

# Impact of Data Assets on a Company's Market Value and Analysis of Its Path: A Case Study of TRS

Shuang Wu<sup>1\*</sup>

<sup>1</sup> School of Management, Northwest Normal University, Lanzhou, China

**Abstract.** Since the issuance of the "Interim Provisions on the Accounting Treatment of Enterprise Data Resources" in 2023, many companies started disclosing data assets in 2024. The impact of data assets on a company's market value is a concern for all businesses and society. This paper takes TRS as a case and analyzes the relationship through the event study method and marginal market value increment. The research finds that including data assets into financial statements not only enhances the display of enterprise financial transparency but also increases the amount of assets and profits because of the investment of data resources originally recorded as expenses to assets, this improves the profitability and solvency of TRS and has a positive impact on the company's market value. This research takes a specific company as a case study to analyze the influence of data assets on the company, and explores the practical significance of data assets, providing a reference for other companies which have not yet included data assets in their financial statements.

## 1 Introduction

Data assets refer to the assetization of data. The national standard of China defines data assets as "data resources that are legally owned or controlled, measurable, and can bring economic and social value to organizations". Enterprise data assets are defined as data resources that are legally controlled by the company, have measurable costs, and can bring economic benefits to the company in the future [1]. Data has long been regarded as an important economic resource to promote production and exchange [2]. With the development of the digital economy, data has become an important factor of production, which can create enormous value for enterprises and economic development [3]. Obviously, the research of data assets has profound significance for accelerating technological progress and promoting economic development [4]. Since the value of data does not necessarily manifest as direct monetized value, but rather realizes cost reduction and efficiency improvement, enhances product and service quality, and creates social benefits through the "non-monetary transaction" model, although the value of data is reflected in production and operation of enterprises, it has not been reflected in the company's balance sheet, and it can only be reflected through market prices or during enterprise mergers and acquisitions [5-7].

---

\* Corresponding author: [wus5369@outlook.com](mailto:wus5369@outlook.com)

Apparently, the traditional balance sheet cannot fully reflect the value created by data resources for enterprises, resulting in a reduction in the quality of accounting information [8]. However, assetizing data resources and including them in financial statements will greatly enhance the display of enterprise financial transparency and operating performance and strengthen the enterprise's understanding and utilization efficiency of the value of data resources [9]. Therefore, it is significant in the era of the digital economy to explore the mode of including data assets in the financial statements.

On August 21, 2023, China's Ministry of Finance issued the "Interim Provisions on the Accounting Treatment of Enterprise Data Resources" (referred to as the "Interim Provisions"), and the provisions took effect on January 1, 2024. "Interim Provisions" clarifies the accounting standards and presentation requirements for the inclusion of data assets in financial statements. For companies, reflecting data assets in financial statements is beneficial as it can reflect the enterprise's asset situation comprehensively, promote the transformation of data from a cost center to a value center, enhance the competitive edge of data, and provide a basis for the trading, pledging, and investment of data assets [10]. For the market, recording data assets in financial statements reflects the value of data resources, it can boost the market's approval of data assets and the liquidity of data resources, stimulate the vitality of the data market, and accelerate the rational allocation of resources [11]. Since then, many Chinese scholars have started to study the impact of data assets on enterprises and the capital market. Existing research shows that including data assets in balance sheets brings positive market reactions to enterprises [12]. However, there is little research on the specific impact on corporate market value. Therefore, this paper selects TRS as a specific research case in order to further explore this impact, providing a reference for other companies which have not reflected data assets in their balance sheets, so as to promote the development of the data asset model and bring into play the value of data factors.

## 2 Current situation

### 2.1 Company overview

TRS Information Technology Co., Ltd. (TRS) was established in 1993. It is the pioneer of Chinese full-text retrieval technology and a leading provider of artificial intelligence, big data, and data security products and services. Since it was founded, TRS has been adhering to the independent research and development of core technologies, boasting more than 40 invention patents and over 1,000 software copyrights. It adheres to the development strategy of "Digital Intelligence+Track" to empower enterprises and governments in achieving digital upgrades. The TRS big data platform, TRS artificial intelligence platform, and integrated security platform independently developed by the company have become industry-leading digital bases. The company possesses high-quality data resources amounting to 200 billion items, with a daily update of more than 500 million items. It has established a large-scale data and knowledge asset and is comprehensively building a cloud and data service ecosystem (SaaS&DaaS).

As a company with data services as its main business, it has massive data resources, and it actively attempted to include data assets in its financial statements in the first quarter of 2024. Therefore, selecting TRS as the case company in this study is representative.

### 2.2 Impact

According to the requirements of the "Interim Provisions", data resources would be classified as assets if they satisfy the recognition conditions for assets in accounting standards, they can

be reported as data assets in the balance sheet and recorded as intangible assets or inventory according to their characteristics. These provisions demand the enterprise's originally expensed data resources to be recorded as intangible assets (including development expenditures) or inventory, thus affecting the enterprise's financial figures. Therefore, this paper selects two representative financial indicators, the asset-liability ratio (ALR) and the return on equity (ROE), to analyze the influence of data assets in financial statements on the enterprise's financial figures by comparing the changes of these two financial indicators after data assets are reported in the financial statements.

Table 1 shows the changes in ALR and ROE of TRS before and after data assets are reflected in the financial statements. Since data assets of TRS are in the research and development stage and are included in development expenditures, they have not yet formed intangible assets. Therefore, the amortization of intangible assets is not considered.

**Table 1.** Impact of TRS's Data Assets in Financial Statements on Financial Data

|                        | ALR after Recording in the Statement | ALR before Recording in the Statement | Change in ALR | ROE after Recording in the Statement | ROE before Recording in the Statement | Change in ROE |
|------------------------|--------------------------------------|---------------------------------------|---------------|--------------------------------------|---------------------------------------|---------------|
| First Quarter of 2024  | 8.75%                                | 8.76%                                 | -0.01%        | 0.80%                                | 0.62%                                 | 0.18%         |
| Second Quarter of 2024 | 8.82%                                | 8.86%                                 | -0.04%        | 1.70%                                | 1.20%                                 | 0.51%         |
| Third Quarter of 2024  | 8.63%                                | 8.70%                                 | -0.07%        | 1.23%                                | 0.44%                                 | 0.79%         |

Data Source: TRS's Financial Report

Table 1 shows that with the increase of the amount of data assets, the total assets of TRS also increased, which in turn affected the decline of ALR. However, the decline was not obvious. This may be because the company had tried to include data assets in the balance sheet for the first time, so it would be more cautious to record the amount of data assets. Thus, the amount was relatively small compared to the total assets of TRS, so the impact on ALR was comparatively small. ROE fluctuated within a wide range. When data resources were recorded in the balance sheets, the expenses of TRS decreased, which in turn resulted in an increase in net profit. Therefore, ROE is continuously increasing compared with that before data assets are reported in the balance sheets. As mentioned above, after data assets were reflected in the financial statements, the solvency and profitability of TRS were improved due to the positive changes in its ALR and ROE. This indicates that the financial situation presented by TRS is better than that prior to recording data assets in the balance sheets.

### 3 Analysis of the impact in financial statements on market value

Generally, the profitability and solvency of an enterprise are positively correlated with stock price fluctuations [13-14]. In addition, enterprises can improve the level of information transparency by disclosing data assets, reducing information asymmetry, thus enhancing investors' confidence in listed companies and promoting the positive development of the stock market [15]. And data assets can enable the financial figures disclosed by TRS to show better performance. Therefore, in theory, including data assets in financial statements can enhance the market value of enterprises. To verify this inference, this research will use the

event study method to reflect the short-term market reaction of TRS after data assets are recorded in the financial statements and use the indicator of marginal market value increment to support the verification.

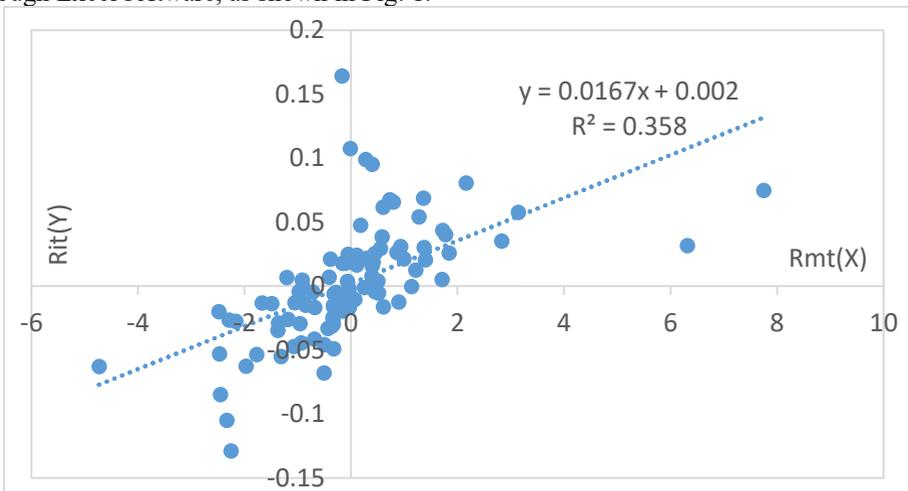
### 3.1 Short-term market reaction

This paper uses the event study method to evaluate the market reaction when TRS's data assets are first reported in the financial statements. The research event date is the release date of TRS's first quarter financial report, that is April 26, 2024. The trading days from 120 days before to 20 days before the event day ([-120, -20]) are set as the estimation window for TRS's normal stock return rate. In order to minimize the impact of other factors on the company's stock price, combined with the release time of TRS's announcements, the event window is selected as ([-2,2]).

This paper uses the market model to calculate the actual return rate. The specific formula is as follows.

$$R_{it} = \alpha + \beta R_{mt} + e_{it} \tag{1}$$

Considering the development status of TRS, this paper selects the CSI 500 index as the market return rate. The individual stock return rate of TRS and the CSI 500 index are both obtained from CNINFO. The daily return rates of TRS's individual stock and the CSI 500 index are calculated through Excel software, so as to obtain the abnormal return rate (AR) and the cumulative abnormal return rate (CAR). The individual stock return rate ( $R_{it}$ ) and the market return rate ( $R_{mt}$ ) of TRS in the estimation period are substituted into the market model, and the scatter plot and regression equation in the estimation period are obtained through Excel software, as shown in Fig. 1.



**Fig.1.** Scatter Plot in the Estimation Period

Based on this regression equation, the normal return rate of TRS within the window period is calculated, and the abnormal return rate of TRS is obtained by subtracting it from the actual return rate in the same period.

It can be seen from Fig. 2., on the day when TRS released its first - quarter financial report, the abnormal return rate of TRS's stock increased significantly to about 3.5%, and the cumulative abnormal return rate also increased to about 4%. This indicates that the market reacted positively when the event occurred, and investors were optimistic about the future development of the enterprise, thus driving up the stock price. There were large fluctuations after the event, reflecting those investors had different opinions on the inclusion of data assets in the financial statements. This may be because the "Interim Provisions" are still in the

exploration stage, and issues such as how to confirm the rights of data assets and how to disclose them are not yet perfect, which may lead to a decline in the quality of financial reports, making it difficult for some investors to accurately judge its impact on the enterprise's future financial situation and asset value. However, on the whole, the cumulative abnormal return rate basically shows an upward trend, indicating that the inclusion of data assets in the financial statements has a significant positive impact on the stock price of TRS.



Fig. 2. Trend Chart of TRS's Stock Market Reaction

### 3.2 Marginal market value increment

Since market fluctuations are affected by many factors, in addition to the events studied, factors such as the macro-economic environment and industry trends may also affect stock prices. To further demonstrate the impact of TRS's data assets in financial statements on its market value, this paper will analyze it through the marginal market value increment. The calculation formula is as follows.

$$\Delta MV = \Delta NA \times PB \quad (2)$$

In this formula,  $\Delta MV$  represents the marginal market value increment,  $\Delta NA$  represents the newly increased net assets after data assets reflected in the financial statements. Since TRS's data assets are classified as development expenditures, this classification will lead to an increase in enterprise assets and thus an increase in enterprise net assets. Therefore,  $\Delta NA$  represents the monetary value of data assets reported in the financial statements, and  $PB$  represents the price-to-book ratio of TRS. In this paper, the average price-to-book ratio of TRS from the day of releasing the financial report to the day before the release of the next quarter financial report is substituted into the calculation. The specific calculation results are shown in Table 2.

Table 2 demonstrates that with the increasing amount of data assets, its price-to-book ratio is also increasing, indicating that the market is optimistic about the company's future development. Therefore, the marginal market value increment is also increasing, rising from about 0.2 billion yuan in the first quarter to about 1.4 billion yuan in the third quarter. The proportion of the marginal market value increment in the total market value of the enterprise is also increasing, which to some degree shows that the larger the amount of data assets reflected in the balance sheets, the greater the enhancement in the market value of TRS.

**Table 2.** Impact of TRS's Data Assets Being Recorded in the Financial Statements on Market Value

|                        | Amount of Data Assets Recorded in the Financial Statements (Yuan) | Average BP | Marginal Increase in Market Value (Yuan) | Total Market Value (Yuan) | Proportion of Market Value Affected by Data Assets to Total Market Value |
|------------------------|---|------------|--|---------------------------|--|
| First Quarter of 2024  | 6,280,025.37  | 3.20       | 20,096,081.18                            | 10,837,294,714.98         | 0.19%  |
| Second Quarter of 2024 | 17,382,730.59   | 3.43       | 59,622,765.92                            | 11,629,029,259.59         | 0.51%  |
| Third Quarter of 2024  | 26,851,602.45   | 5.16       | 138,554,268.64                           | 17,408,931,017.44         | 0.80%  |

Data Source: CNINFO

Through the above analysis, it can be concluded that recording data assets in the balance sheets has a significant impact on the market value of TRS, and the two are positively correlated, verifying the previous inference.

## 4 Conclusion

This paper takes TRS as an example to explore the impact of data assets in financial statements on the market worth of companies. The research finds that because TRS assetizes the data resources that were previously expensed, the indicators related to profitability and solvency presented in its financial report data have improved compared with before. At the same time, the disclosure of data assets has improved the transparency of information and enhanced investors' confidence in the enterprise's development potential. Therefore, including data assets in the financial statements can drive up stock prices and thus increase the market worth of enterprises.

Since how data assets are recorded in financial statements is still in the process of exploration, characteristics such as the intangibility of data assets, the volatility of their values, and the difficulty of precise measurement pose numerous challenges to the recognition, measurement, and disclosure of data assets. How to reflect the value of a company's data assets more accurately still requires further research and verification through practice.

## References

1. M. Luo, J. Li, K. Tang, The Assetization of Corporate Data Assets: Accounting Recognition and Value Assessment. *Journal of Tsinghua University (Philosophy and Social Sciences)*, **38**, 195-209+226 (2023)
2. H. Cleveland, Information as a Resource. *Futurist*, **16**, 34-39 (1982).
3. R. Fernandez, P. Subramaniam, M. Franklin, Data Market Platforms: Trading Data Assets to Solve Data Problems. *Proceedings of the VLDB Endowment*, **12**, 1933-1947 (2020)
4. H. Hannila, R. Silvola, J. Harkonen, et al., Data-driven Begins with DATA: Potential of Data Assets. *Journal of Computer Information Systems*, 1-10 (2019)

5. N. Ahmad, van de Ven. P, Recording and Measuring Data in the System of National Accounts. OECD Conference Centre, (2018)
6. D. Nguyen, M. Paczos, Measuring the Economic Value of Data and Cross-border Data Flows: A Business Perspective. OECD Digital Economy Papers, (2020)
7. N. Crouzet, J. Eberly, Intangibles, Investment, and Efficiency. AEA Papers and Proceedings, **108**, 426-431 (2018)
8. V. Laura, Valuing Data as an Asset. Review of Finance, 5, 5 (2023)
9. F. Liu, H. Yuan, B. Suyalag, et al., Rethinking the Objectives of Financial Reporting: Also on the Interim Provisions on the Accounting Treatment of Relevant Data Resources of Enterprises. Accounting Research, **4**, 3-15 (2023)
10. K. Xie, Z. Xia, J. Xiao, The Realization Mechanism of Big Data Becoming a Real Production Factor in Enterprises: From the Perspective of Product Innovation. China Industrial Economics, **5**, 42-60 (2020)
11. J. Sun, J. Wang, Overall Conception of Forming a Policy Closed Loop for the Resourceization, Assetization, and Capitalization of Data Factors under a Multi-level Market System. E-Government, **2**, 12-20 (2024)
12. J. Zhang, W. Zhao, Q. Wang, The Current Situation of Including Data Assets in the Financial Statements of Listed Companies and the Market Reaction: Taking the Interim Reports of A-share Listed Companies as an Example. Finance and Accounting Monthly, **45**, 42-50 (2024)
13. Y. Huang, Z. Gao, X. Chen, An Empirical Study on the Impact of Corporate Finance on Stock Prices: Analysis Based on the Panel Data Model of 718 Listed Companies in the Shanghai Stock Exchange. Journal of Yunnan University of Finance and Economics, **32**, 149-154 (2016)
14. J. Li, Analysis of the Correlation between the Stock Prices of Listed Companies and Financial Indicators. Journal of Huazhong Agricultural University (Social Sciences Edition), **5**, 138-143 (2024)
15. Y. Wei, J. Zhang, F. Wang, Research on the Relationship between the Information Disclosure of Data Assets and Analysts' Earnings Forecasts: Empirical Evidence Based on Text Analysis. Journal of Industrial Engineering and Engineering Management, **5**, 130-141 (2022)