

THE REGULATORY APPROACH TO DATA ASSETS AS CAPITAL CONTRIBUTIONS UNDER THE COMPANY LAW

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TABLE OF CONTENTS

I. INTRODUCTION	31
II. FROM DATA TO CAPITALIZED ASSETS	33
III. CONCEPTUAL FOUNDATIONS OF DATA ASSETS IN ACCOUNTING AND LAW	37
<i>A. Constituent Elements of Data Assets</i>	38
<i>B. Categories of Data Assets</i>	40
<i>C. The Scenario-Based Valuation System of Data Assets</i>	42
IV. DATA ASSETS AS A NON-MONETARY FORM OF CAPITAL CONTRIBUTIONS	44
<i>A. Comprehension of Article 48 of the Newly-Revised Company Law</i>	44
<i>B. Core Elements of the Non-Monetary Form of Capital Contributions in the Company Law</i>	47
<i>C. Requirements of Independence of Data Assets as Company Assets</i>	49
V. SHAREHOLDERS' CAPITAL CONTRIBUTION OBLIGATIONS AND LEGAL LIABILITIES	51
<i>A. Determination Criteria for the Fulfillment of Shareholders' Capital Contribution Obligations</i>	52
<i>B. Legal Liabilities of Initiating Shareholders</i>	54
VI. CONCLUSION	56

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With the advancement of technologies such as the Internet, cloud computing, and artificial intelligence, data has evolved into data assets, which hold significant economic value. Recently, China has introduced a series of accounting standards for valuing data assets on balance sheets. These standards define the conceptual scope and categories of data assets, establishing an institutional foundation for their recognition as capital contributions. As data assets are controllable, integral, and transferable, they qualify as non-monetary capital contributions under article 48 of the newly-revised Company Law of China. Within this context, this article aims to refine the analytical framework for data assets as capital contributions under the newly-revised Company Law, balancing the protection of individual privacy rights with the realization of data's economic value.

I. INTRODUCTION

On December 29, 2023, the Seventh Session of the Standing Committee of the 14th National People's Congress of China adopted the newly-revised *Company Law*, which took effect on July 1, 2024. With the continuous development of the market economy, the forms and rules governing capital contributions have been evolving. The revised law reflects these changes, particularly in article 48, which categorizes capital contributions into two types: monetary and non-monetary.¹ The latter includes 'physical objects, intellectual property rights, land use rights and other non-monetary properties that can be valued in currency and legally transferred'. The term 'other non-monetary properties' implies that any asset meeting the criteria of 'being able to be valued in currency' and 'being able to be transferred legally' may become the non-monetary form of capital contributions.² In the digital economy, data assets are capital. Therefore, the recognition of data assets as

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1 Article 48 of the *Company Law of China (2023 Revision)*.

2 Pan Yongfeng, *Practical Consideration on the Form of Capital Contributions of Shareholders*, 2 *Journal of Law Application* 57 (2024).

eligible capital contributions has become a significant legal and economic consideration in contemporary commercial practice.

Recently, data assets as capital contributions have gained certain experience in China's market practice. In response to the practical demands and to balance data valorization with individual privacy protection, this article aims to address two key issues. Firstly, it examines the conceptual ambiguity surrounding data assets. The persistent conflation of raw data with legally definable data assets necessitates conceptual clarification, which constitutes a fundamental prerequisite for developing operable capital contribution mechanisms.³ Secondly, it analyzes the legal criteria for recognizing data assets as a non-monetary contribution form. Specifically, within the analytical framework of China's newly-revised *Company Law*, it is crucial to identify core risk points and key aspects associated with data assets.

This article seeks to systematically address the two previously mentioned issues concerning data assets, with the objective of enhancing the market value of data assets within the existing legal frameworks. Section 2 examines how data has gradually evolved into recognized data assets in China, particularly focusing on how relevant policies and laws have adapted alongside market developments. Understanding these changes is vital for comprehending the legal nature, rights structure, and functional positioning of data assets. Section 3 further dissects the conceptual components that constitute data assets; it categorizes them into two fundamental types while also exploring specialized assessment methods based on various scenarios involving these assets. It is noteworthy that research on data assets spans multiple disciplines—including law and accounting—which may approach analyses from different perspectives yet share consistent underlying principles. This interdisciplinary approach lays a significant institutional groundwork for establishing data assets as viable forms of capital contributions. On the basis of the analytical framework of China's newly-revised *Company Law*, this article elaborates in detail whether and how data assets can become a non-monetary form of capital contributions (section 4), especially issues such as the fulfillment requirements of shareholders' obligations and the legal liabilities that the initiating shareholders need to undertake when the capital contribution is insufficient (section 5), in order to effectively identify the

3 Ruan Shenyu, *On the Generalization of Data Property Right Delineation*, 5 Wuhan University Journal (Philosophy & Social Science) 148 (2024). Du Muzhen, *Clarifying the Misunderstandings in Data Rights Confirmation*, 4 China Law Review 131 (2024). Dai Xin, *A Relational Approach to Delimiting Data Rights*, 6 Peking University Law Journal 1561 (2024).

commercial value and legal risks of relevant behaviors and genuinely promote the healthy development of the data industry. Finally, section 6 synthesizes the principal conclusions.

II. FROM DATA TO CAPITALIZED ASSETS

In the early 21st century, with the popularization of the Internet and the development of information technology, the data industry in China began to develop rapidly. At that time, the capitalization of data was still in its infancy. Some enterprises, such as large Internet companies and telecom operators, carried out commercial explorations such as data collection, but no truly meaningful data assets were formed. In the early years of the rise of the Internet in China, the data collection activities of enterprises were relatively limited. They mainly collected data through channels such as user registration, online transactions, and social media. On this basis, these enterprises attempted to release some commercial value of the data through analysis, and achieved the initial innovations of business models such as advertising placement and user profiling. However, the understanding of the value of data was still relatively vague at that time. Many enterprises and institutions struggled to realize the importance and huge economic value of data.

Starting in 2010, with the advent of the big data era, the data industry in China experienced explosive growth. Data such as social media data and online transaction data, characterized by large volumes and diversity, provides abundant resources for the capitalization of data. In the digital economy era, data assets play an extremely significant role in the process of enterprise value creation, and business models have constantly evolved and innovated.⁴ Notably, enterprises represented by Internet companies have begun to utilize big data analysis technologies to carry out commercial activities such as personalized recommendations for users and targeted advertising placement, aiming to maximize commercial value. Additionally, the number of emerging sharing economy and data trading platforms has been on the rise, providing more opportunities for the capitalization of data. Nevertheless, with the rapid development of big data, the collection and utilization of personal information have become extremely frequent and widespread, and problems such as personal information leakage and abuse

⁴ Yu Xiang, Niu Biao & Yuan Zeming, *Data Assets, Human Capital Upgrading and Enterprise Value*, 2 Journal of Zhongnan University of Economics and Law 109 (2024).

have become increasingly prominent.⁵ Concurrently, the scale and complexity of data have increased substantially, and data security and cybersecurity face colossal challenges. Issues including hacker attacks, data leaks, and cybercrimes occur frequently, posing safety hazards to the development of data assets' capitalization in China.

In 2015, the State Council of China issued the *Action Outline for Promoting the Development of Big Data*, explicitly proposing that the opening and sharing of data should be facilitated and that the cross-departmental and cross-industry flow and shared utilization of data should be promoted. Subsequently, to further enhance the openness and sharing of data, both the government and enterprises have initiated the construction of various data opening and sharing platforms.⁶ These platforms not only offer centralized storage and management services for data but also provide technical support and services for data opening and sharing. During the process of opening and sharing data resources, legal issues such as data security and protection of personal information have drawn extensive attention.⁷ In 2016, China promulgated and implemented the *Cybersecurity Law*, which is the first comprehensive and specialized legislation in China regulating the security management of cyberspace. Subsequently, in 2021, China also promulgated and implemented the *Data Security Law* and the *Personal Information Protection Law*, which stipulated in detail aspects such as personal information protection, data management, and cross-border data flow. The above-mentioned three laws constitute the main legal framework for data compliance in China. There are both emphases and overlaps among the three laws. Although the focuses, purposes, and scopes of application of the three laws are not completely identical, there exist close correlations and interactions among them. Cybersecurity serves as the basis for data security and personal information protection, while data security and personal information protection also provide necessary safeguards for cybersecurity.

Since 2020, the transformation from data to data assets has been thoroughly accomplished. Data assets typically involve multiple parties such as owners, producers, collectors, and users. From the perspective of direct or indirect data rights holders, various types of entities are

5 Wu Ye & Gongbao Duanzhi, *China's Approach to Protecting Personal Information in the Digital Era*, 5 Think Tank: Theory & Practice 109 (2023).

6 Ma Yanxin, *Classification and System Development of Authorized Operation of Public Data*, 2 Peking University Law Journal 328 (2023).

7 Mei Ao & Ke Chenliang, *Construction, Deficiencies and Perfection of the Government-Enterprise Data Sharing Mechanism*, 4 Nomocracy Forum 76 (2022).

involved, including enterprises, individuals, and the government. In this respect, how to handle the distribution of data asset benefits has emerged as a crucial issue for achieving high-quality development of the digital economy.⁸ On December 19, 2022, the *Opinions of the Central Committee of the Communist Party of China and the State Council on Establishing Data-Based Institutions to Better Exert the Role of Data as a Factor of Production* (hereinafter referred to as the Twenty Data Provisions) were released to the public, constructing the fundamental system for data assets in aspects such as data property rights, transferring, trading and security governance. Particularly, it proposed the establishment of a data property rights system to facilitate the rational allocation of data property rights and the orderly circulation of data assets. Since then, at both the national and local levels in China, policy support has been provided for the capitalization of data assets. At the national level, on December 31, 2023, the Ministry of Finance of China promulgated the *Guiding Opinions on Strengthening Data Asset Management*, which suggested that the rights of public data assets within specific fields and business scopes could be used as capital contributions or collateral, thereby facilitating the diversified value circulation of public data assets. At the local level, for instance, the *Regulations on Promoting the Digital Economy of Beijing* implemented on January 1, 2023, proposed to advance the establishment of a registration and evaluation mechanism for data assets and supported the innovation of transaction models for data assets such as data equity, data credit, data trust, and data asset securitization. On June 20, 2023, Beijing released the *Opinions on Better Utilizing the Role of Data as a Factor of Production and Accelerating the Development of the Digital Economy*, proposing to explore activities such as investing data assets as capital contributions in enterprises, conducting equity and debt financing, and carrying out data trust and other data asset transaction activities.

In recent years, along with the rapid advancement of artificial intelligence technologies like deep learning and algorithms, the data assets' capitalization has entered a more diversified, granular, and individualized development stage. In the era of artificial intelligence, data assets have emerged as a core resource driving the digital economy. Vast amounts of data are employed to train and optimize artificial intelligence models, enabling AI to handle various tasks, such as image recognition, intelligent

8 Qi Yingcheng, *Personal Data Benefit Sharing Law Realization*, 3 Science of Law (Journal of Northwest University of Political Science and Law) 83 (2024).

recommendations, and automated decision-making, more accurately and intelligently.⁹ The abundance and diversity of data provide the foundation for the innovation and development of AI applications. Innovative enterprises centered on artificial intelligence can achieve business model innovation and differentiated competition through data assets.¹⁰ For instance, the development of domains like smart driving, smart homes, and smart healthcare is inseparable from the collection, analysis, and application of data assets.¹¹ Recently, within the data market, transaction models such as data assets insurance, securitization products of data intellectual property rights, data trusts, and public data assets financing have witnessed continuous innovation and development.¹² In August 2023, the first case of using data assets as capital contributions emerged in China and has aroused extensive attention. A technology company in Qingdao valued its data assets for capital contributions. The basic process is as follows. Firstly, the data assets were registered by the Qingdao Public Data Operations Platform and a ‘data asset registration certificate’ was issued, on which no information related to the type of data ownership was recorded. Secondly, the data assets were evaluated by the Qingdao Big Data Development Promotion Association. Thirdly, a third-party professional assessment institution issued an assessment report for the data assets. Finally, the data assets were contributed as equity and a new company was ultimately established.¹³

Nevertheless, along with the continuous segmentation and diversification of the market, the path of data assets’ capitalization also confronts some issues. Particularly, the evaluation of data assets has become a formidable obstacle. Although the assessment methods for data assets, such as the three fundamental methods of the cost approach, market approach, and income approach, have been explicitly defined in the relevant accounting policies, taking into account the characteristic that the value of data assets may vary with different scenarios, the accuracy and objectivity of data assets assessment still await further improvement. Additionally, as the commercialization of data assets intensifies, issues related to legal application and corporate compliance have grown increasingly significant. Particularly,

9 Wu Ye, *The Civil Legal Status of Smart Contracts*, 2 *The Jurist* 1 (2020).

10 Xu Ke, *A Third Way of Legal Regulation of Artificial Intelligence*, 1 *Science of Law (Journal of Northwest University of Political Science and Law)* 59 (2025).

11 Wu Handong, *Institutional Arrangements and Legal Regulation in the Age of Artificial Intelligence*, 5 *Science of Law (Journal of Northwest University of Political Science and Law)* 128 (2017).

12 Liu Xiaoyu, Xu Yongguo & Wang Jianping, *Value Realization of Data Assets: Cross-Market Convergence and Pledge Guarantee Application*, 3 *Financial Market Research* 40 (2024).

13 Zhou Xiaofeng, *Let Data Become Assets, Qingdao Built a ‘Digital Business’ Ecology*, *Qingdao Daily*, January 30, 2024.

how to define data assets within the framework of company law assumes paramount importance.

III. CONCEPTUAL FOUNDATIONS OF DATA ASSETS IN ACCOUNTING AND LAW

The Twenty Data Provisions have proposed the exploration of establishing a property rights system of data assets and promoting the allocation methods and market circulation of data assets' property rights. In this regard, scholars have proposed multiple definitions of the legal nature of data, such as the three-rights separation theory,¹⁴ the bundle of rights theory,¹⁵ the bundle of interests theory,¹⁶ the rights block theory,¹⁷ the data holding rights theory,¹⁸ etc. Different definitions imply different rights division models for data assets. One of the reasons for the above-mentioned different viewpoints is that scholars have overlooked the distinction between the two concepts of data and data assets. Not all data can become data assets. When studying the property rights system, it is not necessary to take all data as the research object. This would only artificially increase the difficulty of constructing the property rights system of data assets.¹⁹ Therefore, issues such as what kind of data can become assets and how to define data assets are particularly significant and may even be a prerequisite issue that needs to be resolved first.²⁰

Data assets constitute a cross-disciplinary study field encompassing law and accounting.²¹ Although the understanding of data assets in these two disciplines may have different focuses, there are numerous commonalities. Notably, the Ministry of Finance of China promulgated the *Interim Provisions on Accounting Treatment of Enterprise Data Resources* (hereinafter referred to as the Interim Provisions on Accounting Treatment) on August 1, 2023, and the *Guiding Opinions on Strengthening Data Assets Management* on January 11, 2024. These accounting standards elaborate on issues such as the

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- 14 Shen Weixing, *Data Property Rights: From Separation of Two Rights to Tripartite Allocation*, 6 China Law Review 125 (2023).
 - 15 Wang Liming, *On Data Rights and Interests: From the Perspective of Bundle of Rights*, 7 Political Science and Law 99 (2022).
 - 16 Yang Dong & Bai Yin, *Bundle of Interests on Data: A New Theory on Data Rights and Interests System*, 1 Wuhan University Journal (Philosophy & Social Science) 65 (2024).
 - 17 Xu Ke, *Reflection and Reconstruction of the Separation of Three Rights in Data*, 2 China Law Review 22 (2023).
 - 18 Ma Bin, *The Discomfort of Splitting Data Property Rights: Towards a Modular Theory-Based Data Possession Right*, 1 Oriental Law 47 (2024).
 - 19 He Songwei, *On the Data Entitlement Framework: From Object to Model*, 2 Journal of Comparative Law 135 (2024).
 - 20 Luo Mei, Li Jinpu & Tang Ke, *The Capitalization of Enterprise Data: Accounting Recognition and Evaluation*, 2 Journal of Tsinghua University (Philosophy and Social Sciences) 195 (2023).
 - 21 Zhang Suhua, *Legal Configuration of the Inclusion of Data Assets in Statements*, 2 China Legal Science 229 (2024).

scope of application, categories of assets, evaluation methods and disclosure rules of data assets. The interpretation and classification of data assets from an accounting perspective are significant for understanding the legal nature of data assets.

A. Constituent Elements of Data Assets

The *Conceptual Framework for Financial Reporting 2018* points out that the definition of ‘assets’ is: existing economic resources formed by past events and actually controlled by an enterprise. Economic resources refer to the rights that may generate economic benefits in the future, and the benefits generated in the future are economic benefits that cannot be concurrently obtained by other enterprises.²² However, in previous market practices, due to the absence of unified criteria, in the accounting treatment of data assets, enterprises often dared not readily invoke the relevant rules of intangible assets or inventories. Such issues were resolved after the promulgation of the Interim Provisions on Accounting Treatment. According to this accounting rule, the data assets that can be listed under the asset item in the balance sheet should meet the following basic requirements. That is, ‘data resources that the enterprise legally possesses or controls are expected to bring economic benefits to the enterprise, but are not recognized as an asset due to not meeting the relevant asset recognition conditions of the enterprise accounting standards.’²³ In this regard, from an accounting perspective, data assets should have three constituent elements: firstly, the enterprise has the ownership or control of the data assets; secondly, there are expected economic benefits, and these economic benefits may flow into the enterprise; third, value measurement or monetization assessment can be conducted.²⁴

The conceptual delimitation logic of data assets from the aforementioned accounting perspective is largely in alignment with the determination of assets that can serve as a form of capital contributions in the *Company Law*. Article 48 of the newly-revised *Company Law* stipulates that shareholders may ‘contribute non-monetary property that can be appraised in currency and legally transferred, except for the property prohibited by laws and administrative regulations as capital contributions’. Article 48 puts forward two fundamental elements for assets used as a form of capital contributions,

22 International Accounting Standards Board, *Conceptual Framework for Financial Reporting: Chapter 4*, IFRS Foundation, March, 2018.

23 Article 1 of the *Interim Provisions on Accounting Treatment of Enterprise Data Resources*.

24 Zhang Suhua, *supra* note 21.

namely, ‘being able to be valued in currency’ and ‘being able to be transferred legally’.

Although existing legal studies can partially explain the distribution of the ‘ownership or control rights’ of data, they ignore the fact that only data with economic value or that can be valued in monetary terms is necessary to explore the issue of data rights.²⁵ Regarding the legal nature of data assets, most existing studies cannot circumvent the prerequisite issue of discussing whether they are properties in civil law.²⁶ Therefore, the ownership of data assets has thereby transformed into the issue of the property ownership of civil subjects.²⁷ The property rights system solves the problem of the distribution pattern of property-related benefits in specific social relations.²⁸ Achieving the ultimate dominance of civil subjects over property has always been a concern for legislators, but it is not necessarily the inevitable path to revitalize data assets. However, holders of property rights encounter various social interaction entities, and the nature of their property rights manifests in diverse forms, particularly concerning standardization.²⁹ Furthermore, excessive emphasis on the allocation of rights to data assets may create obstacles to data flow.³⁰ It is also argued that this might increase the costs of rights identification and transaction costs.³¹ In commercial practice, companies mainly take business operations as their fundamental purpose, and directly obtaining or possessing a certain property is not the ultimate goal of the company but merely a means or tool for achieving profitability.³² The author contends that this logic is also applicable to data assets.

When a certain data asset can be manifested through monetary value, that is, when it is converted into a general equivalent, it is possible to

25 Ding Xiaodong, *Breaking the Deadlock of Data Trading*, 2 *Oriental Law* 144 (2022).

26 Wang Liming, *Confirmation of Data Rights: Why and How*, 4 *Chinese Journal of Law* 56 (2023); Shen Weixing, *Reconstruction of the Digital Rights System: Toward a Pattern of Differential Order of Privacy, Information and Data*, 3 *Tribune of Political Science and Law* 89 (2022); Bao Xiaoli, *The Ownership Affirmation Rule of Second Order Sequential Data*, 3 *Tsinghua University Law Journal* 60 (2022).

27 Zhang Xinbao, *On Data Property Rights as a New Type of Property Right*, 4 *Social Sciences in China* 144 (2023).

28 See JOSEPH WILLIAM SINGER, BETHANY R. BERGER & NESTOR M. DAVIDSON ET AL., *PROPERTY LAW: RULES, POLICIES, AND PRACTICES* (8TH EDITION), at xxxii (Wolters Kluwer, 2022).

29 See Thomas W. Merrill, *The Property Prism*, 3 *Econ Journal Watch* 247-250 (2011); Thomas W. Merrill, *Property as Modularity*, 125(1) *Harvard Law Review* 151 (2012).

30 See Adam D. Thierer, *The Internet of Things and Wearable Technology: Addressing Privacy and Security Concerns Without Derailing Innovation*, 2 *Richmond Journal of Law & Technology* 75 (2015); FRANCESCO BANTERLE, *DATA OWNERSHIP IN THE DATA ECONOMY: A EUROPEAN DILEMMA*, in *EU INTERNET LAW IN THE DIGITAL ERA: REGULATION AND ENFORCEMENT*, at 219 (Springer International Publishing, 2020).

31 See Pamela Samuelson, *Privacy as Intellectual Property?*, 5 *Stanford Law Review* 1135 (2000).

32 Ye Lin, *A Study of Legal System on Operating Capital*, 1 *Journal of Gansu University of Political Science and Law* 7 (2007).

establish its effect in business activities as a company asset.³³ In reality, in the transaction environment of the modern digital age, traditional notions of rights often encounter obstacles in the application of law.³⁴ Taking data as an example, it is merely a string of electronic data and it is difficult to incorporate it into the category of objects under traditional civil law and place it within the protection framework of property law. This is because a string of electronic data itself has almost no material value; its true value lies in the information stored on that data. In this regard, some viewpoints propose considering data as part of its physical carrier and incorporating data protection into the protection framework of carrier ownership for resolution.³⁵ However, even the same information may exhibit different values when serving different business entities. Therefore, simply including such assets within the protection scope of civil law is likely to prove fruitless. Compared to property in civil law, characterizing data assets in specific scenarios as enterprise assets appears to be more appropriate.

B. Categories of Data Assets

In accordance with the relevant provisions of the Interim Provisions on Accounting Treatment, enterprises should categorize data assets into two types, namely ‘intangible assets’ and ‘inventory’, based on factors such as the purpose of holding the data, the formation mode, the business model, and others.³⁶ Generally, data assets falling within the category of ‘inventory’ refer to data resources that are held in the daily activities of enterprises and whose ultimate aim is for sale.³⁷ Data assets falling within the category of ‘intangible assets’ refer to the business model of using data resources through external non-exclusive authorization, as well as data resources in the dual-use business model where there is both internal use and external transactions but does not primarily rely on external sales to obtain economic benefits.³⁸

Hence, when differentiating the categories of data assets, the following five key factors are typically taken into account. The first is the holding purpose: whether the data assets are mainly for self-use in daily operations

³³ *Id.*

³⁴ Zhang Xinbao, *supra* note 27.

³⁵ Wang Lei, *The Protection of Property Interests of Electronic Data in Tort Law: From the Perspective of Infringing Integrity of Data*, 1 Science of Law 38 (2019).

³⁶ *Supra* note 23, article 2.

³⁷ *Id.*

³⁸ *Id.*

or for sale to obtain economic benefits. The second is the formation mode: whether the data assets are formed through internal research and development, external procurement, or other specific methods. The third is the business model: whether there exists a situation of non-exclusive authorization for external use of data, or whether there is both internal use and external transactions, and whether the acquisition of economic benefits mainly relies on external sales.³⁹ The fourth is the reusability of the data: whether it can be reused multiple times without a significant reduction in value. The fifth is the degree of association with the core business of the enterprise: data assets that are closely related to and have significant supportive effects on the core business of the enterprise may be classified as intangible assets.⁴⁰

In accounting standards, the categorization of data assets into intangible assets and inventory implies that different types of data assets possess entirely distinct natures. From the perspective of the conceptual category, intangible assets denote non-monetary assets that are identifiable and lack physical form. They are long-term assets owned by the enterprise and possess economic value. Inventory refers to the material assets held by the enterprise for the purpose of sale or utilization in the production process, typically being the material resources employed in the enterprise's business activities. In terms of the categories of asset nature, intangible assets are usually categorized as long-term assets and are anticipated to generate economic benefits for the enterprise over an extended period. Conversely, inventory is typically classified as current assets and is generally expected to be consumed, sold, or transformed into cash within one year. Regarding the measurement of asset value, intangible assets are typically measured on the basis of cost and are subject to amortization or impairment tests in accordance with relevant standards. Inventory is usually measured based on the lower of cost or market value in accordance with the cost measurement principle.

Data assets possess characteristics such as scenario-dependence, non-consumability, timeliness, shareability, and non-competitiveness. Consequently, it is challenging to categorize data assets into types, particularly when there is no consensus on the measurement methods for data assets. It is necessary to make a comprehensive judgment based on the specific scenarios of data assets, considering the economic benefits to be derived from them. Some viewpoints suggest that the emergence of data

39 *Id.*

40 Luo Mei, Li Jinpu & Tang Ke, *supra* note 20.

assets may even alter the theoretical logic of asset operation management and its accounting standards.⁴¹ In conclusion, the categories of data assets mainly depend on the value realization mechanism of data assets, and the scenario-dependence of data assets requires appropriate economic benefit forecasts.⁴²

C. The Scenario-Based Valuation System of Data Assets

When investors contribute non-monetary assets, asset evaluation should be conducted.⁴³ Correspondingly, investors should be accountable for the authenticity and legality of the non-monetary assets they provide. Asset evaluation institutions engaged in the business of contribution evaluation should follow the principles of independence, objectivity and impartiality, and bear legal responsibility for the evaluation results.⁴⁴ However, in the case of data assets, due to their ‘scenario dependency’, the valuation of data assets may vary depending on the scenarios. In other words, even for the same data assets, enterprises in different industries may have different demands and pricing for data assets due to their own business scenarios and business models, which brings uncertainties to the evaluation of data assets.⁴⁵ For this reason, it is necessary to establish a scenario-based valuation system in accordance with the characteristics of different industries.

Establishing a data asset evaluation system based on scenarios requires consideration of the following key steps and elements. Firstly, it is essential to clearly define the evaluation objectives and scope, which may include purposes such as asset transactions, financial reporting, or corporate mergers. This involves specifying the target data assets to ensure that the valuation aligns with its intended use. Secondly, a comprehensive analysis of industry-specific business processes and operational models is essential to delineate the functional role of data assets, their primary value drivers, and inherent risk profiles within each application context.⁴⁶ For instance, for

41 Huang Shizhong, Ye Fengying & Chen Zhaolin, *Recognition, Measurement, and Reporting of Data Assets: A Business Model Perspective*, 8 Finance and Accounting Monthly 3 (2023).

42 Dong Gaojing, Sun Na & Wang Baoping, *Concept Analysis, Valuation Techniques, and Application Strategies of Digital Assets*, 10 Financial Management Research 68 (2023).

43 See article 3 of the *Notice on Several Issues Concerning the Strengthening of the Evaluation Management of Non-Monetary Property Contributions*.

44 *Id.*, article 4.

45 Xu Xianchun, Zhang Zhongwen & Hu Yaru, *Research on Deriving Measures of Data Assets in National Accounts*, 2 Journal of Management World 16 (2022).

46 Birch K., Cochrane D. T. & Ward C., *Data as Asset? The Measurement, Governance, and Valuation of Digital Personal Data by Big Tech*, 1 Big Data & Society 1-15 (2021).

the data assets controlled by internet platforms, pricing can be conducted by referring to indicators such as ‘transaction volume’, ‘click charge’, and ‘number of daily active users’.⁴⁷ Thirdly, data assets should be classified by source, format, quality, and timeliness, with subsequent extraction of key scenario-specific features. Fourthly, appropriate evaluation methods should be selected through a combination of traditional approaches (e.g., cost, market, and income methods), adjusted to align with data asset characteristics and scenario needs. For instance, for data assets with clear market transaction cases, the market method can be adopted; for data assets with expected income, the income method can be employed. Fifthly, it is essential to develop scenario-specific evaluation models that account for critical variables such as market competition, technological evolution, and regulatory changes to accurately assess data asset value. Sixthly, data quality assessment should be conducted by evaluating critical indicators including accuracy, completeness, consistency, and availability, as these factors directly impact data valuation. Seventhly, a comprehensive risk assessment of data assets should be conducted by examining potential threats such as data leakage, obsolescence, and compliance violations, and these risk factors should be systematically incorporated into the valuation framework. Beyond the above, as the business environment and technology change, it is necessary to note that the evaluation system should be updated regularly to ensure its accuracy and applicability.

Furthermore, concerning the issue of how to determine the price of data assets, one can draw reference from the *Notice on Optimizing Relevant Matters Concerning Asset Appraisal Management of State-Owned Enterprises* issued by the State-Owned Assets Supervision and Administration Commission of the State Council, which stipulates that ‘for economic activities related to assets such as intellectual property rights and data assets of state-owned enterprises and their subsidiaries, the transaction price can be determined through means such as listing for trading, auctions, inquiries, and agreements’, ‘the base price for listing or auctions can be reasonably determined by referring to factors such as their book value and historical input cost’. It should be noted that the value of data assets does not merely rely on the net asset value of the enterprise or the operating profit. Instead, it is the price formed during the transfer of assets. The three main types of appraisal methods primarily adopted in asset appraisal mainly serve the

⁴⁷ Wang Yong, Liu Leyi & Chi Xi et al., *Traffic Game and the Optimal Pricing of Traffic Data: Based on the Perspective of E-Commerce Platform*, 8 Journal of Management World 116 (2022).

purposes of enterprise auditing, asset appraisal, or accounting, and are unable to truly reflect the market supply and demand relationship of enterprise assets. Although various appraisal methods can be used as reference prices during asset transactions, the values determined thereby are not the ultimate values of the enterprise's assets. An obvious example is that the total net asset value of an enterprise often does not align with its market capitalization. In conclusion, the appraised value of data assets is not their true market value as enterprise assets. Enterprises' assets have the potential to create value, but the final value can only be determined through market transaction methods such as contracting and auctions.

IV. DATA ASSETS AS A NON-MONETARY FORM OF CAPITAL CONTRIBUTIONS

According to relevant accounting standards, data assets can be regarded as 'assets' in the balance sheet, laying the foundation for being a form of capital contributions. Shareholders can adopt two forms of capital contributions: monetary contributions and non-monetary contributions. Monetary contributions are the simplest form of contribution; non-monetary contributions mainly involve contributing with properties such as physical objects, intellectual property rights, and land use rights. They jointly undertake the important function of raising capital. Data assets as a non-monetary form of capital contributions imply that investors take the data assets they own or control as an investment form and, by converting them into equity, share risks and returns with other investors.

Non-monetary contributions, in essence, are a transformed form of monetary contributions. Data assets, as capital contributions, are more appropriately characterized as corporate assets of an enterprise compared to properties in civil law. The essence of corporate assets is movable property employed in the business operations of the company. Although data assets are a virtual entity, regardless of whether they possess a dominant or relative property nature, as long as they can be utilized for the business activities of an enterprise, there exists the possibility of their inclusion within the category of corporate assets.

A. Comprehension of Article 48 of the Newly-Revised Company Law

Article 48 of the newly-revised *Company Law* stipulates the forms of shareholders' capital contributions. This provision clarifies that when

establishing a company or increasing the company's capital, shareholders are not restricted to using currency as the contribution method; they can also contribute with non-monetary properties. This regulation expands the channels for shareholders' capital contributions and enhances the utilization efficiency of resources. Article 48 embodies the legislation's encouragement and support for the diversity of shareholders' contribution methods. Nevertheless, according to article 48, these non-monetary properties must fulfill two conditions to be eligible for capital contributions. Firstly, they must be 'capable of being valued in currency', that is, their value can be clearly quantified. Secondly, they must be 'transferable in accordance with the law', meaning that these properties are legally capable of circulation and transactions.

Data assets, as tradable assets, conform to the function of company capital and can be incorporated into the company's capital structure. The fundamental functions of company capital are threefold. Firstly, the economic function, that is, capital serves as the production materials of the company. After shareholders contribute data assets in the form of non-monetary properties to the company, the company can also incorporate these data assets into production and operation to generate value and profits. Under specific circumstances, the company can also utilize these data assets for financing. Secondly, the property rights allocation function, by which capital can determine the voting rights (control rights) and profit distribution among shareholders. After shareholders contribute data assets to the company, shareholders can obtain corresponding equity as consideration and participate in the company's management and obtain corresponding benefits in accordance with the principle of 'majority of capital decision'. In other words, the company allocates corresponding voting rights and entitlement to benefits to shareholders due to the shareholders' data asset contributions.⁴⁸ Thirdly, the guarantee function, namely external creditor's rights guarantee. Once data assets enter the company as capital, they themselves can also be utilized as properties to settle the company's debts.⁴⁹

Furthermore, article 48 also stipulates that 'except for the properties that are prohibited from being used as capital contributions by laws and administrative regulations.' This implies that although non-monetary assets

48 Liu Fuhua & Li Min, *On the Principle of Capital Majority Representation: Reflections on the Rules for Shareholders' Meeting Resolutions*, 1 Law Science Magazine 76 (2008).

49 Zhu Ciyun, *The Conception of Corporate Capital and Protection of Creditors' Interests*, 3 Tribune of Political Science and Law 126 (2005).

offer flexibility as capital contributions, not all non-monetary assets can be utilized for capital contributions. Properties that are explicitly prohibited by laws and administrative regulations cannot be adopted as a form of capital contributions. This is primarily to avoid the utilization of illegal or non-compliant properties to undermine the interests of the company and other shareholders.

Then, what kinds of non-monetary assets cannot serve as capital contributions? According to article 13 of the *Regulations on the Administration of the Registration of Market Entities*, non-monetary assets that cannot be used as capital contributions include labor services, credit, the names of natural persons, goodwill, franchise rights, or properties that have been provided as collateral, etc. Although data assets are not included in the prohibited list, it does not mean that all data assets are not within the prohibited content. Among them, a controversial issue is whether data assets that have been provided as collateral fall within the prohibited scope of capital contributions. The main reason why properties that have been provided as collateral cannot be used as capital contributions is that if the debtor fails to fulfill the debt obligations, the creditor may obtain the properties that have been provided as collateral. If such properties are used as capital contributions, the rights of the company may be nullified. In this regard, some viewpoints hold that the aforementioned risk is difficult to materialize in the context of data assets. Because data assets are replicable, that is, the same data may be held by multiple entities. If one party has provided collateral for the data assets, generally, it will not affect the usage rights of the data assets by other holders.

Concerning the aforesaid disputes, the author contends that the crux of answering this question lies in whether data assets, as capital contributions, ought to comply with the exclusivity requirements of property. Traditionally, ‘exclusivity’ has been regarded as a prerequisite for property rights to function effectively as an incentive mechanism. Only when other entities are precluded from sharing the benefits and costs delineated by property rights can these benefits and costs be ‘internalized’. When a certain data asset can be held by multiple entities and guarantees do not impact the rights of other holders, due to the absence of ‘exclusivity’, it is arduous to define it as property in the legal sense. Nevertheless, the ‘exclusivity’ of data assets is rather distinctive, and there exist diverse viewpoints in the academic circle. Some perspectives have made an analogical analysis between data assets and rural land, suggesting that the property rights of data assets could be constructed by emulating the Chinese rural land system, in which the land

ownership, contracting rights, and management rights can be separated. However, there are also viewpoints maintaining that when data assets' holders grant others data processing and management rights, it does not lead to the virtualization of their holding rights. The relationships among data rights are not mutually exclusive but coexist in a pluralistic manner.

It should also be noted that the *Information Security Technology: Safety Requirements for Data Transaction Services (Draft for Comment)* issued by the State Administration for Market Regulation of China on August 25, 2023, classifies prohibited traded data into three types: data that jeopardizes national security and social stability, data related to specific individual rights and interests, and data related to specific enterprise rights and interests. In other words, data that endangers national security, public interests, and social stability, data that infringes upon personal privacy, unofficially opened public data, data involving trade secrets, data obtained from illegal channels, and data that tarnish others' reputations all fall within the category of data assets prohibited from being invested.

B. Core Elements of the Non-Monetary Form of Capital Contributions in the Company Law

Generally, non-monetary property contributions must possess two core elements: one is having the nature of being monetarily assessable, and the other is being transferable. Although article 48 of the newly-revised *Company Law* does not enumerate data assets among the non-monetary properties that can be used for capital contributions, it can be seen that the legislator holds a relatively open attitude towards the types of non-monetary properties. To encourage investment, in fact, as early as in the *Company Law of 2005*, the restrictions on the contribution forms of shareholders were relaxed. The contribution forms were modified from currency, physical objects, land ownership, industrial property rights, and non-patent technologies to currency, physical objects, land use rights, industrial property rights, and other transferable properties that can be monetarily valued. Thus, it can be seen that the two major elements of being monetarily assessable and legally transferable have been clearly stipulated since the *Company Law of 2005*. Therefore, article 48 of the newly-revised *Company Law* has not made excessive modifications to the contribution methods in the *Company Law of 2005* and still permits shareholders to contribute with non-monetary properties that can be monetarily valued and legally transferred. Meanwhile, the company law also stipulates that for capital contributions with non-monetary properties, the

transfer procedures of property rights shall be carried out in accordance with the law.

From the perspective of judicial practice, the main determining factors for whether it conforms to the non-monetary property requirements in the company law as judged are threefold. Firstly, the ownership or control rights should be definite. Secondly, the property should be transferable in accordance with the law. Thirdly, it needs to comply with the basic requirements for the property concept in civil law. The *Real Rights Book of the Civil Code* typically classifies properties into movable property and immovable property, while data assets seem difficult to be simply categorized into the aforementioned binary classification. Nevertheless, in recent years, disputes involving virtual properties similar to data assets have not been rare. With the development of the Internet, a consensus has been largely reached in judicial practice regarding virtual property such as Internet accounts, namely, it is regarded as a type of non-monetary property. For instance, in the case of *Lu Shangqi v. Song Jia* involving the Internet infringement liability dispute, the court affirmed that a WeChat account could be a form of non-monetary property contribution. Regarding this, the presiding judge put forward that ‘a WeChat account, having generated commercial value through the operation of the operator, can be regarded as an effective form of capital contributions for the company when the account registrant legally enjoys the right of use and the right of use can be legally transferred.’⁵⁰ Another example is the case of *Guangzhou Jingpeng Culture Media Co., Ltd. v. Wang* in the dispute over liability for damaging the company’s interests, where the judge opined that ‘a Kuaishou account has non-materiality, publicity, and exclusivity, and is the object of virtual property. Shareholders can contribute by pricing a Kuaishou account. If the account is retrieved without legal procedures after the shareholder’s contribution, it constitutes the withdrawal of capital. If it causes damage to the company, the shareholder shall bear the liability for compensation.’⁵¹ Compared with the aforementioned account-type virtual property, data assets not only conform more closely to the requirements of non-monetary property in the company law but also are more standardized and orderly in aspects such as property right confirmation, transactions, circulation, and evaluation, and thus should be able to become a form of non-monetary property.

50 *Lu Shangqi v. Song Jia*, No. 8536 Final Civil Judgment of the First Intermediate People’s Court of Chongqing (2019).

51 *Guangzhou Jingpeng Culture Media Co., Ltd. v. Wang*, No. 665 Final Civil Judgment of Guangzhou Intermediate People’s Court of Guangdong (2022).

C. Requirements of Independence of Data Assets as Company Assets

The company, as a legal entity, possesses independent property rights, which is one of the key characteristics that define a legal entity as a civil subject. The distinction between the company's assets and those of its shareholders has become an essential requirement in the company law. Consequently, when non-monetary properties are utilized as capital contributions, it is imperative to follow proper procedures for the transfer of property rights. At this juncture, ensuring the complete transfer of these rights and maintaining the separation between the company's assets and those of its shareholders emerges as both a critical and challenging issue. Data assets, being part of the company's resources, must maintain their independence. This can be evaluated from three perspectives: controllability, integrity, and transferability of data assets.

Firstly, as a component of the company's assets, data assets possess controllability in terms of rights. The delineation of rights associated with data assets has consistently been a focal point in both academic and practical discussions. The separation of data rights represents a novel property rights system characterized by the 'structural division of data property rights', which aims to clarify the legitimate rights held by each party involved in the processes of data collection, storage, processing, handling, disclosure, and utilization.⁵² The Twenty Data Provisions have established a foundational institutional framework for a 'tripartite division of rights' concerning data assets. This framework encompasses three categories: 'holding rights over data resources', 'processing and usage rights pertaining to data', and 'operational rights related to data products'. To some extent, this tripartite division addresses issues such as ambiguous boundaries regarding the allocation of responsibilities and entitlements within the realm of data assets. The establishment of a comprehensive system for data property rights serves as the logical foundation for constructing an overarching basic structure for all aspects related to data assets. However, translating the governance provisions articulated in the Twenty Data Provisions into legal terminology and converting these allocations into legally enforceable entitlements remain an ongoing challenge that requires further development. The author contends that it is more critical for companies to maintain control over their data assets when compared to ownership *per se*. This perspective suggests that irrespective of whether a given asset is tangible or intangible, any form of

⁵² Wu Handong, *supra* note 11.

data assets under company control should be considered part of its overall asset portfolio.

Secondly, as a component of the company's assets, data assets possess integrity in form. Data, as a reflection of the objective world, does not exist naturally and is not as accessible as air. It demands information collection, production, and appropriate digitization of the obtained information before it can be transformed into data assets and fall within the category of production and labor outcomes. Based on the theory of the data value chain, the creation process of data value can be divided into two major categories: basic value and value-added value. The data value chain refers to the creation of basic value in the links of data collection, transmission, storage, analysis, and application, and achieving value increment during the circulation of data.⁵³ Therefore, data assets have integrity and are not easy to be segmented like ordinary objects. The integrity of data assets sometimes manifests as the integrity of the company's operations, sometimes as the integrity of a certain system, a certain business, or a certain operation of the company, and these systems, businesses or operations constitute an organic whole. Data assets, as a combination of multiple rights and interests, are often a composite form of numerous property elements and are difficult to be decomposed randomly, or may lose value or even have no value after decomposition. Overall, the originally obtained data rights should be a comprehensive right rather than a dispersed bundle of rights.⁵⁴ Therefore, for the data assets controlled by companies, the norms of property rights in civil law cannot be directly applied. However, the integrity of data assets is relative. For instance, a certain data asset can both serve as a component of the company's assets and be an independent property.

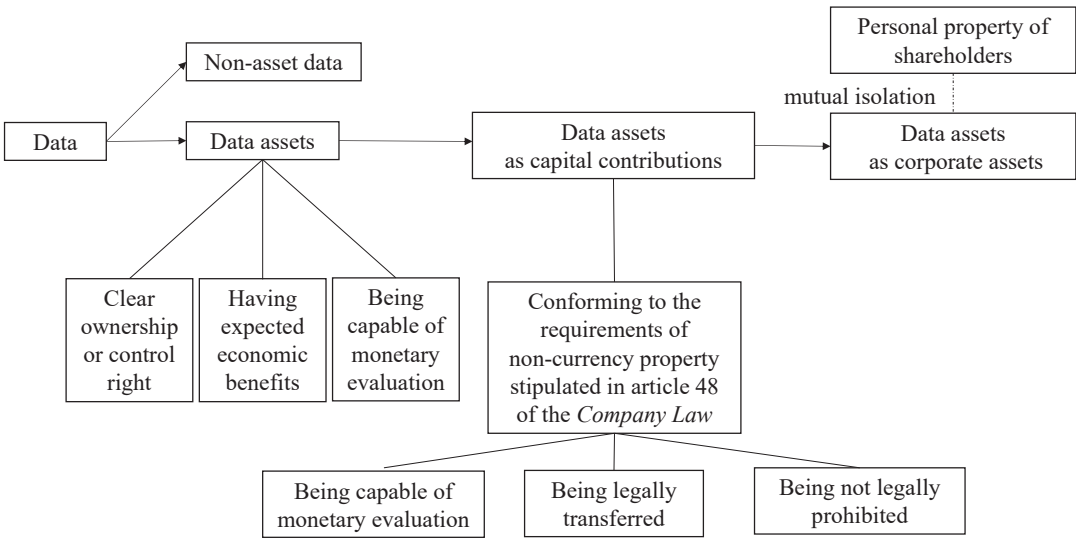
Thirdly, as a component of the company's assets, data assets possess transferability. Data assets are classified as economic resources that are controllable by the company and exhibit a pronounced property rights attribute. In accordance with the principle of free disposal of property rights, the holder of these assets is entitled to manage them at their discretion. Given this holistic characteristic of data assets, which does not emphasize their material form, transferring such assets in alignment with conventional civil law principles can be challenging. When data assets are transferred as part of the company's overall asset portfolio, adherence to the principle of voluntary contracting is essential; transfers should be executed under the name of the

53 Li Zhenghui, Xu Yanting & Lu Siting, *Research Progress in the Data Value Chain*, 2 *Economic Perspectives* 128 (2024).

54 Liu Wenjie, *On the Legal Expression of Data Rights*, 3 *Chinese Journal of Law* 36 (2023).

company. The transfer of data assets generally involves the effectiveness issues of both the transaction subject and the transaction matter. From one perspective, regarding transaction parties, transferring data assets necessitates consideration of effectiveness for all involved entities: the transferor, transferee and relevant stakeholders (including creditors and debtors). From another perspective, concerning transactional matters, it encompasses assumptions about the scope of asset transfers within a company’s holdings, along with considerations surrounding creditor’s rights and obligations as well as non-competition agreements. Moreover, it is important to note that transferring data assets may also give rise to specific concerns under labor law or antitrust regulations.⁵⁵ These aspects warrant particular attention during any review process associated with such asset transfers.

Figure 1: Conceptual Evolution and Constituent Elements of Data, Data Assets, and Corporate Assets



V. SHAREHOLDERS’ CAPITAL CONTRIBUTION OBLIGATIONS
AND LEGAL LIABILITIES

At present, a unified national standard for the assessment of data assets has not yet been formed, and the actual value of data assets may potentially

55 Yin Jiguo, *Antitrust Regulation of Self-Preferential Behavior on Digital Platforms*, 5 *Studies in Law and Business* 70 (2024).

be ‘significantly lower’ than the amount of capital contributions subscribed to at that time (the evaluated value at the time of equity participation), thereby possibly giving rise to disputes such as inadequate capital contributions and defective capital contributions. Moreover, the newly-revised *Company Law* has strengthened the liabilities of the initiating shareholders.⁵⁶ When the contribution of non-monetary assets is insufficient, the initiating shareholders may need to bear joint and several liability. Exactly, how to determine whether the contributor of data assets has fulfilled the capital contribution obligation, under what circumstances the initiating shareholders need to bear joint and several liability and whether they can claim compensation afterwards and other issues are key points that require extra attention.

A. Determination Criteria for the Fulfillment of Shareholders’ Capital Contribution Obligations

According to article 50 of the newly-revised *Company Law*,⁵⁷ in the context of data assets as capital contributions, to determine whether a shareholder’s capital contribution obligation has been fulfilled, the following elements should be met at least. Firstly, the contribution has actually been paid in accordance with the provisions of the company’s articles of association. Secondly, the actual value of the data asset at the time of capital contributions is not significantly lower than the amount of capital contributions subscribed. Among them, for the determination criteria of ‘significantly lower’, the expression in the previous law was ‘significantly lower than the price set in the company’s articles of association’;⁵⁸ while in

56 In accordance with the provisions of the newly-revised *Company Law of China*, the liabilities of the initiating shareholders can roughly be summarized into the following four points: (i) joint and several liability: when a company is established, if other initiating shareholders fail to actually contribute the capital as stipulated in the articles of association, or if the actual value of the non-monetary property contributed by a shareholder is significantly lower than the amount of capital contributions subscribed, the other shareholders at the time of establishment and this shareholder shall bear joint and several liability within the scope of the insufficient capital contributions; (ii) liability for capital sufficiency: initiating shareholders must ensure that their capital contributions are in line with the amounts actually subscribed. Otherwise, they are required to make up the shortfall. Additionally, if an initiating shareholder is still responsible for the sufficiency of the company’s capital after transferring the equity, even if the equity has been transferred, they cannot be exempted from the legal liability for capital sufficiency; (iii) liability in specific circumstances: if the company fails to be established for certain reasons, creditors can request all or some of the initiating shareholders to bear joint and several liability for the expenses and debts arising from the act of establishing the company. Before the company’s registration is cancelled through a simplified procedure, if the contents of the commitments made by all shareholders are untrue, they shall bear joint and several liability for the debts before the cancellation of registration; (iv) liability for capital withdrawal: initiating shareholders are not allowed to withdraw their capital contributions. Shareholders who violate this regulation need to return the withdrawn capital and may be subject to joint and several liability with other shareholders.

57 Article 50 of the *Company Law of China of 2005*.

58 *Id.*, article 94.

the newly-revised *Company Law*, it is ‘significantly lower than the amount of capital contributions subscribed’.⁵⁹ For traditional currency contribution methods, it is usually achievable through a one-time payment, and it is much easier to determine whether the contribution obligation has been fulfilled. However, for the situation of data assets, given multiple reasons, many complex issues may need to be considered.

In judicial practice, the determination of whether non-monetary property contributions are in place typically adopts the capital maintenance principle,⁶⁰ namely adhering to the standards of ‘rights alteration’ and ‘actual delivery of property’.⁶¹ For a particular property that has been physically delivered for the company’s use but has not undergone ownership alteration registration, it may still fall within the purview of shareholders not fulfilling their capital contribution obligations in accordance with the law. Nevertheless, in judicial litigation, judges often order the parties concerned to complete the relevant rights alteration formalities within a designated reasonable period. This implies that as long as the relevant formalities are completed within a reasonable period, it can be regarded that the shareholder has fulfilled the contribution obligation.⁶² In the case of data assets as capital contributions, it is challenging to confirm through the aforementioned regulatory logic. Hence, it is necessary to clearly stipulate the contribution cycle, frequency, and specific payment methods through agreements or the company’s articles of association. More importantly, it is necessary to ensure that the actual control of data assets has been transferred to the company. The delivery of non-monetary contributions is usually rather complex and the specific delivery mode usually needs to be determined based on the type of non-monetary contribution property in accordance with the provisions of relevant laws. Taking real estate contributions as an example, if an investor contributes real estate, they should undertake the real estate transfer registration procedures; if it is a physical contribution, the

59 Article 50 of the *Company Law of China of 2023*.

60 The principle of capital maintenance is one of the fundamental principles in the company law, whose main aim is to protect the interests of creditors and guarantee transaction security. Regarding the retention or abolition of the principle of capital maintenance, there is significant controversy in the academic circle. Supporters hold that the principle of capital maintenance should be further strengthened, while opponents contend that it should be weakened or even abolished. See Gu Mingkang, *The Capital Maintenance Principle Under Zero Capital System*, 7 *People’s Judicature* 74 (2015); Du Jun, *The Principle, Evolution and New Judicial Topic of Company Capital System*, 11 *Journal of Law Application* 2 (2014); Deng Feng, *Evolution and Mechanism Design of the Capital Restraint System: Based on the Comparison of Chinese and American Corporate Law*, 1 *China Legal Science* 99 (2009).

61 Song Xiaoming, Zhang Yongjian & Du Jun, *Comprehension and Application of Provisions on Several Issues Concerning the Application of Company Law*, 5 *People’s Judicature* 35 (2011).

62 *Id.*

delivery procedures of the physical objects should be completed; if it is other registered property, the corresponding property rights alteration registration procedures need to be carried out. For data assets, as they are a kind of virtual property without a physical entity, it is impossible to complete the physical delivery procedures and can only be conducted through methods such as the transfer registration of data property rights, which is perhaps the most appropriate handling approach at present.⁶³

B. Legal Liabilities of Initiating Shareholders

Article 50 of the newly-revised *Company Law* has deleted the previous expression that ‘the shareholder who delivered the capital contribution shall make up the difference’⁶⁴ and has changed it to ‘the other shareholders at the establishment and the said shareholder shall bear joint and several liability within the scope of the insufficient contribution’. At the same time, in article 13 of the *Judicial Interpretation (III) on the Company Law* formulated by the Supreme People’s Court of China, it is specially stipulated that the initiating shareholders can claim compensation from the shareholders with insufficient contributions after bearing joint and several liability. ‘The initiating shareholders of the company and the contributing shareholders bear joint and several liability. After the initiating shareholders assume the liability, they can claim compensation from the shareholders who failed to fulfill or did not fully fulfill the contribution obligation when the company increased its capital.’

The issue with data assets lies in their considerable value volatility. There could be a substantial disparity between the assessed price at the time of capital contributions and that at the time of dispute. In the practice of capital contributing with non-monetary properties, a common controversy

63 In practice, the current models for establishing the property rights of data assets can be roughly categorized into two types. One is to adopt the approach of the ‘data intellectual property rights registration certificate’, which is registered in a manner similar to intellectual property rights. The registration subjects of data intellectual property rights are typically data holders or data processors, and the registration content consists of data collections that have been gathered in accordance with laws, regulations or contractual agreements, processed through certain rules or algorithms, possess commercial value and the attributes of intellectual achievements, and are in an undisclosed state. The other is to utilize the ‘data asset registration certificate’ approach and register directly as data assets. The currently established data asset registration platforms in China include the National Data Asset Registration Service Platform, the Data Asset Registration and Evaluation Platform, local data trading and circulation service centers, and local data exchanges. Some platforms have achieved interconnection and mutual recognition of registrations among multiple cities, but a unified system has not yet been formed nationwide. Nevertheless, both the data intellectual property rights registration certificate and the data asset registration certificate often come with a validity period, generally not exceeding three years. This implies that unless the validity period is extended in advance, the corresponding registration certificate of the relevant data asset might expire within the period after it is contributed as capital. When evaluating the value of data assets, the validity period of the data asset rights registration certificate should be taken into consideration.

64 *Supra* note 57, article 31.

exists. That is, although a certain non-monetary property was evaluated and priced at the establishment of the company, after the company was formed, other shareholders of the company believed that the property's value was overestimated, thus initiating litigation to claim that the contributor failed to fulfill the contribution obligation. For such circumstances, the judgment approach is 'determining the actual value of the property and judging whether the relevant entities have fulfilled the contribution obligation'.⁶⁵ In combination with the relevant provisions of articles 9 and 13 of the *Judicial Interpretation (III) on the Company Law* and article 50 of the newly-revised *Company Law*, the above judgment approach can be further classified into the following two scenarios. The first scenario is the situation where the non-monetary property has not been evaluated and priced in accordance with the law. In this case, the court can entrust a legitimate evaluation agency to conduct the evaluation, and then compare the evaluated value with the subscribed value to determine whether the contributor has fulfilled the capital contribution obligation. The second scenario is that the property has been evaluated at the time of contributions, and the actual value is consistent with the subscribed value. However, if the property depreciates due to objective factors such as changes in the market environment, the depreciation of the asset value at this time should fall within the realm of business risk, and the contributor should no longer bear responsibility.

It should be noted that to ensure the certainty of the company's capital system and prevent the overvaluation of non-monetary property contributions causing fictitious company capital, the company laws of most countries stipulate the fundamental rule that non-monetary property contributions must undergo evaluation. Consequently, the evaluation requirement for non-monetary property contributions constitutes a mandatory regulation in the company law. This is manifested in paragraph 2 of article 48 of the newly-revised *Company Law*, which stipulates that 'when non-monetary property is utilized as a form of capital contributions, it must be evaluated and its true value verified to avoid overvaluation or undervaluation of the property.' In other words, when data assets are employed as a non-monetary property for capital contributions, similar evaluation and capital verification procedures need to be followed to guarantee the authenticity and legality of their value. Therefore, the evaluation and pricing of data assets for capital contributions are mandatory requirements in the company law. If no third-party evaluation and pricing is conducted, the relevant shareholders shall bear the adverse consequences of this act.

65 Song Xiaoming, Zhang Yongjian & Du Jun, *supra* note 61.

VI. CONCLUSION

In the context of the rapid expansion of the contemporary digital economy, the significance of data assets has become increasingly pronounced. The challenge of facilitating their efficient and compliant circulation and utilization through market mechanisms has emerged as a shared concern for both academia and industry practitioners. The enactment of the newly-revised *Company Law* has established a legal foundation for data assets as capital contributions and introduced innovative ideas and models for data capitalization. In this regard, an in-depth analysis of the conceptual framework, legal structure, and applicability of data assets within the company law will be instrumental in promoting their compliant circulation and rational utilization.

Firstly, it is crucial to clearly delineate the relationship between data and data assets while highlighting their distinctions. Data serves as a superordinate concept that encompasses various types of informational materials generated through electronic technological means, characterized by its breadth and diversity. Conversely, data assets represent a subordinate concept referring specifically to those datasets that can undergo monetization valuation and are transferable under relevant legal stipulations. This differentiation enhances the understanding of the role that data plays in economic activities as well as its functional positioning as capital. The essence of data assets lies in their transferability and capacity for value assessment, which opens up new avenues for enterprises regarding financing options and investment decision-making processes.

Secondly, in accordance with article 48 of the newly-revised *Company Law*, data assets, as a form of non-monetary capital contributions, must meet specific legal requirements. In particular, the contribution of data assets towards equity investment not only needs to comply with established valuation standards but also must ensure the independence of these assets and fulfill shareholders' obligations regarding capital contributions. The relevant provisions within the company law are designed to guarantee that shareholders adhere to principles of transparency and fairness throughout the contribution process, thereby protecting both the overall interests of the company and the rights of its shareholders. Consequently, initiating shareholders must carefully consider these legal stipulations when selecting data assets as capital contributions in order to mitigate potential future legal risks, including joint liability.

Simultaneously, valuing data assets presents a significant challenge.

Given the unique nature of data, its value cannot be adequately captured through simple financial metrics alone. Factors such as utilization value, market demand, integrity and quality should all be integrated into an evaluation framework. Therefore, enterprises need to develop a scientific and reasonable mechanism for assessing data asset values that combines market dynamics with industry standards to ensure that the true worth of these assets is accurately represented during equity investment processes.

To summarize, as an innovative form of capital contributions, data assets possess significant development potential under the newly-revised *Company Law*. By distinctly differentiating between data and data assets, adhering to legal regulations, establishing a robust value assessment mechanism, and employing market-oriented strategies, enterprises can effectively enhance the circulation and utilization of data assets. In this process, the integration of legal safeguards and market incentives will pave a new pathway for the capitalization of data assets and promote the advancement of China's digital economy. Ultimately, the rational circulation and utilization of data assets will not only stimulate the growth and development of individual companies but also contribute positively to the overall prosperity of society.

(Edited by Li Jiesi)

数据资产入股的公司法规范路径

内容提要 在数字化转型浪潮下，互联网、云计算与人工智能等技术的深度融合，推动数据完成了从资源到资产的质变过程，其作为新型生产要素的经济价值日益彰显。

“数据资产入表”会计政策的出台，在一定程度上澄清了数据资产的概念范畴、基本类型和评估方法，为“数据资产入股”奠定了制度基础。从法律特征来看，数据资产所具有的特异性、可支配性与可转让性等核心属性，符合《公司法》第48条对非货币财产出资的形式要求。对此，应当构建与完善数据资产入股的公司法规则体系：一方面，以数据资产出资入股时，应符合公司资产的独立性要求；另一方面，还应夯实数据资产入股的股东出资义务及连带责任，包括出资义务履行完毕的判断标准、董事核查及催缴义务、出资不实时发起人股东连带责任等具体规则。在数据主体权益保障与数据要素市场化配置的价值平衡中，探索数字经济时代公司资本制度的创新路径，为数据要素市场培育提供制度支撑。
