

# Research on the Internal Control and Economic Effect of Enterprises after the Reverse Mixed Ownership Reform of Originwater

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**Abstract:** *As a high-tech enterprise in the field of environmental protection and water treatment, Originwater completed the reverse mixed reform with China's urban and rural areas in September 2020. The mixed-ownership reform has optimized the shareholding structure, and China Urban and Rural has become the largest shareholder, significantly improving the corporate governance structure and strengthening the supervision and balance mechanism. After the mixed-ownership reform, Originwater's capital and business control activities have been improved, its financing capacity and project collection efficiency have been improved, and the bank credit line has increased significantly. At the same time, risk assessment, information and communication capabilities have been enhanced, and the reliability of internal reporting has been improved. In addition, internal oversight has been strengthened and oversight independence and effectiveness have been enhanced. The performance analysis shows that after the mixed reform, the market response of Originwater has been enthusiastic, and the profitability, solvency and operating capacity have been improved, especially the long-term solvency has been significantly enhanced. This paper comprehensively analyzes the motivation and process of the reverse mixed ownership reform of Originwater and its specific impact on internal control, and provides practical cases and theoretical basis for the mixed ownership reform.*

**Keywords:** Clear water; Reverse mixed reform; Internal Controls.

## 1. INTRODUCTION

Since 2018, the important position of private enterprises in China's economic development has been highly recognized at the national level. General Secretary Xi Jinping stressed at the National Forum on Private Enterprises that the private economy should not only not be weakened, but should expand its influence and stand on a broader historical stage. Subsequently, the "Three-year Action Plan for the Reform of State-owned Enterprises" and the report of the 20th National Congress of the Communist Party of China clearly supported the development of the private economy and encouraged state-owned enterprises and private enterprises to carry out two-way mixed reform. In 2023, the deepening reform of state-owned enterprises will be launched, and the SASAC aims to achieve more than 70% of the tasks in 2024, bringing new cooperation opportunities for private enterprises. However, in the context of the complex and volatile global economic situation, private enterprises are facing multiple challenges such as financing difficulties, resource shortages, lack of scientific and technological innovation, and low corporate governance. The reform of mixed ownership, especially the reverse mixed ownership reform, is becoming a new trend in the transformation and upgrading of private enterprises and the optimization of business strategies [1]. This reform model has gradually developed from one-way mixed reform to two-way and multi-directional, which will help private enterprises alleviate the above problems.

As an important strategic industry in China, the water affairs and water treatment industry plays a key role in achieving the goals of carbon peak and carbon neutrality. However, the industry is an asset-heavy industry, and problems such as high financing costs, narrow financing channels, and mismatched financing cycles have always plagued private water enterprises. In recent years, due to multiple factors such as the national fiscal interest rate reduction policy, PPP project risk control measures, and the new crown epidemic, private water enterprises have faced severe challenges in financing, and urgently need to implement reverse mixed reform to reduce risks. However, it is worth studying how the impact mechanism of the change of equity structure and governance structure of Originwater Company on internal control in the reverse mixed reform is worth studying.

## **2. LITERATURE REVIEW**

Studies have shown that mixed ownership reform will have a positive impact on firm operating efficiency (Megginson, Netter, 2001) [2], and the introduction of state-owned capital by private enterprises can improve the performance of listed companies (Yuan, Li, 2021) [3], and that politically connected firms will have better operating efficiency than those without political ties (Fisman, 2001) [4]. In addition, an important consideration for enterprises to implement mergers and acquisitions is to give full play to the synergistic effect, and the reverse mixed-ownership reform of private enterprises can help to exert synergies and help improve the performance of enterprises (Andrea Caputo et al., 2019) [5]. The participation of non-controlling state-owned equity in private enterprises is conducive to easing the tax pressure borne by private enterprises, which has a substantial positive impact on the operating performance of enterprises, and it is worth noting that this decompression effect is particularly significant in private enterprises in regions with strict tax administration and lack of political ties. (Li Qingyuan, Wu Liyang et al., 2022) [6].

Some studies believe that the impact of reverse mixed ownership reform on the quality of internal control of enterprises needs to be realized by adjusting the corporate governance mechanism and structure. There is a chimeric relationship between internal control and corporate governance, and only by connecting and interacting with the two can the internal control system be implemented and the internal control objectives can be achieved (Yang Youhong and Hu Yan, 2004) [7]. Empirical studies also reveal that the governance structure of domestic listed companies plays a significant role in the effectiveness of their internal controls. (Cheng et al., 2008) [8]. The disclosure of information related to internal control has a market effect, that is, high-quality internal control can attract the attention of investors, which in turn can cause the company's stock price to rise (Yang et al., 2012) [9]. Another study shows that firms with higher internal indices have a relatively lower cost of capital. (Zhang et al., 2012) [10], and can effectively mitigate the negative impact of environmental uncertainty on the cost of capital. (Liao, 2015) [11]. By reducing the cost of capital and reducing financing constraints (Na Ming et al., 2020) [12], internal control can play a positive role in restricting inefficient investment and improving investment efficiency (Jiang et al., 2023) [13]. A sound internal control system has a significant effect on the company's performance. (Ye et al., 2016) [14], and the effective implementation of internal control can also further improve the level of operation (Li et al., 2021) [15]. In addition, high-quality internal control will enhance the company's competitiveness in governance, innovation, etc., thereby improving the company's operating performance.

## **3. INTRODUCTION TO THE CASE OF REVERSE MIXED REFORM OF ORIGINWATER**

### **3.1 Profile of Originwater**

Originwater is a high-tech enterprise of environmental protection water treatment founded in 2001 and listed on the Growth Enterprise Market of the Shenzhen Stock Exchange in 2010. The company's self-developed microfiltration, ultrafiltration, nanofiltration, reverse osmosis membrane technology, widely used in water recycling, high-quality drinking water, seawater desalination, zero discharge of industrial wastewater and lithium extraction from salt lakes, is China's environmental protection water benchmark, one of the world's leading manufacturers of membrane equipment, with a daily water treatment of more than 20 million tons, helping the national water environment governance. In September 2020, Originwater and China Urban-Rural completed the reverse mixed-ownership reform, which was controlled by China Urban-Rural Holdings and controlled by the State-owned Assets Supervision and Administration Commission of the State Council, opening a new chapter in development.

### **3.2 Analysis of the Causes of Reverse Mixing of Bishuiyuan**

#### **3.2.1 Enterprises' capital needs and financing difficulties**

In order to maintain the stability of the market economy, the state has strengthened the "deleveraging" policy, economic growth has slowed down, bank lending policies have been tightened, and investors' risk appetite has declined. In this context, bank loans are more biased towards state-owned enterprises with high credit, and the difficulty and cost of financing for private enterprises have increased. In addition, in 2017, the Ministry of Finance strengthened the supervision of PPP projects and raised the entry threshold, while in 2016-2017, due to the favorable environmental protection policies, a large number of PPP (public-private partnership) projects were

affected. Faced with the severe challenges of tight liquidity and a high proportion of equity pledges, this financial dilemma forced the company to urgently explore diversified financing channels to cope with the huge capital demand. By introducing state-owned capital to carry out reverse mixed reform, Originwater can effectively alleviate its own financial pressure with the help of the financial strength and resource advantages of state-owned shareholders.

### 3.2.2 Optimize the corporate governance structure and improve management efficiency

The reverse mixed reform not only brought financial support to Originwater, but also promoted the optimization of the corporate governance structure and the improvement of management efficiency. The addition of state-owned shareholders enables Originwater to learn from the management experience and governance model of state-owned enterprises, so as to build a new business model with higher efficiency, further expand and consolidate the sales network and application channels of Originwater's core products, strengthen the company's R&D and innovation capabilities, and focus on technology, products and operations, so as to improve its own corporate governance structure. At the same time, the cooperation and checks and balances between state-owned shareholders and private shareholders also help to improve the company's decision-making efficiency and execution.

### 3.2.3 Expand the market and enhance competitiveness with the help of state-owned assets

In contrast, state-owned enterprises (SOEs) have abundant resources due to their institutional advantages, while private enterprises rely more on external sources to obtain core resources, and resource allocation is challenging. Originwater has absorbed state-owned shareholders through reverse mixed reform and obtained the endorsement of state-owned assets, which not only enhances its market position and brand image, but also broadens market opportunities and customer resources. The participation of state-owned shareholders has injected new impetus into Originwater in terms of resources, technology and talents, and enhanced its market competitiveness. In addition, Originwater is expected to achieve a wider expansion in international business, reach out to more high-end customers and cooperation platforms, and improve the operation and management efficiency of international business by using state-owned capital in countries along the "Belt and Road" and combining CCCG's rich experience in global projects.

### 3.2.4 Conform to the trend and policy promotion of mixed ownership reform

Since the Third Plenary Session of the 18th CPC Central Committee advocated the reform policy of mixed ownership, the trend of two-way integration and reform between state-owned enterprises and private enterprises has become increasingly significant [16]. As an important form of mixed ownership reform, the reverse mixed ownership reform has been actively supported and promoted by the policy [17]. Originwater's choice to carry out reverse mixed reform is also in line with this reform trend and policy requirements. Through the reverse mixed reform, Originwater can better integrate into the national development strategy and industrial policy guidance, and achieve its own sustainable development.

## 3.3 The Reverse Mixed Reform Process of Bishuiyuan

**Table 1:** Reverse mixed reform process of Originwater

Time	Event
2015.08	Originwater introduced CDB Innovation, which holds 10.48% of the shares, becoming the third largest shareholder of Originwater
2019.01	Originwater's introduction of Sichuan Investment Group's mixed-ownership reform failed
2019.05	Originwater was introduced to China Township for the first time, and after the share transfer, China Township held 10.71% of Originwater's shares
2020.03	Originwater was introduced into China Urban and Rural for the second time, China Urban and Rural held 22.00% of the shares, and China Urban and Rural and its persons acting in concert accounted for 23.95% of the company's total share capital, becoming the controlling shareholder of Originwater, and the State-owned Assets Supervision and Administration Commission became the actual controller
2021.12	Originwater issued 470 million shares to China Urban and Rural Areas, accounting for 14.84% of the total share capital before the issuance
2022.08	China Chengxiang acquired 11.24% of the shares of Originwater, and after the share transfer, China Urban-Rural held 33.04% of the shares of Originwater

Data source: Originwater annual financial report

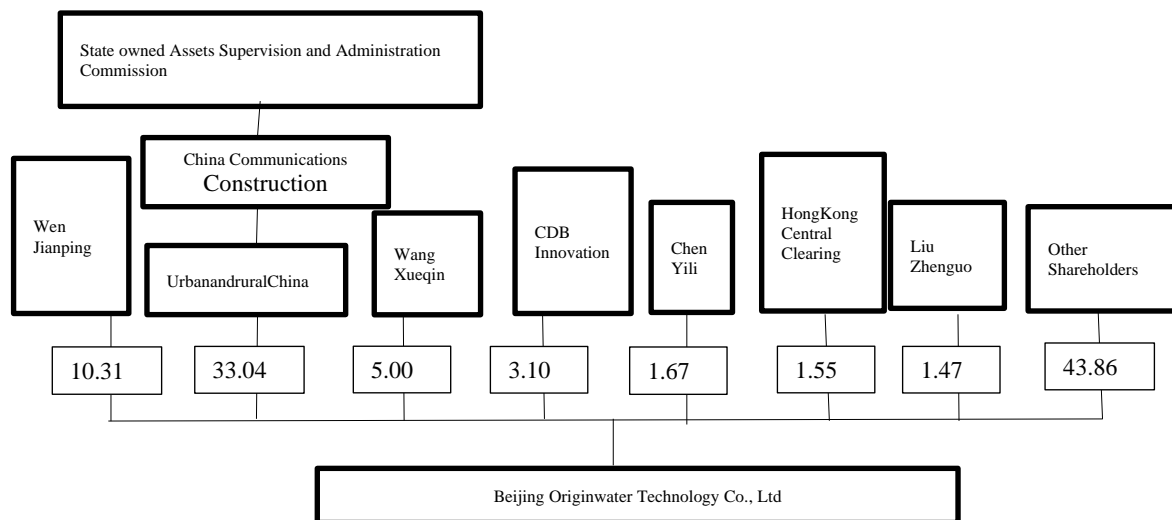
In the course of its development, Originwater has actively promoted the reform of reverse mixed ownership, and has successively introduced two major state-owned capitals, CDB Innovation and China's urban and rural areas [18]. In 2015, CDB Innovation became the third largest shareholder of Originwater through an investment of 5.434 billion yuan, but did not change the actual controller of the company. In 2019, Originwater tried to cooperate with Sichuan Investment Group to promote mixed reform, but failed because it was not approved by the Sichuan State-owned Assets Supervision and Administration Commission. In 2020, Originwater successfully introduced China Chengxiang as a strategic investor, and by 2021, China Chengxiang became its largest shareholder, significantly changing the shareholding structure and bringing new development opportunities to Originwater. In contrast, the reverse mixed-ownership reform has achieved remarkable results, so this paper focuses on the impact of the mixed-ownership reform between Originwater and urban and rural areas in China.

#### 4. ANALYSIS OF THE IMPACT OF REVERSE MIXED REFORM ON THE INTERNAL CONTROL OF ORIGINWATER

##### 4.1 The Impact Mechanism of Reverse Mixed Reform on the Internal Environment

###### 4.1.1 Optimize the shareholding structure

Through reverse mixed reform, Originwater has successfully introduced state-owned strategic investors in China's urban and rural areas. This move effectively adjusted its equity structure, dispersed the originally relatively concentrated private equity, built a new pattern of coexistence of state-owned capital and private capital, and alleviated the situation dominated by a single shareholder. Before the introduction of China Urban and Rural in 2019, Wen Jianping was the first shareholder and actual controller of the company with 22.63% of the shares. By December 2022, Wen Jianping's shareholding had dropped to 10.31%, making him the second largest shareholder. The cooperation between Originwater and China's urban and rural areas not only introduces shareholders with different backgrounds, realizes the supervision and balance of the equity structure of the original private enterprises, but also reduces the risk of insider control and effectively curbs potential corporate misconduct through the direct supervision of the State-owned Assets Supervision and Administration Commission of the State Council. Under the mechanism of multiple checks and balances on equity, the excessive encroachment of major shareholders on the company's resources is effectively prevented.



**Figure 1:** Diagram of the shareholding structure of Originwater  
Data source: Originwater annual financial report

###### 4.1.2 Improve the corporate governance structure

Among the three reverse mixed reforms of Originwater, two in 2019 and 2020 were particularly critical, involving board of directors and personnel adjustments. In 2019 and 2020, Originwater issued announcements on equity change and corporate governance structure adjustment, specifically involving the change of controlling

shareholders and actual controllers, as well as the adjustment of the board of directors system and staffing. Considering that the hybrid reform process began in 2019 and the key impact was revealed in 2020, this change is observed by comparing the composition of the board, supervisory board and senior management in 2018 and 2021.

**Table 2:** Comparison of the board structure of Originwater in 2018 and 2021

Structure of the Board of Directors of Originwater in 2018	Structure of the Board of Directors of Originwater in 2021		
Chairman	Wen Jianping	Chairman	Wen Jianping
Vice Chairman	He Jinlei	Vice Chairman	Liu Tao (China Urban and Rural Transfer)
Vice Chairman	Liu Zhenguo	director	Kong Weide (China Urban and Rural Transfer)
director	Dai Richeng	director	Gao Dehui (China Urban and Rural Transfer)
director	He Yuanping	director	Du Xiaoming (China Urban and Rural Transfer)
director	Long Limin	director	Liu Xiaodan (China Urban and Rural Transfer)
Independent Director	Fan Kangping	Independent Director	Wang Shuiyue
Independent Director	Liu Wenjun	Independent Director	Wang Kaijun
Independent Director	Wang Yueyong	Independent Director	Fu Tao
Independent Director	Wang Kaijun	Independent Director	Wang Yueyong

Data source: Originwater annual financial report

According to the above table, after the implementation of the reverse mixed reform, the composition of the board of directors of Originwater has undergone significant changes. While Wen Jianping continues to serve as chairman, the vice chairman and four board seats have been occupied by representatives of China's urban and rural areas with state-owned backgrounds. This adjustment enhances the scientific and accurate decision-making of the board of directors in the company's strategic decision-making.

**Table 3:** Comparison of the structure of the board of supervisors and senior management in 2018 and 2021

In 2018, the structure of the Board of Supervisors and senior management of Originwater	In 2021, the structure of the Board of Supervisors and senior management of Originwater		
Chairman of the Supervisory Board	Chen Yili	Chairman of the Supervisory Board	Li Jie (China Urban and Rural Transfer)
Supervisor	Zhou Nianyun	Supervisor	Zheng Guangfeng
Supervisor	He Ru	Supervisor	Zhao Hongbo
Chief Financial Officer	Kan Wei	Chief Financial Officer	Du Xiaoming (China Urban and Rural Transfer)
Deputy General Manager	Liu Jianjun	managing director	Dai Richeng
Secretary of the Board of Directors	Zhang Xing	Deputy General Manager	Liu Zhenguo
—	—	Deputy General Manager	Liu Jianjun
—	—	Deputy General Manager	Long Limin
—	—	Deputy General Manager and Secretary of the Board of Directors	Zhang Xing

Data source: Originwater annual financial report

As can be seen from Table 3, after the reverse mixed reform, the members of the board of supervisors of

Originwater have been fully replaced. The chairmanship of the board of supervisors is held by Li Jie, who has been transferred from China’s urban and rural areas, and this arrangement has significantly strengthened the motivation and strength of the supervision mechanism in the corporate governance structure due to the introduction of personnel with state-owned capital backgrounds. At the same time, the company’s senior management has also been adjusted accordingly, adding a general manager and three deputy general managers. The position of chief financial officer, which plays a key role in corporate governance, is held by Du Xiaoming, who hails from urban and rural China.

From the perspective of governance effect, the introduction of Originwater’s reverse mixed ownership reform into China’s urban and rural areas has optimized the corporate governance structure, reset the equity system, strengthened the checks and balances and supervision among shareholders, and prevented the misconduct of major shareholders. The re-election of the Board of Directors, the Board of Supervisors and the senior management has improved the transparency and scientificity of decision-making.

#### 4.2 The Impact Mechanism of Reverse Mixed Reform on Control Activities

##### 4.2.1 Improve financial control activities

After China Urban and Rural Sources took a stake in Originwater, the government subsidies they received continued to show an upward trend. From 2018 to 2019, the government subsidy increased from 17.29 million yuan to 36.79 million yuan, and in 2020, after China Urban and Rural Holdings Originwater, the government subsidy increased to 48.34 million yuan, and then showed a linear growth trend overall, indicating that the increase in the amount of government subsidies after the reverse mixed reform of Originwater alleviated the financing dilemma of Originwater to a certain extent.

**Table 4:** Amount of government subsidy for Originwater

year	2018	2019	2020	2021	2022	2023
Government subsidy	1729	3679	4834	3956	4753	5274

Data source: Originwater annual financial report

The reverse mixed-ownership reform established political linkages, signaled the strength of the enterprise and the support of the government, and strengthened the trust of the bank in the enterprise. In 2019, after the official introduction of Originwater into China’s urban and rural areas, the bank’s credit line increased directly from 108.2 billion yuan to 176.5 billion yuan.

**Table 5:** Credit line of Originwater Bank

year	2018	2019	2020	2021	2022	2023
Bank credit line (100 million yuan).	1082.00	1765.00	1739.85	1347.61	1415.75	Not disclosed

Data source: Originwater announcements

In 2020, Originwater announced a green bond credit report, with a proposed bond issuance ceiling of 2 billion, the first 3-year bond not exceeding 1 billion, and a coupon rate of 5.4%, including interest rate adjustment and resale options. In terms of fund allocation, 700 million yuan will be invested in green projects and debt repayment, and 300 million yuan will be supplemented with working capital. After China Urban and Rural became a shareholder, it relied on resources to help Bishui and broaden the path of green bond issuance. From 2019 to 2022, the two parties completed three equity financings: in 2019, 3.189 billion yuan was obtained from the sale of shares, and 10.72% of the equity was transferred; In 2020, it raised 3.716 billion yuan through private placement, and in 2022, it offered to acquire 11.24% of the shares, or 407 million shares, at 6 yuan per share, which was paid in full cash. [19] These three financings significantly solved the financing challenges of Originwater.

**Table 6:** Equity financing arrangements of Originwater

Equity Financing Arrangements	Time of occurrence	Equity financing content
First round of equity financing	In 2019	Originwater transferred 10.72% of its shares to China Urban and Rural for a total price of 3.189 billion yuan
Second round of equity financing	In 2020	Originwater issued additional shares to China Urban and Rural Areas, with a total price of 3.716 billion yuan
The third round of equity financing	In 2022	China Urban & Rural offered to acquire 11.24% of the shares of Originwater at a tender offer price of RMB 6 per share

Data source: Originwater annual financial report

#### 4.2.2 Improve business control activities

Originwater entered the field of municipal engineering before the national PPP policy was tightened, and in 2015 it acquired Beijing Jiu'an Construction. [20] However, with the tightening of PPP policies and the standardized development of projects, the asset-heavy model has led to tight cash flow. In 2015, Originwater acquired Beijing Jiu'an Construction to lay out municipal projects, and later due to the tightening of PPP policies and the asset-heavy model, cash flow was tight. After China's urban and rural equity participation, Originwater shifted to asset-light operation, and the proportion of municipal business decreased from 14.30% in 2019 to 5.21% in 2023. Since 2020, the company's transformation has focused on operation services, especially sewage treatment technology, and the proportion of operation service revenue has increased from 21.96% in 2020 to 30.42% in 2023.

**Table 7:** Proportion of main business income of Originwater

year	2018	2019	2020	2021	2022	2023
Environmentally friendly overall solution	69.64%	65.48%	51.28%	50.21%	58.53%	61.89%
Operational Services	—	—	21.96%	26.10%	31.70%	30.42%
Optical technology overall solution	19.44%	18.39%	15.83%	16.43%	6.04%	2.48%
Municipal & Water Supply & Drainage	10.62%	14.30%	7.89%	7.25%	3.73%	5.21%

Data source: Originwater annual financial report

While transforming its main business, Originwater has increased the number of orders for energy conservation and environmental protection projects (EPC). Due to the state's control of PPP projects, the reduction of franchise orders, coupled with the heavy liabilities and financial pressure caused by PPP or BOT projects in the early stage, Bishui turned to an asset-light model. Compared with PPP or BOT project model, EPC project has a short cycle, fast payment collection, improved cash liquidity, and less risk. After the introduction of Originwater into China's urban and rural areas, the investment decision-making has become more scientific, the transformation of the main business has been promoted, and the types of projects undertaken have been adjusted, which has laid the foundation for the improvement of the company's net profit. As shown in the table below, the number of new orders for PPP projects in each year was small, and the orders that had been undertaken have entered the operation period one after another, and the EPC orders undertaken increased from 162 to 237, and the net cash from investment activities increased significantly.

**Table 8:** Changes in new orders by type from 2018 to 2023

Number of orders per year	In 2018	In 2019	In 2020	In 2021	In 2022	In 2023
EPC	162	240	255	220	237	333
PPP	—	—	—	8	10	—
BOT	32	11	—	—	—	9
UNTIL	—	—	—	—	—	2

Data source: Originwater annual financial report

#### 4.3 The Impact Mechanism of Reverse Mixed Reform on Risk Assessment

Compared with traditional wastewater treatment methods, membrane technology has shown advantages in improving water quality, saving space and reducing sludge output, however, for projects with low water quality requirements, its high investment and operating costs have become obstacles. Although membrane technology has made remarkable progress in recent years, especially in the field of reclaimed water recycling and high-standard effluent, it still needs to overcome the pressure of limited market share and competition from traditional technologies. With its controlling shareholder background, core technology and project accumulation, Originwater maintains its leading position in the industry, but still needs to face the fierce competition in the domestic and foreign markets and the challenges of industry restructuring. In the context of state-owned assets dominating the water industry, market competition is becoming more and more intense, and Originwater needs to continuously strengthen technological innovation and cost control to resist market risks.

At the same time, although the market-oriented reform of China’s sewage treatment industry has achieved positive results, high-quality project resources are becoming increasingly scarce, market mergers and acquisitions are frequent, and the scale of projects tends to be smaller. The limited market space and diversified access channels have brought new problems, and the rising costs and geographical barriers have restricted the marketization process. As an enterprise with the background of a central enterprise, although Originwater has attracted much attention and explored overseas markets, it still faces the risk of business expansion in the open market competition, and faces the challenge of scale expansion in the future development. To this end, the company deepened cooperation with CCCG and China Urban and Rural Areas, strengthened business docking in the early stage of the project, and gave full play to their respective advantages in market, technology and products to achieve a win-win situation. At the same time, the company actively expands project information channels, optimizes cooperation models, refines investment analysis, strengthens risk management and control, and ensures the legitimacy, compliance and efficiency of project acquisition. In addition, the rapid expansion of the company’s scale in recent years has increased the difficulty of management, organization, finance and production, and put forward higher requirements for the effectiveness of internal control. Due to regional and cultural differences, the implementation of modern management mechanisms needs to be gradually established and adjusted, and there is a risk of insufficient control due to inadequate management, which affects performance and standardized operation. After CCCG China Urban and Rural became the controlling shareholder, its management experience, model and system have brought remarkable results to the company’s management upgrade.

#### 4.4 The Impact Mechanism of Reverse Mixed Reform on Information and Communication

After the reverse mixed reform, Originwater has strengthened its ties with the government and state-owned enterprises through the introduction of state-owned capital, making it easier for Originwater to obtain information on government policies, industry dynamics and market trends. At the same time, the participation of state-owned capital has also promoted the optimization of Originwater’s internal information communication channels, so that information can be transmitted to all levels and departments more quickly and accurately. In addition, the improvement of the reliability of the report is inseparable from the support of the company’s information system, through the improvement of the original system and the introduction of new systems, the establishment of a scientific and efficient information transmission mechanism, the production, operation and management information of the enterprise can be transmitted in a timely and accurate manner within the enterprise, so as to improve the reliability of internal reporting. As can be seen from the table below, the company also strengthens communication with investors through on-site research, online platforms, performance briefings, online collective receptions for investors and other channels to ensure the quality of information disclosure.



**Table 9:** Reception research, communication, interviews and other activities from 2018 to 2023

year	2018	2019	2020	2021	2022	2023
Field research	4	3	2	1	1	7
Participate online	—	1	—	1	1	2
Telephone communication	3	4	8	1	3	4

Data source: Originwater annual financial report

#### 4.5 The Impact Mechanism of Reverse Mixed Reform on Internal Supervision

Before the reverse mixed reform, the board structure of Originwater may have had the problem of weak decision-making independence and professionalism, resulting in low governance efficiency of the board of directors. After the implementation of the reverse mixed reform and the introduction of state-owned capital, the composition of the board of directors of Originwater has been improved and optimized. SOEs often appoint state-owned directors to their boards, who not only have extensive management experience and expertise, but also provide an independent oversight perspective to the board. The addition of state-owned directors has made the operating mechanism of the board of directors more standardized, and the internal organization has formed a situation of mutual constraint, thus enhancing the independence and effectiveness of supervision. State-owned capital has stricter requirements for corporate supervision and transparency, and generally after the entry of state-owned capital, the audit committee and the board of supervisors responsible for the company's internal supervision will be replaced, and more professionals will be appointed to enhance the independence of supervision.

### 5. REVERSE MIXED OWNERSHIP REFORM OPTIMIZES THE ECONOMIC EFFECT OF INTERNAL CONTROL

#### 5.1 Analysis of the Market Performance of Bishuiyuan's Reverse Mixed Reform

Based on the application of the event research method, in order to minimize the interference of external factors, this study set a key time window of 10 days before and after the announcement date, that is, (-10, 10), and took the first announcement of Originwater on May 6, 2019 as an example. During this period, no other events were observed that had a significant impact on the share price of Originwater. In addition, 130 days to 11 days prior to the publication of the selected announcement were used as the estimation window, labeled (-130, -11), to establish the baseline.

The regression equation is obtained by fitting the relationship between the return of individual stocks and the market return of Originwater by the CAMP model:  $E(R_t) = 1.1867R_{mt} - 0.0016$

The specific calculation formula for combining AR and CAR:

$$AR_t = R_t - E(R_t)$$

$$CAR = \sum AR_t$$

The excess rate of return and cumulative excess rate of return within the window period [-10,10] are calculated, and the stock price reaction is shown in the figure below.

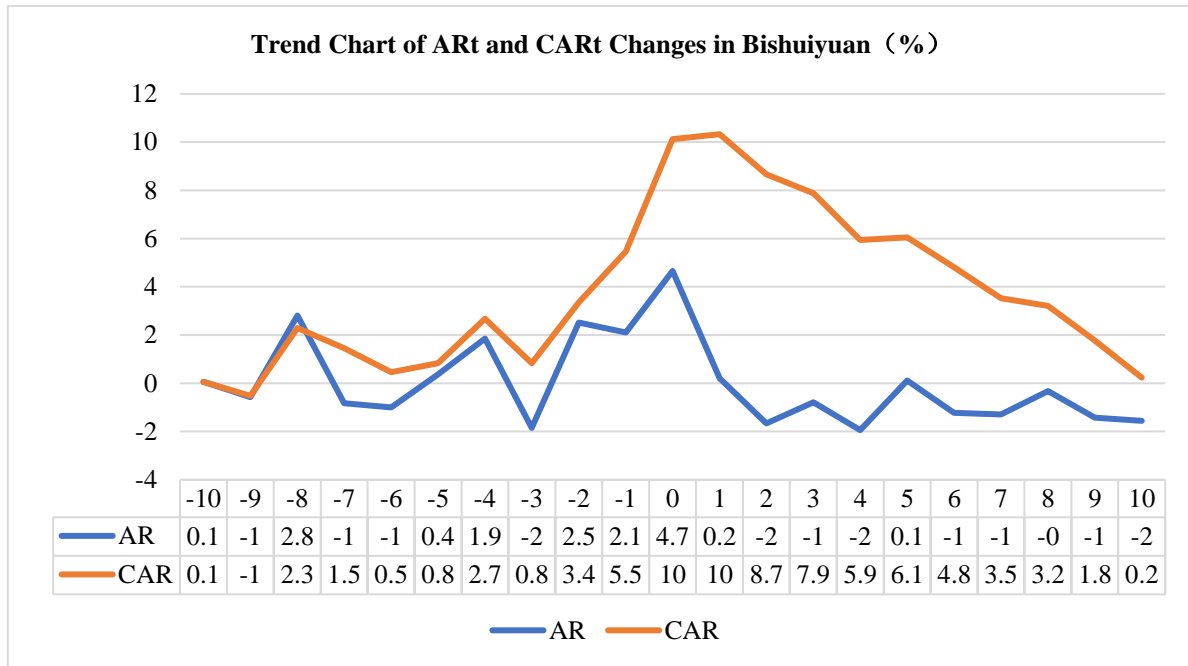


Figure 2: Trends in excess returns and excess cumulative returns

In the ten days before and after the announcement of Originwater, its excess rate of return and cumulative excess rate of return showed an obvious trend of fluctuation. In particular, in the first three days after the announcement, the cumulative excess yield achieved a sharp increase. This growth continued until the 10th day, during which the cumulative excess yield remained positive. This series of data shows that the market has responded enthusiastically to the reverse mixed reform measures implemented by Originwater, showing the market’s positive expectations and recognition for the future development of Originwater. By introducing Chinese urban and rural areas as partners, the reverse mixed-ownership reform strategy implemented by Originwater has played a positive role in promoting the improvement of its market performance.

## 5.2 Analysis of the Performance of the Reverse Mixed Reform of Originwater

### 5.2.1 Profitability improvement

It can be seen from the table that from 2018 to 2020, the operating net profit margin of Originwater Company has gradually increased, gradually approaching the industry average. However, in 2021 and 2022, when the mixed reform was completed, this indicator has declined significantly and has never reached the industry average. Although there has been a rebound in 2023, the gap with the industry average is still widening. At the same time, the return on equity has also dropped sharply after the mixed reform and continues to be lower than the industry average. These phenomena show that although the scale of Originwater’s business continues to expand, its overall profitability has shown a downward trend. However, it is worth noting that in 2023, Originwater’s existing PPP projects in 2022 began to gradually enter the operation stage, which brought stable and continuous cash flow to the company, thereby improving its profitability to a certain extent.

Table 10: Profitability indicators of Originwater from 2018 to 2023

project	2018	2019	2020	2021	2022	2023
Operating Net Profit Margin (%)	Clear water	11.73	11.74	12.48	6.95	9.07
	Industry averages	15.90	13.47	11.86	12.96	11.13
Return on equity (%)	Clear water	6.69	7.33	5.55	2.78	2.77
	Industry averages	11.30	8.43	7.47	8.77	6.25

Data source: Flush Finance

### 5.2.2 Improvement of solvency

As can be seen from the table below, the current ratio of Originwater was the lowest in 2019 before the mixed-ownership reform, and gradually increased and remained at about 1 after the mixed-ownership reform, indicating that after the introduction of China’s urban and rural state-owned investors, its financing channels have been continuously expanded and its short-term solvency has improved. In 2023, its current ratio decreased due to the change in its business orders. Looking at the equity ratio of Bishuiyuan, it can be seen that it reached the highest level in 2019 and 2020, which has exceeded the normal and appropriate debt level, and the long-term debt repayment ability is significantly lower than the industry average, which increases the risk that the company will not be able to repay its debts on time and in full due to tight cash flow. The adjustment of the business model has effectively curbed the decline of Originwater’s long-term solvency. The above shows that the long-term solvency of Originwater has been significantly improved after the mixed reform.

**Table 11:** Solvency indicators of Originwater from 2018 to 2023

project	2018	2019	2020	2021	2022	2023	
liquidity ratio	Clear water	0.91	0.81	0.99	1.13	1.01	0.86
	Industry averages	1.02	1.27	1.09	1.15	1.09	1.08
Equity ratio	Clear water	1.85	2.20	2.18	1.69	1.61	1.69
	Industry averages	1.46	1.47	1.52	1.31	1.45	1.41

Data source: Flush Finance

### 5.2.3 Improvement of operational capacity

As can be seen from the table, the solvency of Originwater has gradually increased significantly after the mixed reform, far exceeding the industry average. The accounts receivable turnover rate has gradually decreased, mainly because it has more PPP projects in 2021 and 2022, and PPP projects have a longer payment collection cycle. The above shows that the effect of the reverse mixed reform of Originwater on the improvement of operating capacity is not very prominent, and it only greatly improves the inventory turnover rate.

**Table 12:** Operational capacity indicators of Originwater from 2018 to 2023

project	2018	2019	2020	2021	2022	2023	
Inventory turnover	Clear water	5.27	3.70	4.35	22.51	25.74	33.74
	Industry averages	9.95	11.31	10.75	14.21	12.60	14.88
Accounts receivable turnover ratio	Clear water	2.20	1.91	1.34	1.12	0.9	0.87
	Industry averages	3.54	3.60	6.03	6.59	6.36	6.49

Data source: Flush Finance

### 5.2.4 Development capacity improvement

Since 2018, Originwater’s development capability index has failed to reach the industry average. Specifically, its operating income has only achieved positive growth in 2019 and 2023, and the net profit growth rate has only remained positive in 2019, 2022 and 2023, and the overall performance is highly volatile. This suggests that there was no immediate apparent synergy in the early stages of the mixed-ownership reform with China’s urban and rural areas. However, 2022 is the first full year for Originwater to be officially incorporated into CCCG’s management system and realize the transition to mixed ownership, and through close collaboration with CCCG and its subsidiary China Chengxiang, the company has successfully won a number of key projects. This year, the net profit growth rate of Originwater reached a new high in the past five years, indicating that the participation of state-owned strategic investors has brought significant advantages to Originwater, and the company’s overall development ability has been improved.

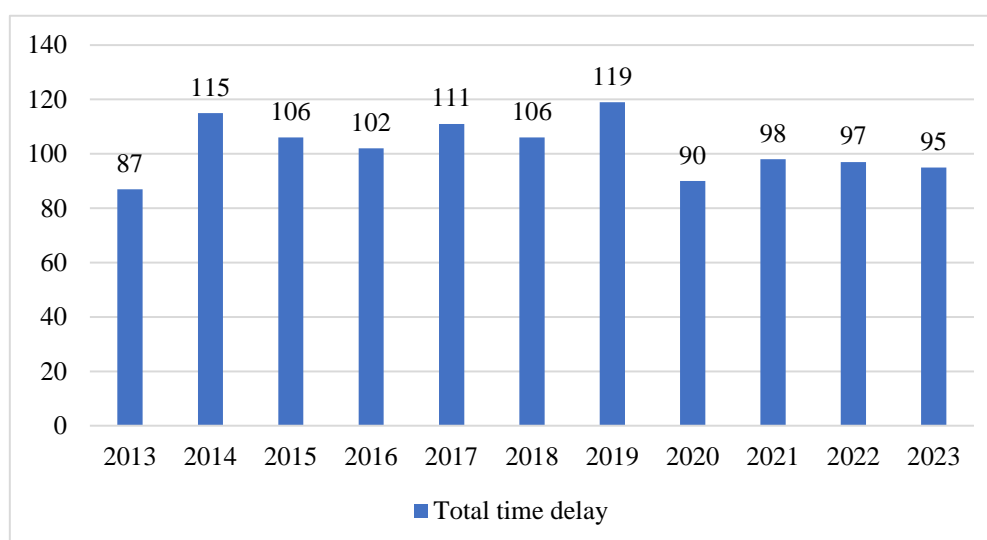
**Table 13:** Indicators of development capacity of Originwater from 2018 to 2023

project	2018	2019	2020	2021	2022	2023	
Revenue growth rate (%)	Clear water	-16.34	6.40	-21.52	-0.72	-9.00	3.03
	Industry averages	9.83	111.83	10.78	14.58	-3.28	21.70
Net profit growth rate (%)	Clear water	-50.41	10.94	-17.20	-48.93	21.36	7.74
	Industry averages	-3.25	6.61	-66.39	26.93	-16.53	568.69

Data source: Flush Finance

### 5.3 Improve the Quality of Accounting Information

Under the condition that the quality of accounting information disclosure remains stable, improving the timeliness of disclosure is crucial for the decision-making and behavior coordination of the company's stakeholders. In terms of the timeliness of accounting information disclosure, as shown in Figure 3, the company's total time lag has shortened in recent years, that is, the time lag between the end of the previous fiscal year and the actual publication date of the annual report (taking into account holiday factors) is gradually decreasing, which indicates that the disclosure of accounting information is becoming more and more rapid, indicating that the company's internal control optimization has promoted the improvement of accounting information quality since the mixed reform.



**Figure 3:** The total time lag of accounting information disclosure at Originwater

## 6. CONCLUSIONS AND IMPLICATIONS

In the process of reverse mixed reform, Originwater has significantly optimized its shareholding structure and improved its corporate governance structure by introducing state-owned strategic investors such as China Urban and Rural Areas. However, this change has also brought about the problem of running-in among shareholders, because shareholders with different backgrounds have differences in business philosophy and decision-making methods, which may lead to reduced decision-making efficiency or decision-making conflicts. The Board of Directors, Supervisory Board and senior management have also brought in a number of new members with state-owned backgrounds, but these new members will need time to adapt to the company's operating model and culture to ensure that the optimization of the company's governance structure can make a real difference. At the same time, although the reverse mixed reform has brought more government subsidies and bank credit to Originwater, it has also increased the complexity of capital control activities. In addition, Originwater also needs to adjust its main business structure to achieve the transformation from an asset-heavy model to an asset-light model, in which the company will have to deal with changes in market demand, technological updates and pressure from competitors.

Therefore, in order to cope with the challenges brought about by the reverse mixed ownership reform, Originwater

should start to establish an effective shareholder communication mechanism, strengthen the communication and coordination between shareholders of different backgrounds through regular shareholder meetings and shareholder representative systems, enhance mutual understanding and trust, and improve the efficiency and quality of decision-making. At the same time, the company needs to continue to improve the governance structure, clarify the distribution of responsibilities and powers at all levels, and strengthen the training and guidance of new members to quickly integrate into the company culture. In addition, Originwater also needs to build a sound capital control system, strictly manage government subsidies and bank credit, and ensure the efficient use of funds. In the face of market demand and technological upgrading, the company should actively promote the transformation of its main business to an asset-light model, and enhance market competitiveness and profitability by optimizing projects, improving services, and strengthening innovation.

Finally, the practice of reverse mixed ownership reform of Originwater shows that the introduction of state-owned strategic investors can significantly optimize the corporate governance structure, improve the efficiency and quality of decision-making, and provide valuable reference for other private enterprises. Therefore, private enterprises should attach great importance to capital control and build a sound system to ensure the safe and efficient use of funds. At the same time, Originwater has successfully realized the transformation of its business model from asset-heavy to asset-light, which shows that private enterprises need to keep up with market demand and technological updates in the process of mixed reform, and flexibly adjust business control activities. In the face of the new challenges that continue to emerge in the reverse mixed ownership reform, Originwater solves the problems one by one by strengthening shareholder communication, improving the governance structure, optimizing capital control and promoting business transformation, which proves that internal control is a process that needs to be continuously improved, and private enterprises must constantly adapt to market changes and strengthen the construction and management of internal control.

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