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Research on the Issues of Enterprise Data Asset Information Disclosure

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Abstract: *With the rapid advancement of information technology and the rise of the digital economy, data assets have gradually become a key component of corporate core competitiveness. However, issues surrounding information disclosure related to data assets are increasingly prominent and have become a focus of attention in both academic research and practical applications. The "Interim Provisions on Accounting Treatment of Enterprise Data Resources" issued by the Ministry of Finance in 2023 define the scope for recognition, measurement methods, and accounting information disclosure requirements for data resources as enterprise assets. While encouraging enterprises to disclose information about their data assets, these provisions have also introduced new challenges in information disclosure, particularly concerning the confirmation of rights and valuation of data assets. This paper first reviews the definition of data assets, then discusses the evolution of policies related to them. It subsequently examines the existing problems in data asset information disclosure and finally proposes corresponding solutions, aiming to provide a reference for academic research and practice in this field.*

Keywords: *Data Assets; Information Disclosure; Problems; Solutions*

1. Introduction

The surge of technological and industrial revolutions has accelerated digital innovation, making data assets both a indispensable factor of production and a strategic corporate resource. In 2019 the Fourth Plenary Session of the 19th CPC Central Committee first recognised data as a new factor of production; the 2022 “Data 20 Articles” subsequently provided top-level design and policy guidance for its governance. Transparent management of data assets is therefore critical to China’s new development strategy.

CAICT’s 2019 white paper defines a data asset as a physical or electronic data resource that an enterprise owns or controls and that is expected to generate future economic benefits, emphasising controllability and economic value. Yet, owing to their unique characteristics, data assets remain difficult to recognise and disclose. First, rights confirmation is problematic: digital firms continuously collect customer data, partner data and open big data, while simultaneously creating new data in use, complicating the separation and capitalisation of legally attributable assets. Second, valuation models are still immature[1]. The cost method undervalues upside potential; the market method presumes a liquid reference market that scarcely exists; the income method requires reliable cash-flow forecasts that are rarely available. Each approach must be recalibrated to specific contexts, injecting uncertainty into disclosure decisions

The Ministry of Finance’s Interim Rules on Accounting Treatment of Enterprise Data Resources have clarified scope and applicable standards, urging firms to add granular table-based line-items and to volunteer contextual information. However, increased discretion now raises a fresh dilemma: how to ensure that voluntary disclosures remain decision-useful and comparable.

Domestic literature concentrates on accounting techniques, disclosure frameworks and valuation impacts, whereas international research stresses privacy protection, governance structures and legal environments. This paper identifies remaining bottlenecks in data-asset disclosure and proposes practical solutions for researchers and practitioners.

2. Data Asset

Academia and practice have long contested the boundaries of “data asset.” Starting from the classic

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asset definition, scholars anchor the concept on two attributes—controllability and future economic benefit—defining data assets as electronically recorded information that a firm generates or acquires in its operations, legally owns or controls without violating laws or user agreements, and can reliably expect to yield economic inflows. Others stress distinguishing features: identifiability, non-monetary nature and intangible form[2].

As digitalisation deepens, corporate data assets have expanded beyond customer, transaction and production data to embrace social-media interactions, user-behaviour patterns and any other monetisable information. The data economy's four-stage evolution underscores their rising weight in capital markets[3].

Policy has kept pace. The 2019 Fourth Plenary Session first elevated data to a new factor of production; the 2020 "Opinion on Improving Market-based Allocation of Production Factors" placed it alongside land, labour, capital and technology. The 2021 National Bureau of Statistics' Modernisation Plan for the 14th Five-Year period singled out data-asset accounting for statistical reform, and the 2022 "Data 20 Articles" supplied top-level institutional design. In August 2023 the Ministry of Finance's Interim Rules on Accounting Treatment of Enterprise Data Resources finalised the accounting approach, formally putting data assetisation on the agenda.

Taken together, data has become a core strategic asset—often eclipsing traditional tangible resources—and deserves explicit recognition in corporate financial statements.

3. Data Asset Disclosure

Disclosing data-asset information is the critical last mile of bringing these assets onto the balance sheet. Zhao Chang (2024)[4] grounds the practice in three logics: economic: disclosure helps the market discover value and keeps price aligned with intrinsic worth, social :it narrows the information gap in nascent data markets and lifts corporate transparency, and legal: it pressures firms to institutionalise compliant data governance and thereby fulfil their social licence.

Yet real-world disclosure remains tepid. The Ministry of Finance's 2023 Interim Rules on Accounting Treatment of Enterprise Data Resources switched the regime from purely voluntary to "semi-voluntary," giving managers wider discretion. While the change is meant to encourage revelation, it simultaneously weakens relevance and reliability. Evidence is stark: an April 2024 survey by Shanghai Jiao Tong University shows that only 18 listed firms on the A-share market had reported any data-asset balances in Q1. The policy toolkit is still too loose and leaves ample room for improvement.

4. Problems in Data Asset Information Disclosure

4.1 Problems in Data Asset Recognition

Primarily, the ownership of data assets is complex. Enterprise data resources originate from a variety of sources: some are generated internally, some are produced during enterprise data processing, some are acquired through transactions between enterprises, and others are obtained from public or external data. This diversity in acquisition channels consequently affects how enterprises classify data and determine their rights over it. Wang Liming (2023) [5] indicates that although relevant data policies and local legislation have acknowledged data-related rights and interests, there has been no response at the national legislative level regarding data rights confirmation. On the other hand, issues of cross-overlapping property rights exist with data assets. Data assets often emerge and integrate seamlessly into traditional assets during production and processing, much like blood vessels permeating various aspects, making it difficult to separate them for valuation purposes.

4.2 Problems in Data Asset Valuation

Currently, there remain differing viewpoints within academia regarding the valuation and measurement of data assets. Mainstream valuation methods primarily include the cost method, the market method, and the income method. The cost method involves using the replacement cost of similar products in the current market, adjusting value coefficients for specific scenarios, and subtracting depreciation. Some scholars argue that the cost method might overlook the unique value generated by the characteristics of data assets, thus underestimating their worth; however, compared to other methods, the cost method is still considered more applicable in many situations. The market method requires an active trading market to value data assets by comparing transaction prices of similar products. However, China's

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trading market is not yet fully developed, and transaction cases are relatively scarce, which limits the practical utility of the market method. The income method, meanwhile, discounts the expected economic benefits generated by the data asset to determine its value. Controversy surrounds the income method because enterprise revenue stems from multiple sources, and it is challenging to isolate the proportion attributable solely to the data asset.

4.3 Unclear Boundaries between Mandatory and Voluntary Disclosure in Policies

Regarding the manner of enterprise data asset information disclosure, the "Interim Provisions" explicitly allow enterprises to adopt voluntary disclosure, using a combination of text and numbers for information disclosure, thereby granting enterprises considerable flexibility and encouraging them to disclose information. It states that enterprises can conduct accounting recognition, measurement, and reporting of data resource-related transactions and events by combining relevant accounting standards for inventory and intangible assets, based on the purpose of holding the data resources, the manner of their formation, the business model, and the expected manner of consumption of economic benefits related to the data resources. However, data assets differ from traditional assets. Whether the approach of broadly distinguishing data assets into "transaction-oriented" and "self-use" types, and then borrowing accounting standards for inventory and intangible assets, is conducive to the complete disclosure of data assets remains subject to debate. Encouraging voluntary disclosure under such circumstances warrants careful consideration regarding its appropriateness. Zhao Chang (2024) [4] proposes that data compliance and data rights confirmation consistently serve as prerequisites for the assetization and inclusion of data resources in financial statements. Furthermore, the "Interim Provisions" do not explicitly define specific standards for mandatory and voluntary disclosure regarding the disclosure model. This lack of clarity inevitably raises questions about the credibility and transparency of the disclosed information on data assets.

5. Policy Recommendations and Technical Solutions for Data-Asset Disclosure

5.1 Establishing a "Dual Confirmation of Rights" Structure

In the process of marketization of data elements, the confirmation of data asset rights serves as a core prerequisite for ensuring the compliant circulation and value realization of data. However, the current single rights confirmation model struggles to balance the interests of data originators and data processors. Therefore, it is necessary to construct a "dual rights confirmation" structure to address this challenge. The core logic of this structure lies in clearly defining the right boundaries between the two types of subjects based on the entire data circulation chain. On one hand, as the core subjects of initial data generation, data originators' rights and interests should be prioritized for protection. Particularly in the field of non-personal information, it is essential to clarify originators' rights to information, supervision over data usage, and rights to profit distribution in the commercial utilization of data through rights confirmation, so as to prevent the neglect of originators' interests. On the other hand, data processors add new value to data through labor such as technical processing and model construction; thus, their intellectual property rights and commercial operation rights over the processed data products should be confirmed to ensure that processors receive reasonable returns for their innovative investments. Meanwhile, the "dual rights confirmation" needs to further refine the classification of data sources and formulate differentiated rules for interest division targeting different data types, such as public data, enterprise operation data, and personal information. For example, the originators of public data are the general public, and their rights and interests are more reflected in data accessibility; whereas the originators of enterprise operation data are the enterprises themselves, and their rights and interests focus on the exclusive right to use data. Furthermore, it is necessary to provide institutional support for "dual rights confirmation" from a legislative perspective. By amending relevant laws and regulations, the procedures for rights confirmation and dispute resolution mechanisms can be clarified, enabling data asset rights confirmation to be based on laws and laying a foundation for the safe and orderly circulation of data elements.

5.2 Adopting Different Valuation Methods Based on Scenarios

The value of data assets exhibits significant scenario dependence. Under different holding purposes and application scenarios, there are obvious differences in the core driving factors of value. Therefore, it is necessary to match appropriate valuation methods to different scenarios, which also serves as a key

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approach to solving the current dilemma of data asset valuation and measurement. For self-used data assets, their value is mainly reflected in supporting enterprises' internal business activities, such as optimizing production processes and assisting in decision-making, rather than obtaining income through external transactions. Hence, the cost method is the most suitable for valuation. The cost method needs to fully cover the whole-life-cycle investments in data, from collection, cleaning, and processing to storage and maintenance, while taking into account the value loss of data due to timeliness attenuation, so as to objectively reflect the actual utility of data in internal use. For data assets held for sales purposes, their value is directly reflected through market transactions (e.g., industry analysis reports and user tag packages), making the market price method the optimal choice. This method should refer to market transaction cases of similar data assets, and make differential adjustments based on factors such as data quality, coverage scope, and authorization period. If there are no comparable cases, the price can be determined by adding reasonable industry profits to the cost to ensure transaction fairness. For data assets held for investment purposes, their value includes not only current income but also long-term strategic value (e.g., reserved scarce industry data and basic data used for technological R&D). The real options method can more comprehensively measure their value, as it needs to comprehensively consider factors such as the future profit potential of data, investment costs, and risks. In addition, the excess multi-period income method, which is currently being explored by some scholars, also provides a reference for valuation. By deducting the profit contributions of other assets to infer the value of data assets, it can form cross-validation with the valuation methods corresponding to specific scenarios, further enhancing the reliability of valuation results.

5.3 Unclear Boundaries between Mandatory and Voluntary Disclosure in Policies

To resolve the ambiguity in the boundary between mandatory disclosure and voluntary disclosure in policies, the boundary between the two can be quantified and defined from two core dimensions. This aims to enhance the operability of enterprise data asset information disclosure and address the problem of unclear boundaries.

On the one hand, a quantitative system should be constructed around the materiality judgment standard. Materiality serves as a key criterion for distinguishing between mandatory disclosure and voluntary disclosure, and it is necessary to define the scope of "materiality" through clear and measurable indicators. For instance, at the financial level, monetary thresholds related to data assets can be set: when the book value of data assets accounts for a specific proportion of the enterprise's total assets, or the annual investment in data asset collection and processing exceeds a certain percentage of operating income, or the single transaction amount of data assets or the accumulated annual transaction amount of data assets exceeds the corresponding threshold, such data assets shall be included in the scope of mandatory disclosure. At the risk and impact level, quantitative indicators can be established for potential material impairment, ownership disputes, and security incidents of data assets—such as the proportion of data asset impairment amount to the original book value, the litigation amount involved in ownership disputes, and the number of users affected by data security incidents. Once these preset standards are met, enterprises must fulfill their mandatory disclosure obligations.

On the other hand, the quantitative direction should be clarified in conjunction with the demands of stakeholders. Different stakeholders have varying needs for data asset information, so the scope of mandatory disclosure and voluntary disclosure should be divided based on the priority of their demands. For investors, information related to the future income and core competitiveness of an enterprise's data assets is crucial for investment decisions. The part of such information that exerts a decisive impact on investment judgments can be included in mandatory disclosure, while the rest can be treated as voluntary disclosure content. For customers, information such as the security guarantees of data assets and restrictions on their usage is directly related to customers' rights and interests; thus, information concerning the protection of customers' core rights and interests should be classified as mandatory disclosure items, and other supplementary information can be voluntarily disclosed by enterprises. For regulatory authorities, information related to the compliance of data assets is an important basis for supervision work; therefore, key indicators of data asset compliance should be incorporated into mandatory disclosure, and enterprises can voluntarily supplement and disclose additional measures and results of compliance management. Through such quantitative division, the core needs of different stakeholders can be met, and the problem of excessively broad or narrow disclosure scope can be avoided.

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6. Conclusion

Data asset information disclosure is a crucial issue in the era of the digital economy. As a strategic resource for enterprises in the digital economy era, its information disclosure will inevitably attract widespread social attention. Improving data asset information disclosure not only helps enhance enterprises' management level of data assets but also provides more accurate and comprehensive information support for investors and regulatory authorities. This paper discusses the current status, problems, and countermeasures of data asset information disclosure, aiming to provide useful references for research and practice in related fields. In the future, with the advancement of technology and the improvement of relevant policies, data asset information disclosure will gradually move towards standardization and normalization, laying a solid foundation for the healthy development of the digital economy.

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