretical perspective, the intrinsic logic by which data asset disclosure influences firms' capital allocation efficiency. It provides a theoretical reference for regulatory authorities to improve data asset disclosure systems and enhance listed companies' willingness to disclose information, while also offering testable propositions and a framework for future empirical research.

2. Theoretical Analysis

2.1. Disclosure of Data Asset Information and the Efficiency of Corporate Capital Allocation

It is necessary to clarify that data assets are not a homogeneous category. This paper distinguishes between highly proprietary and privacy-sensitive data assets and standardized operational data assets. These two types differ in valuation metrics, privacy risks, and disclosure incentives, and therefore their disclosure effects

on capital allocation should not be treated as identical.

On the one hand, the disclosure of data asset information can improve the external market information environment and enhance the efficiency of a company's capital allocation. First, when a company discloses information about its data assets, it can effectively address the shortcomings of traditional financial statements, lower information barriers between external investors and internal managers, and reduce investor cognitive biases caused by information asymmetry (Huang et al., 2025). Second, high-quality disclosure of data asset information can incorporate more company-specific characteristics into stock prices, significantly reducing price synchrony. This allows stock prices to better reflect a company's own operating performance rather than overall market fluctuations, thereby guiding capital to flow toward the best (Wang & Hou, 2025). Third, once data asset information is disclosed, it tends to attract widespread attention from analysts, thereby increasing the depth of information regarding the company's characteristics and the accuracy of forecasts in analyst reports; furthermore, through analysts' ability to obtain and disseminate information, it helps investors reduce uncertainty in their investment decisions (Xia et al., 2026).

On the other hand, the disclosure of data asset information can optimize internal resource management processes and improve the efficiency of a company's capital allocation. First, preparing disclosure reports involves systematically organizing and evaluating the value of a company's data resources, thereby enabling management to make better investment decisions and reducing overinvestment or underinvestment caused by incomplete information (Wang, 2026). Second, to ensure compliance with disclosure requirements, companies need to establish and refine supporting data governance and internal control systems. A robust internal control system can effectively oversee the exercise of authority in capital allocation, ensuring that funds are directed toward areas that truly create value. Third, when companies share data asset information internally, they can drive effective collaboration across departments and processes. This synergy can significantly accelerate working capital turnover, thereby freeing up more capital for strategic long-term investments.

2.2. The Mediating Role of Financing Constraints between the Two

The theory of information asymmetry posits that information barriers in the market increase firms' financing costs, exacerbate financing constraints, and consequently affect firms' cash flow, thereby influencing their capital allocation behavior. The disclosure of data asset information can effectively alleviate firms' financing constraints through various channels. In terms of debt financing, standardized data asset information can serve as a "new form of credit instrument," significantly enhancing banks' confidence in assessing firms' repayment capacity and operational stability (He et al., 2026). In terms of equity financing, the growth potential and governance transparency embodied by data assets can boost inves-

tor confidence, attract more venture capital and private equity, and broaden sources of long-term capital (Chen et al., 2026). At the policy and resource level, systematic disclosure of data asset information is a direct reflection of a company's commitment to the national digital strategy and a demonstration of its compliance and innovation capabilities, helping it gain a competitive edge when applying for government subsidies and industrial funds (David & Zeke, 2022).

The easing of financing constraints improves the efficiency of capital allocation by optimizing the input of key factors in enterprises. First, the "loosening" of financing restrictions enables enterprises to make forward-looking investments in fixed assets, which not only allows them to upgrade equipment and expand effective production capacity but also enables them to withdraw capital from inefficient sectors and reallocate it to high-return projects, thereby achieving a structural upgrade of fixed assets (Bin et al., 2018). Second, ample cash flow ensures stability in raw material procurement and market expansion, and allows companies to allocate more resources to high-value-added areas such as research and development and digital transformation, thereby optimizing the structure of operational inputs (Huang et al., 2025). Finally, the easing of financial pressures enables companies to attract and retain key talent by offering more competitive compensation and providing enhanced professional training, thereby driving the transformation of human capital from a "cost" to an "asset" and improving per-capita productivity (Bai et al., 2025).

2.3. The Mediating Role of Agency Costs in This Context

The principal-agent theory posits that information asymmetry within a firm increases agency costs and leads to inefficiencies in capital allocation. Disclosing information on data assets can effectively alleviate agency problems and reduce the agency costs resulting from information asymmetry. First, such disclosure enables controlling shareholders to obtain more information, thereby strengthening oversight by major shareholders, which in turn curbs opportunistic behavior by managers and facilitates optimal investment decisions (Wang et al., 2024). Second, by disclosing the ownership and transaction details of their data assets and leveraging third-party markets to effectively oversee controlling shareholders, companies increase the difficulty and cost of channeling benefits to insiders, thereby safeguarding the right of minority shareholders to fair and timely information (Bi et al., 2026). Finally, the disclosure of data asset information enhances corporate transparency, helps alleviate information asymmetry between management and external shareholders, strengthens external investors' oversight of the company, and reduces agency costs (Wang et al., 2025).

Reducing agency costs is key to improving the efficiency of a company's capital allocation. First, reducing agency costs between shareholders and management can effectively curb inefficient investment behavior by management. This not only restrains management's impulse to overinvest due to opportunism but also corrects the tendency toward underinvestment caused by risk aversion, thereby di-

recting capital toward investment projects with high rates of return; Second, reducing agency costs between controlling shareholders and minority shareholders can curb "tunneling" behavior by controlling shareholders, prevent corporate resources from being drained through improper means such as related-party transactions, and ensure that corporate capital is retained and used for long-term investments (Wei et al., 2022). Finally, reducing agency costs between shareholders and creditors helps boost creditor confidence, enabling high-quality investment projects to secure the necessary funding at a lower cost.

2.4. The Moderating Role of the Digital Economy

The level of digital economy development reflects the sophistication of regional information infrastructure, the depth of data factor marketization, and the breadth of industrial digitalization. It does not independently determine capital allocation efficiency; rather, it moderates the strength of the relationship between data asset disclosure and capital allocation efficiency through three interrelated mechanisms (Whited & Wu, 2006). First, digital infrastructure and data trading platforms improve the verification and pricing of disclosed data asset information. When data assets can be benchmarked, audited, and traded, investors and creditors can more accurately assess their value and risk, so disclosed information is more likely to be incorporated into financing and investment decisions. Second, digital platforms accelerate information transmission and capital response, shortening the lag between disclosure and capital reallocation. Third, a more developed digital governance system enhances the standardization and comparability of data asset disclosure, reducing interpretation divergence and information friction (Huang & Zhang, 2012). By contrast, in regions with lower digital economy development, disclosed data asset information is harder to verify, compare, and transmit, and its guiding role in capital flows is weaker. Therefore, the positive effect of data asset disclosure on capital allocation efficiency is stronger in regions with higher digital economy development. The positive effect of data asset disclosure on capital allocation efficiency is stronger when the level of digital economy development is higher.

2.5. Data Asset Heterogeneity and the Contingent Effect of Disclosure

Data assets differ in verifiability, proprietary value, and privacy sensitivity. Standardized operational data assets are easier to measure, verify, and benchmark. Their disclosure is therefore more likely to reduce information asymmetry, alleviate financing constraints, and improve pricing efficiency (Liu et al., 2026). Highly proprietary data assets, such as algorithm source codes, user behavioral profiles, and core databases, are more difficult to value and carry greater privacy, security, and competitive risks. Firms therefore have weaker incentives to disclose them in detail and may instead provide aggregated or desensitized information. Consequently, the effect of data asset disclosure on capital allocation efficiency depends

on the verifiability and privacy sensitivity of the disclosed data. The financing-constraint alleviation effect should be more pronounced for standardized operational data, whereas the agency-cost reduction effect of proprietary data disclosure depends on desensitization, third-party attestation, and internal control. The positive effect of data asset disclosure on capital allocation efficiency is stronger when the disclosed data assets are more verifiable and less privacy-sensitive.

3. Conclusion and Recommendations

The theoretical analysis presented earlier indicates the following: First, the disclosure of data asset information helps improve the efficiency of corporate capital allocation. It supplements information on firm-specific characteristics, reduces information asymmetry, improves pricing efficiency, directs capital flows toward high-efficiency firms, and drives companies to improve their data governance and internal controls while optimizing investment decisions. Second, its effects are primarily realized by alleviating financing constraints and reducing agency costs. Disclosure can enhance trust among banks, investors, and the government, thereby broadening financing channels; at the same time, it strengthens external oversight, curbing managerial opportunism, benefit transfers to controlling shareholders, and inefficient investments. The higher the level of the digital economy, the more effective information verification, pricing, and transmission become, and the stronger this positive impact is. Third, this effect is context-dependent. It is stronger at higher levels of digital economy development and varies with the type of data assets disclosed, being more pronounced when the disclosed data are more verifiable and less privacy-sensitive.

Based on this, this paper offers the following recommendations:

1) Enterprises should establish a standardized framework for data asset disclosure and improve their internal control systems for data governance. They should clarify the criteria for recognizing, measuring, reporting, and disclosing risks related to data assets; establish data asset ledgers and compliance review mechanisms; integrate data governance into internal control processes; and enhance information transparency and decision-making efficiency.

2) The government should refine guidelines for data asset disclosure systems and elevate the level of regional digital economic development. It should accelerate the development of unified disclosure rules and third-party attestation standards to reduce disclosure costs and minimize discrepancies in interpretation; strengthen the development of digital infrastructure, data factor markets, and public data platforms to ensure that disclosed information is more effectively converted into signals for capital allocation.

3) Investment institutions and market intermediaries should incorporate the quality of data asset disclosures into investment decision-making and external oversight. They should further enhance their capabilities in mining, verifying, and pricing data asset information, thereby guiding capital flows toward enterprises with standardized disclosures and fostering a virtuous cycle of "standardized dis-

closure-transparency-capital inflow-improved governance."

Declaration of Generative AI and AI-Assisted Technologies in Manuscript Preparation

During the preparation of this manuscript, ChatGPT was consulted in several sentences to help improve the clarity of manuscript. AI Tools were not used to develop the research context, conduct data analysis, explain research findings or prepare references. The concepts, arguments, scholarly contributions in this paper are entirely original. All AI generated suggestions were carefully revised by the author's own. The authors take full responsibility for the final manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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