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# *Intelligent Financial Transformation and Agency Cost: Comparison Between Xingrong Environment and Chongqing Water Affairs*

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***Abstract.*** In the context of digitalization, technologies such as artificial intelligence, big data, and cloud computing have driven the intelligent transformation of corporate finance and significantly influenced the operational efficiency of enterprises. This paper selects two state-owned listed water companies, Xingrong Environment and Chongqing Water, as a dual-case study. Based on publicly disclosed annual report data from 2016-2025, the management expense ratio is used as a proxy for agency cost. From both longitudinal and cross-sectional perspectives, this paper examines the relationship between intelligent financial transformation and changes in agency cost. The study finds that both companies showed a downward trend in their management expense ratios following the implementation of intelligent financial transformation, and Xingrong Environment, with a higher level of intelligent finance, had significantly lower agency costs than Chongqing Water. This paper provides a case study from the water industry for the conclusion of the existing research on the relationship between intelligent financial transformation and agency cost. This paper provides case evidence from the water industry for existing research finding.

***Keywords:*** Intelligent financial transformation, agency cost, Xingrong Environment and Chongqing Water Affairs

## 1. Introduction

With the rapid development of information technologies such as big data and artificial intelligence, the intelligent financial transformation of enterprises has significantly influenced their operational models and management efficiency. Intelligent finance relies on tools such as OCR and RPA to automate certain financial processes, which is expected to improve the efficiency of financial operations but may also generate new costs, including system development and ongoing operation and maintenance. At the same time, conflicts of interest and information asymmetry between management and shareholders in modern enterprises can give rise to moral hazard and adverse selection, thereby increasing agency costs. Existing research has found that intelligent finance can reduce agency costs through two channels: information communication and monitoring; however, this conclusion lacks case-based analysis of specific firms [1]. Therefore, this paper selects Chengdu

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Xingrong Environment Co., Ltd. and Chongqing Water Group Co., Ltd. as case companies to examine the association between intelligent financial transformation and agency costs. This paper adopts a dual-case comparative design: it longitudinally examines changes over time in the management expense ratio before and after each firm's intelligent financial transformation, and cross-sectionally compares the differences in this ratio between the two firms, which differ in their progress in intelligent finance construction. This study is a retrospective observational analysis. It is difficult to fully isolate confounding factors such as revenue fluctuations, internal management reforms, and cost control policies. The study focuses on identifying phenomena and process-based evidence rather than establishing strict causality. This paper selects Chengdu Xingrong Environment Co., Ltd. (hereinafter referred to as "Xingrong Environment") and Chongqing Water Group Co., Ltd. (hereinafter referred to as "Chongqing Water") as case companies. The main selection criteria are as follows. Both companies operate in the same industry with similar businesses. Xingrong Environment and Chongqing Water both belong to the water and environmental protection industry, and their main businesses include water supply and wastewater treatment. The two companies are geographically proximate, with Xingrong Environment headquartered in Chengdu and Chongqing Water headquartered in Chongqing; both are located in Southwest China. There are notable differences in the progress of intelligent financial transformation between the two companies. Xingrong Environment initiated its intelligent financial transformation in 2018, progressing from a pilot stage to full coverage; its financial shared service center currently covers 98% of its subsidiaries. Chongqing Water established a financial shared service center within its Finance Department in 2022, marking the initiation of its intelligent financial transformation [2]. The data used in this paper are obtained from corporate annual reports disclosed on the Shanghai Stock Exchange website and CNINFO.

## 2. Literature review

### 2.1. The concept and measurement method of intelligent finance

Intelligent finance is a financial management model supported by information technologies such as artificial intelligence, big data analytics, and cloud computing. Its core is to automate standardized and process-based financial tasks by setting internal control nodes and accounting rules. At the same time, through the integration of business and finance, the involvement of accountants in repetitive accounting tasks can be reduced. The financial shared service center is an important organizational basis for intelligent transformation. Enterprises that have established a shared service center significantly outperform those that have not in terms of intelligent technology adoption and the level of intelligence in financial modules.

The Shanghai National Accounting Institute examines the current state of corporate financial intelligence from four dimensions: cognition, application, organization, and personnel [3]. Based on the organization and application dimensions of the report, combined with publicly disclosed data from the two case companies, this paper selects three dimensions—organizational structure, process standardization, and technology application—to evaluate the level of intelligent financial transformation. Due to limited public information, the stage classification involves certain subjective judgments, and complete quantitative indicators are not available within the enterprise.

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### 2.2. The concept and measurement of agency cost

Agency costs refer to the total additional expenditure or loss of value caused by the separation of ownership and control, conflicts of interest, and information asymmetry between the principal and the agent [4].

Following existing research methods, this paper uses the management expense ratio to measure agency costs, calculated as the company's management expenses for the year divided by its operating revenue for the year. The higher the ratio, the higher the agency costs [5]. It should be noted that the management expense ratio includes many normal operating expenses in addition to agency costs, and changes in this ratio may be affected by external factors [6].

### 2.3. Literature review and research gap

Using data from A-share listed companies in Shanghai and Shenzhen from 2007 to 2023, Chen found that intelligent finance reduces agency costs and improves the quality of accounting information [1]. The study points out that intelligent finance reduces agency costs through two channels: information communication and monitoring.

Previous studies have confirmed that intelligent finance can reduce agency costs, but there is a lack of case studies on changes in agency costs in specific industries and firms during the transformation process. At the same time, the existing literature tends to rely on theoretical reasoning regarding transmission mechanisms, lacking process evidence at the firm case level. Accordingly, this paper selects two state-owned listed companies in the water industry to conduct a dual-case comparative analysis from both longitudinal and cross-sectional perspectives and attempts to provide case-level empirical evidence for the conclusions of existing large-sample studies.

## 3. Case analysis

### 3.1. Case company profile

Chengdu Xingrong Environment Co., Ltd. (hereinafter referred to as "Xingrong Environment") is a locally state-owned listed company ultimately controlled by the Chengdu State-owned Assets Supervision and Administration Commission (SASAC). Xingrong Environment is a leading integrated water and environmental protection service provider in China. Its main businesses include tap water supply, wastewater treatment and reclaimed water utilization, environmental protection, and engineering. Its operations cover Sichuan, Gansu, Ningxia, and other provinces and autonomous regions.

A key driver of Xingrong Environment's intelligent financial transformation was the rapid expansion of its core business. In the first half of 2018, as it established subsidiaries in other regions, the company faced difficulties in recruiting financial personnel and the high cost of dispatching financial personnel from the group [2]. According to the annual report of Xingrong Environment, through the establishment of a financial shared service center, the company can centralize standardized, homogeneous, and repetitive financial tasks from its subsidiaries. This helps the company improve its utilization rate of funds and reduce production, administrative, and financial costs.

Chongqing Water Group Co., Ltd. (hereinafter referred to as "Chongqing Water") is a state-owned listed water company in Chongqing. Its main businesses include water supply, wastewater

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treatment, sludge treatment and disposal, and engineering construction, mainly operating in Chongqing and surrounding areas.

In the process of cross-regional development, Chongqing Water has faced prominent problems such as organizational redundancy, low management efficiency, and a lack of information interoperability [7]. As an important tool of modern enterprise management, financial shared services play a significant role in alleviating information asymmetry and enhancing control by centralizing financial information, optimizing resource allocation, and improving decision-making efficiency [8]. As shown in Table 1, from 2019 to 2021, the average management expense ratio of Chongqing Water was 14.90%, and its agency costs were higher than those of companies that had initiated intelligent transformation. Therefore, Chongqing Water needed to improve management efficiency and reduce operating costs through intelligent financial transformation. On March 22, 2022, the 14th meeting of the fifth Board of Directors reviewed and approved the "Bill on the Optimization and Adjustment of the Organizational Structure of the Company's Headquarters," officially launching the construction of Chongqing Water's financial shared service center.

Xingrong Environment's financial shared service center was initiated earlier, and its coverage among subsidiaries has reached a high level. At the process level, the company achieves internal interoperability between business and financial documents through the financial shared service center, promotes paperless operations based on full-process document imaging technology, standardizes accounting rules and embeds them into the information system, and has a high degree of process standardization [2]. At the technical level, the deployment of electronic imaging tools is at the stage of exploring AI-assisted decision-making, and large-scale AI-driven decision-making has not yet been fully implemented. Chongqing Water's financial shared service center was established relatively recently, and its coverage has not exceeded 50% of the total number of group members [7]. The company continues to promote process standardization; in terms of technology application, Chongqing Water has not disclosed the large-scale adoption of OCR, RPA, or other related technologies in its annual report. Based on the above analysis, this paper concludes that Xingrong Environment is in the stage of digital-intelligence process construction and transitioning toward the stage of digital-intelligence optimization exploration, while Chongqing Water is in the initial stage of digital-intelligence construction.

### 3.2. Longitudinal comparison: changes in agency costs before and after each company's transformation

Xingrong Environment initiated the construction of its financial shared service center in 2018 and began its intelligent financial transformation. Using the management expense ratio as a proxy for agency costs, the results calculated from the annual reports of Xingrong Environment from 2016 to 2025 are presented in Table 1.

Table 1. Management expense ratio of Xingrong Environment

| particular year | Management costs (million yuan) | Operating income (millions of dollars) | Management cost rate % |
|---|---|---|---|
| 2016 | 218.6 | 3058.3 | 7.15% |
| 2017 | 262.0 | 3731.3 | 7.02% |
| 2018 | 285.4 | 4159.6 | 6.86% |
| 2019 | 319.8 | 4838.0 | 6.61% |
| 2020 | 352.7 | 5373.4 | 6.56% |

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Table 1. (continued)

| | | | |
|---|---|---|---|
| 2021 | 443.2 | 6751.0 | 6.57% |
| 2022 | 464.4 | 7629.7 | 6.09% |
| 2023 | 511.3 | 8086.5 | 6.32% |
| 2024 | 532.6 | 9048.7 | 5.89% |
| 2025 | 574.1 | 9067.6 | 6.33% |

Data source: Annual Reports of Xingrong Environment, 2016–2025 [9].

Table 1 shows that the management expense ratio of Xingrong Environment in 2016 and 2017, before the transformation, was 7.15% and 7.02%, respectively, and the average ratio across the post-transformation years was approximately 6.40%. The maximum difference in the management expense ratio before and after the transformation was 1.26%, with an overall decline of about 0.69%. Specifically, it fell to 5.89% in 2024, the lowest level during the observation period. Table 1 also shows that the management expense ratio after the transformation remained between 6% and 7% over an extended period, with a limited decline. The main reason is that Xingrong Environment had a relatively high level of management before the transformation. After the intelligent financial transformation, the operating revenue of Xingrong Environment increased from RMB 4,159.6 million in 2018 to RMB 9,067.6 million in 2025. While the business scale expanded significantly, the management expense ratio remained relatively stable. This phenomenon is consistent with the theoretical expectation of the positive effect of intelligent finance, but changes in this ratio may be affected by multiple factors such as group cost control, mergers and acquisitions, and personnel system reform, and cannot be simply attributed to intelligent financial transformation.

Chongqing Water initiated the construction of its financial shared service center in 2022 and began its intelligent financial transformation. Using the management expense ratio as a proxy for agency costs, the results calculated from the annual reports of Chongqing Water from 2016 to 2025 are presented in Table 2.

Table 2. Management expense ratio of Chongqing Water

| particular year | Management costs (million yuan) | Operating income (millions of dollars) | Management cost rate % |
|---|---|---|---|
| 2016 | 628.6 | 4453.7 | 14.11% |
| 2017 | 649.2 | 4471.6 | 14.52% |
| 2018 | 739.5 | 5171.0 | 14.30% |
| 2019 | 845.5 | 5638.5 | 14.99% |
| 2020 | 912.3 | 6349.6 | 14.37% |
| 2021 | 1109.0 | 7252.3 | 15.29% |
| 2022 | 746.2 | 7778.9 | 9.59% |
| 2023 | 825.3 | 7254.4 | 11.38% |
| 2024 | 804.9 | 6999.3 | 11.50% |
| 2025 | 845.9 | 7524.5 | 11.24% |

Data source: Chongqing Water 's Annual Report 2016-2025 [10].

As shown in Table 2, the average management expense ratio from 2016 to 2021, before the transformation of Chongqing Water, was approximately 14.60%. In 2022, when construction of the

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financial shared service center was initiated, the management expense ratio declined significantly, with a single-year decline of 5.70%; this change coincided with the launch of the shared service center, but the impact of other events such as changes in operating revenue and organizational streamlining in that year cannot be ruled out.

Although the management expense ratio from 2023 to 2025 rebounded from its 2022 level, remaining within 11.00% to 11.50%, it was still significantly lower than the pre-transformation level. The pronounced downward trend in its management expense ratio was mainly due to the relatively low management level and large room for improvement before the transformation of Chongqing Water, so the marginal benefit in the early stage of transformation was more significant.

### 3.3. Cross-sectional comparison: differences in agency costs between the two companies in the same period

Using the annual reports of Xingrong Environment and Chongqing Water from 2016 to 2025, the results are presented in Table 5, and the charts are shown in Table 3.

Table 3. Comparison of management expense ratios: Xingrong Environment vs. Chongqing Water

| particular year | Xingrong environmental management cost rate % | Chongqing water management cost rate % | gap |
|---|---|---|---|
| 2016 | 7.15% | 14.11% | 6.97% |
| 2017 | 7.02% | 14.52% | 7.50% |
| 2018 | 6.86% | 14.30% | 7.44% |
| 2019 | 6.61% | 14.99% | 8.38% |
| 2020 | 6.56% | 14.37% | 7.80% |
| 2021 | 6.57% | 15.29% | 8.73% |
| 2022 | 6.09% | 9.59% | 3.51% |
| 2023 | 6.32% | 11.38% | 5.05% |
| 2024 | 5.89% | 11.50% | 5.61% |
| 2025 | 6.33% | 11.24% | 4.91% |

From 2016 to 2021, the gap between the two companies' management expense ratios remained at approximately 7.5%; after Chongqing Water initiated the construction of its financial shared service center in 2022, the gap between them narrowed to about 5%. From a temporal perspective, intelligent financial transformation was initiated earlier at Xingrong Environment, and its management expense ratio remained consistently lower than that of Chongqing Water during the observation period. However, there are pre-existing differences in the management foundations and business layouts of the two companies. This cross-sectional difference cannot be simply attributed to intelligent finance.

Even though the management expense ratio of Chongqing Water dropped significantly after 2022 following the initiation of its transformation, Xingrong Environment still had a lower management expense ratio. Through cross-sectional comparison, it can be observed that Xingrong Environment, which initiated its intelligent financial transformation earlier and has a more mature system, maintained a lower overall management expense ratio during the sample period. This is merely a case-level observation.

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## 4. Analysis of the impact pathways of intelligent financial transformation on reducing agency costs

The preceding data show that the agency costs of both companies decreased following the initiation of their intelligent financial transformation. This section combines the specific transformation cases of the two companies and analyzes the transmission mechanisms through which intelligent financial transformation reduces agency costs, from two perspectives: information communication and monitoring.

### 4.1. Information communication pathway

Existing research indicates that intelligent financial systems can enable real-time sharing and transmission of information within the enterprise, breaking down information barriers between management and shareholders [1].

Before the intelligent financial transformation of Xingrong Environment, the financial data of each plant and station and each subsidiary were scattered across independent accounting systems, and the month-end consolidation cycle was lengthy. After the financial shared service center was launched, the financial data of subsidiaries across the group were unified and centrally stored, which reduces information transmission links and improves accuracy [2].

Before the intelligent financial transformation of Chongqing Water, the financial data of each subsidiary was scattered, information flow was poor, and the management expense ratio was as high as approximately 15%. After the construction of the financial shared service center was initiated in 2022, the company began to advance centralized management and unified accounting of financial data. With improved information circulation efficiency, the management expense ratio decreased significantly, from 14.90% before the transformation to approximately 11% after the transformation (Table 1).

### 4.2. Monitoring pathway

Existing research indicates that automated processes and intelligent monitoring functions of intelligent financial systems can monitor management's financial decisions and operations in real time, detect abnormal behavior promptly, reduce management moral hazard, and constrain self-interested behavior [1].

Through the financial shared service center, audit rules are embedded into relevant systems [2]. Before the transformation, financial audits relied on manual verification, with limited efficiency and certain risks; after the transformation, financial audits shifted from manual verification to automated system verification. Therefore, management misconduct is more likely to be detected and flagged by the system, and management moral hazard is significantly reduced.

Data in Table 2 show that before the transformation of Chongqing Water, financial audits were mainly manual, and the management expense ratio remained above 14% for an extended period. After the launch of the financial shared service center in 2022, the audit process was gradually systematized. In theory, automated system audits can reduce the scope for self-interested behavior by management, but publicly available annual reports and news materials lack direct evidence on the effectiveness of internal monitoring; the sharp decline in the management expense ratio coincided with the launch of the shared service center, and due to other interfering factors, it cannot be confirmed to be a direct result of improved monitoring mechanisms.

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## 5. Conclusion

Through a comparative study of Xingrong Environment and Chongqing Water, this paper examines the association between intelligent financial transformation and agency costs from both longitudinal and cross-sectional dimensions, and draws the following conclusions:

First, based on time-series data from the cases, after the two companies initiated intelligent financial transformation, their management expense ratios decreased or remained stable, with Chongqing Water experiencing a more pronounced decline. This phenomenon is consistent with the theoretical expectation that intelligent finance can alleviate agency costs. However, due to multiple confounding factors, the two cases do not provide evidence for a definite causal relationship between them. Second, intelligent financial transformation is associated with more stable agency costs in companies with stronger management capabilities. Despite the doubling of business scale, the management expense ratio of Xingrong Environment remained at its pre-transformation level. Third, drawing on theoretical reasoning in existing literature, improved information communication and strengthened internal monitoring are two potential transmission mechanisms through which intelligent finance may be associated with lower agency costs; limited by publicly available information, it is difficult to obtain direct internal evidence to confirm whether these two pathways operate.

This paper has several research limitations. First, the case sample is small, with only two state-owned listed water companies selected, limiting the generalizability of the conclusions. Second, as a retrospective observational analysis, this study cannot completely rule out confounding factors such as revenue changes, group cost control, and personnel reform, and cannot strictly control variables. Third, relying solely on public news and annual reports to assess the stage of intelligent transformation involves strong subjectivity. Fourth, agency costs are proxied by the management expense ratio, which includes many expenses unrelated to agency problems and financial intelligence; a decline in this indicator cannot be fully equated with a real decline in agency costs.

Both companies are state-controlled water enterprises, and the governance environment they face has industry-specific characteristics. Management expenses include many items unrelated to financial intelligence and managerial self-interest. It is difficult to directly prove that intelligent finance is associated with a decline in agency costs based on this indicator alone. In future similar case studies, researchers may explore more granular evidence, such as the size of financial staff, subsidiary expense details, and internal audit results, to reduce the bias caused by a single proxy indicator.

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