Proceedings of Business and Economic Studies, 2024, Volume 7, Issue 5
http://ojs.bbwpublisher.com/index.php/PBES
Online ISSN: 2209-265X
Print ISSN: 2209-2641

Research on Audit Risks in the Recognition of Data Assets on Financial Statements

Xia Xiao*

Shanghai University of Political Science and Law, Shanghai 201804, China

***Corresponding author:** Xia Xiao, jodie-123@163.com

Abstract: This paper explores the audit risks associated with the recognition of data assets on financial statements, focusing on the complexities arising from their replicability, unique valuation patterns, and contextual dependencies. It identifies major misstatement risks at both the financial statement and assertion levels, including the potential for management to exaggerate data asset values, uncertainties in valuation methods, and deficiencies in data governance and internal controls. Additionally, auditors' lack of professional knowledge and inappropriate audit methods can lead to inspection risks. The paper emphasizes the urgent need for enhanced accounting standards for data assets, effective guidelines for their recognition and measurement, and robust internal controls. Furthermore, it advocates for the exploration of effective valuation methods and the incorporation of advanced technologies, such as big data and AI, into auditing practices. By improving auditor training and methodologies, organizations can better manage the inherent risks associated with data asset auditing.

Keywords: Audit risks; Data assets; Recognition; Disclosure

Online publication: October 24, 2024

1. Introduction

As the main producers of data resources, enterprises gain economic benefits through data production, processing, classification, analysis, and exchange. Data has thus become a key resource for enterprise-consumer interactions and a new type of corporate asset [1]. Against this background, there is increasing demand for the disclosure of data asset information. On August 1, 2023, the Ministry of Finance of China officially issued the "Interim Provisions on Accounting Treatment of Enterprise Data Resources" (hereinafter referred to as the "Interim Provisions"). With the introduction of this regulation, China became the first country to recognize data resources in financial statements, providing enterprises with a framework for the recognition, measurement, and disclosure of data resources. According to Wind data, by August 31, 2024, 44 listed Chinese companies had disclosed data assets in their semi-annual reports.

Including digital resources as assets on the balance sheet can more accurately reflect a company's asset position and provide investors with useful decision-making information. However, the recognition and precise measurement of data assets are complex and subject to significant risks of material misstatement. "China Certified Public Accountant Auditing Standard No. 1321 – Audit of Accounting Estimates and Related Disclosures" requires auditors to identify, assess, and address significant risks of material misstatement related to accounting estimates during audits. Consequently, the inclusion of data resources on the balance sheet introduces new challenges for certified public accountants, leading to increased audit risks and influencing auditors' risk assessments.

Based on the logical framework of data asset recognition and audit risk theory, this paper analyzes the audit risks arising from the recognition of data assets in financial statements. The innovation of this study lies in its systematic theoretical analysis of the impact of data asset recognition on audit risk, offering valuable insights for the revision of audit standards and the audit practices of certified public accountants.

2. Literature review

2.1. Recognition and measurement of data assets

In theoretical research, there are significant disagreements regarding the accounting recognition and measurement of data assets. Three primary perspectives exist on accounting recognition: The first perspective argues that data resources should not be considered an asset, and expenditures on acquiring data resources should be expensed [2]. The second perspective suggests that data assets meet the definition and characteristics of intangible assets and should be recognized as such. If the data assets held by a company are intended for sale, they should be accounted for and reported as inventory. The third perspective holds that from the viewpoint of accurate measurement of data assets and reflecting a company's core competitiveness, a primary asset account for data assets should be established for accounting and reporting purposes [3].

According to the "Interim Provisions" in China, data assets are identifiable non-monetary assets owned or controlled by an enterprise, expected to bring economic benefits, and primarily composed of data or services related to data. Enterprises should recognize, measure, and report data resource-related transactions and events in accordance with relevant accounting standards, based on factors such as the purpose of holding the data, the method of its formation, the business model, and the expected consumption of economic benefits related to the data [4]. The "Interim Provisions" address the key issues of recognition, measurement, and reporting of data resources in financial statements.

2.2. Audit risks of data assets

Due to the non-exclusivity, high plasticity, and time-variant value characteristics of data assets, the initial valuation, subsequent transactions, financing, and impairment testing of data assets face various uncertainties, leading to a range of audit risks [5]. A pressing issue at this stage is how to address the financial statement audit risks arising from the inclusion of data assets. The characteristics of data assets require auditors to comprehensively consider both qualitative and quantitative factors during the risk assessment phase, including the types of risks associated with data assets and the risks of fraud involving data assets [6].

In the process of recognizing data resources as assets on financial statements, the unique nature of data resources, valuation challenges, the applicability of accounting recognition principles, and the limitations

of internal controls may all contribute to the risk of inflated asset values, thus increasing the risk of material misstatement.

3. Logical framework for the recognition of data assets on financial statements

3.1. Data and data assets

Data has long been regarded as an important economic resource that facilitates production and exchange [7]. Enterprises can acquire useful data through production processes, market transactions, or mergers and acquisitions [8]. This data assists businesses in making operational management decisions and generates economic benefits. Compared to traditional economic resources, data resources possess seven distinct characteristics: they can be infinitely replicated, exhibit increasing returns to scale, lose value over time, appreciate in value with increased precision, gain value through aggregation, decrease in value due to redundancy, and do not suffer impairment through usage. Furthermore, the value of data is context-dependent, and its value-creation mechanisms are diverse [9].

Data assets, a concept derived from data, belong to the field of accounting and are related to terms such as data resources and data capital [10]. Data assets are economic resources created through past transactions or events, which can be controlled by enterprises and have the potential to generate economic benefits [11]. From the definition of data assets, it can be inferred that only data resources owned or controlled by an enterprise and expected to provide economic benefits qualify as data assets in accounting.

3.2. The logical mechanism of data asset recognition

Based on resource dependence theory, data asset information reflects a company's digital capabilities, helping it acquire critical resources and drive innovation. Therefore, the disclosure of data assets benefits investors by providing relevant accounting information for decision-making [12]. However, current research indicates that the value relevance of accounting information is deteriorating in the digital economy era [13]. The European Financial Reporting Advisory Group (EFRAG) noted that certain intangible assets, such as data assets, may affect a company's market value due to information asymmetry between preparers and users of financial statements. This can lead to inefficient social capital allocation and make it challenging to assess management's fiduciary responsibility [14].

The International Accounting Standards Board (IASB) suggested in its "Practice Statement on Management Commentary (Consultation Paper)" that enterprises should disclose their most significant economic resources, including data assets, to enhance the value relevance of financial reporting [15]. However, there has long been debate about how data assets should be disclosed. One perspective argues that more intangible assets, including data assets, should be recognized in financial statements [16]. However, the uncertainty surrounding data ownership, the complex pathways of economic value creation, and unreliable measurement methods make accounting recognition unfeasible [17]. In this view, providing more disclosure about data resources is more practical than advocating for their recognition on the balance sheet. Conversely, some scholars and institutions advocate for strengthening the recognition of data asset information to address the challenges posed by the digital economy. They argue that the objective of financial statements is to accurately reflect a company's financial position, operating results, and cash flows, thereby assisting users in making economic decisions [18]. In the digital economy, data has become a key production factor and a crucial basis for corporate decision-

making and value creation. Therefore, accounting standards should evolve to reflect objective economic activities, enabling financial statements to systematically record the value and contribution of data assets, providing valuable information to users. Thus, accounting standards should be improved, and relevant data asset accounting standards should be established, encouraging enterprises to recognize more data resources as assets, consistent with the accounting conceptual framework.

Current research indicates that the disclosure of data asset information can reduce debt financing costs for manufacturing enterprises by improving analysts' earnings forecast accuracy and reducing debt default risks [19]. Moreover, recognizing data assets in financial statements can more fairly reflect a company's value, providing a theoretical basis for the recognition of data assets on financial statements.

3.3. Pathways for recognizing data assets on financial statements

The IASB began revising "International Accounting Standard No. 38 - Intangible Assets" in 2022 to address the recognition of intangible assets, allowing many currently unrecognized intangible assets to be included in financial statements. In the digital economy, a large number of unrecognized intangible assets have decreased the relevance and reliability of financial statements [20]. These trends indicate that accounting standards for intangible assets will undergo significant changes. The EFRAG's 2021 discussion paper expanded the scope of intangible assets beyond traditional definitions, including certain potential economic resources not controlled by enterprises, such as data resources [13].

China's "Interim Provisions" explicitly define the recognition and measurement standards for data resources. Enterprises must adhere to relevant enterprise accounting standards and recognize, measure, and report transactions and events related to data resources based on factors such as the purpose of holding data resources, their formation methods, business models, and the anticipated consumption patterns of the economic benefits associated with the data resources. Data assets that are purchased or self-developed should be recognized as intangible assets, while data assets intended for sale should be recognized as inventory.

4. Audit risks associated with the recognition of data assets on the balance sheet

4.1. Major misstatement risks at the financial statement level

4.1.1. Management overstating the actual value of data assets

Management may be inclined to exaggerate the value of data assets to inflate the total assets of the enterprise, thus embellishing the financial statements [3]. Since data assets are classified as intangible assets, determining their precise value is challenging, creating opportunities for management to manipulate financial data. This behavior can undermine the overall fairness and reliability of the financial statements, posing significant challenges for auditors in assessing management's integrity and considering the potential for fraud.

4.1.2. Uncertainty in determining the value of data assets

Although the "Interim Regulations" outline measurement methods for data assets, following the standards for intangible asset recognition and measurement, differences exist in the characteristics and measurement methods of data assets across enterprises. Additionally, factors such as market fluctuations, technological advancements, and data usage conditions contribute to this uncertainty, increasing the risk of valuation errors at the financial statement level. This may lead to the overstatement or understatement of total assets, thereby influencing investors' and creditors' judgments of the enterprise. This issue is particularly relevant for internally generated

data assets, where fairness is difficult to verify under the current cost method of measurement and disclosure.

4.1.3. Inadequate data governance and internal controls

The identification, acquisition, and management of data assets depend heavily on the enterprise's internal control system. If the data governance framework is inadequate, questions may arise regarding the completeness, accuracy, and ownership of data, thereby affecting the overall credibility of the financial statements. Without effective control and review of the data management system, auditors may be unable to obtain sufficient and appropriate audit evidence, increasing the risks associated with their audit opinions. The internal control system may not comprehensively cover all aspects of data resources, which are diverse and dynamic, involving multiple departments and various stakeholders in their generation, processing, and analysis. This could lead to blind spots in internal controls, allowing certain data manipulation activities to evade regulation.

4.2. Major misstatement risks at the assertion level

4.2.1. Risks related to existence assertions

The intangible and dynamic nature of data assets makes it challenging for auditors to verify their existence. In particular, for internally generated data assets, insufficient records or poor management may prevent definitive proof of their existence. This increases the risk of misstatements related to existence assertions, as auditors may be unable to confirm that the reported data assets truly exist. For instance, a company may claim that its large dataset holds substantial value, but auditors cannot verify the authenticity of the data through traditional inventory or physical verification methods.

4.2.2. Risks related to rights and obligations assertions

In complex data systems, the generation, collection, processing, storage, and use of data involve multiple parties [8]. From the perspective of ownership and control, data assets are more complex than other assets because the ownership, control, and usage rights of data resources can be separated. According to the definition of assets, they are economic resources owned or controlled by the enterprise. Unclear ownership and control of data resources may lead to risks concerning rights and obligations assertions. Ownership relationships of enterprise data are generally reflected in disputes over unfair competition. Under different circumstances, the ownership and usage rights of enterprise data may change. If the subject of data ownership is not properly identified, failure to clarify the rights enjoyed by the subject can result in disputes. For example, a company may procure data resources from external sources or obtain them through partnerships, but unclear ownership and terms of the sharing agreement can increase audit challenges. If a company cannot provide sufficient legal documentation or contracts to demonstrate legitimate ownership of data resources, the recognition of these data assets may be unreasonable, leading to audit failure.

4.2.3. Risks related to valuation and allocation assertions

The valuation of data assets is complex and highly subjective, particularly for assets measured at fair value, where data prices in the market can fluctuate significantly. This increases the risk of misstatements related to valuation and allocation assertions. Additionally, because the value of data changes over time, certain data may experience substantial value shifts in the short term. For example, the acquisition cost of data resources

may be low, but their value can significantly increase as data accumulates and analytical capabilities improve. Incorrect timing of recognition, inappropriate amortization periods, or failure to accurately estimate the value and lifecycle of data can lead to overstatement or understatement of assets. Auditors may face difficulties in assessing whether the valuation and amortization methods used by the enterprise are reasonable, presenting significant audit risks.

4.2.4. Risks related to completeness assertions

The complexity and diversity of data assets can easily lead to omissions. For instance, some data resources may not be recorded or confirmed in a timely manner, resulting in incomplete asset items in the financial statements. This risk is especially prevalent in enterprises with inadequate data governance systems, where weak internal controls may lead to incomplete records of data assets, potentially causing significant misstatements. Auditors should focus on whether enterprises have fully identified all their data assets and ensure that these assets are accurately reflected in the financial statements.

4.3. Inspection risks

During the audit risk assessment phase, it is essential to identify and evaluate potential major misstatement risks. Data assets, being a complex and highly scrutinized area, present significant challenges for audit work [5]. First, many auditors currently lack sufficient professional knowledge and practical experience in auditing data assets, which may lead to issues in designing substantive procedures, thereby increasing audit risks. Second, traditional audit methods may not enable auditors to obtain sufficient relevant audit evidence when auditing data assets, contributing to inspection risks.

5. Conclusion

Due to the replicability of enterprise data resources, their unique patterns of impairment or appreciation, and their dependence on specific contexts, there are significant challenges in establishing ownership rights and conducting value assessments for data resources. In addition, the current limitations of auditors and auditing methods contribute to major misstatement risks and inspection risks when auditing data assets.

To address these audit risks, it is essential to promptly improve accounting standards related to data assets by providing more effective guidelines for their recognition and measurement. Enterprises should also establish and enhance their data governance and internal control systems to ensure that the recognition of data assets is legal and compliant. Additionally, exploring effective methods for valuing data assets is crucial. Lastly, it is important to strengthen auditor training and innovate auditing methods by incorporating big data and AI technologies, equipping auditors with data management and analysis skills.

Disclosure statement

The author declares no conflict of interest.

References

[1] Birch K, Cochrane D, Ward C, 2021, Data as Asset? The Measurement, Governance, and Valuation of Digital

Personal Data by Big Tech. Big Data & Society, 8(1). https://doi.org/10.1177/20539517211017308

[2] Huang SZ, Ye FY, Chen CL, 2023, Recognition, Measurement, and Reporting of Data Assets: A Business Model Perspective. Finance & Accounting Monthly, 2023(8): 3–7.

[3] Yuan ZM, Yu X, Li M, 2022, Data Asset Information Disclosure, Heterogeneity of Institutional Investors, and Corporate Value. Modern Finance (Journal of Tianjin University of Finance and Economics), 2022(11): 32–47.

[4] The Chinese Ministry of Finance, 2023, Interim Provisions on Accounting Treatment of Enterprise Data Resources, viewed September 1, 2024, https://www.gov.cn/gongbao/2023/issue_10746/202310/content_6907744.html

[5] Zhu JJ, Liu Y, Xu ZY, 2024, Exploring the Risks of Recognizing Data Resources as Assets in Financial Statements. Finance & Accounting Communications, 2024(13): 91–96.

[6] Liao YF, Luo CH, 2024, Challenges and Responses in Auditing Data Assets for Financial Statements. Finance & Accounting Communications, 2024(21): 7–13.

[7] Hannila H, Silvola R, Harkonen J, et al., 2019, Data-driven Begins with DATA; Potential of Data Assets. Journal of Computer Information Systems, 62(1): 29–38. https://doi.org/10.1080/08874417.2019.1683782

[8] China Academy of Information and Communications Technology, 2020, Data Assetization: Research Report on Data Asset Recognition and Accounting Measurement (2020), viewed August 23, 2023, http://www.caict.ac.cn/kxyj/qwfb/ztbg/202012/P020201209374734599565.pdf

[9] Luo M, Li JP, Tang K, 2023, Data Assetization in Enterprises: Accounting Recognition and Value Assessment. Tsinghua Journal of Philosophy and Social Sciences, 2023(5): 195–209.

[10] Li Y, Liu Y, Li BY, 2022, Analysis of Several Theoretical Issues in the Accounting of Data Assets. Statistical Research, 2022(9): 19–28.

[11] Lu WW, Gou TJ, 2023, Theoretical Logic and Practical Approach of Assetization of Data Elements: Based on the Understanding of the Connotation and Value Law of Data Assets. Enterprise Economy, 2023(4): 28–39.

[12] Niu B, Yu X, Yuan Z, et al., 2024, Data Asset Disclosure and Auditor Pricing Strategies. Contemporary Finance & Economics, 2024(2): 154-164.

[13] Zhang XM, Jin Y, 2022, Reconstruction of the Balance Sheet: A Study on Corporate Behavior in the Digital Economy Era. Management World, 2022(9): 157–175.

[14] European Financial Reporting Advisory Group (EFRAG), 2021, Discussion Paper – Better Information on Intangibles: Which is the Best Way to Go?, viewed September 1, 2024, https://www.efrag.org/sites/default/files/2023-11/Better%20information%20on%20intangibles%20-%20which%20is%20the%20best%20way%20to%20go.pdf

[15] Zhang JR, Gao LB, Wei YL, 2023, Accounting for Data Assets: Concept Evolution, Deconstruction, and Relationship Analysis. Accounting Friends, 2023(24): 131–137.

[16] Wilson RMS, Stenson JA, 2008, Valuation of Information Assets on the Balance Sheet: The Recognition and Approaches to the Valuation of Intangible Assets. Business Information Review, 25(3): 167–182. https://doi.org/10.1177/0266382108095039

[17] Zhao X, Li XQ, 2024, Considerations and Advancement Approaches for the Inclusion of Data Assets in Financial Statements. Finance & Accounting Monthly, 2024(1): 1–6.

[18] Long WC, 2024, Analysis of Audit Risks for Data Assets. International Business and Finance Accounting, 2024(11): 74–77.

[19] Wang WY, Zhang HM, Zhang M, 2024, The Impact of Data Asset Disclosure on Debt Financing Costs in Manufacturing Enterprises. Financial Observation, 2024(2): 38–50.

[20] Moody DL, Walsh P, 1999, Measuring the Value of Information – An Asset Valuation Approach. European Conference on Information Systems, 1999: 496–512.