

The Analysis of Chinese Infrastructure REITs

–Take Fullgoal Capital Water Closed REITs for Example

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Abstract: Real estate investment trusts (REITs), as a form of security, originated in the United States and are now widely favored by investors in China, Singapore and other regions. In recent years, a number of provinces in China have proposed a number of water infrastructure REITs intention projects, and positive progress has been made. Taking Fullgoal Capital Water Closed Investment Trust (Fullgoal Capital Water Closed REITs) as an example, this paper analyzes the structure of real estate investment trust, the role of each body and the fund management mode of this case, and analyzes the financial situation of the project. The majority of investors can understand the financial and operating status of the Fullgoal Capital Water Closed REITs through this article, and can also better understand the operation mechanism of real estate investment trust through this case. At the end of this paper, some notes and suggestions are provided to investors, hoping to help investors make wise investment decisions according to their own investment objectives and risk tolerance.

Keywords: infrastructure REITs, investment, fund management

1. Introduction

The China Securities Regulatory Commission indicated in 2022 that promoting the healthy development of infrastructure REITs is an important deployment made in the "14th Five-Year Plan". Since the listing of the first batch of public infrastructure REITs in 2021, China has been committed to further promoting the pilot of infrastructure REITs and improving the institutional mechanism. The Chinese government continues to expand the scope of pilot programs to better play the role of public REITs, further promote a virtuous cycle of investment and financing, and boost the development of the real economy. However, compared with the United States, China's REITs issuance time is late, and infrastructure public REITs are in the early stage of pilot operation, and there are problems such as lack of experience. However, the use of infrastructure public REITs for project financing can expand funding sources and reduce dependence on governments and banks. It is of great significance to solve the problem of infrastructure financing.

The case analyzed in this paper is Fullgoal Capital Water Closed REITs, which is a contractual infrastructure REITs fund. As a typical case in China, the deal structure of Wells Fargo's first REITs is like that of other infrastructure public REITs in China. It is the first REIT on the Shanghai Stock Exchange that takes water treatment as its underlying asset.

This paper analyzes China's infrastructure REITs from three aspects: the REIT structure, the role of each main body and the fund management mode. Through analysis from different angles, the characteristics and risks of Chinese REITs are summarized, and suggestions and precautions are proposed for investors who tend to buy REITs.

2. Overview of ABS and REITs

In an asset-backed security (ABS) cash flows are packaged and converted into securities to be issued and sold in the financial market to raise funds for issuers. ABS products have high liquidity through market-based means.

Real estate investment trusts ("REITs") is a form of pooling of funds through the issue of income trust certificates/ shares. In the process, the managers conduct real estate investment, operation and management, investors will get the comprehensive income distribution of investment. The investment targets of REITs usually include commercial real estate, infrastructure, residential apartments and hotels, medical care, data center, forest land. The water facilities in infrastructure REITs are analyzed in this paper, which is the first REIT on the Shanghai Stock Exchange that takes water treatment as its underlying asset. For infrastructure REITs, operating income from infrastructure projects constitutes the main source of income for investors.

REITs first originated in the United States in 1960, and the United States is still the largest market. According to Bloomberg data, by the end of 2022, the number of REITs in the world has reached 898, with a total scale of 1.9 trillion US dollars [1]. Among them, the number and scale of REITs in the United States ranks first in the world. In June 2021, the first batch of 9 public traded infrastructure REITs projects completed capital raising on the Shanghai Stock Exchange and the Shenzhen Stock Exchange were successfully listed [2].

By regulation, In China, more than 80% of the fund assets have to be invested in infrastructure asset-backed securities, and the rest of the fund assets should be invested in financial products that meet the regulations in accordance with the law. Secondly, China's infrastructure public traded REITs also require that the proportion of income distribution should not be less than 90% of the amount available for distribution in the combined fund year. In addition, in terms of tax policy, China has clearly new laws to support the pilot of infrastructure public traded REITs with preferential taxation. The figure 1 shows the number and scale of REITs issued in the US from 1985 to 2022

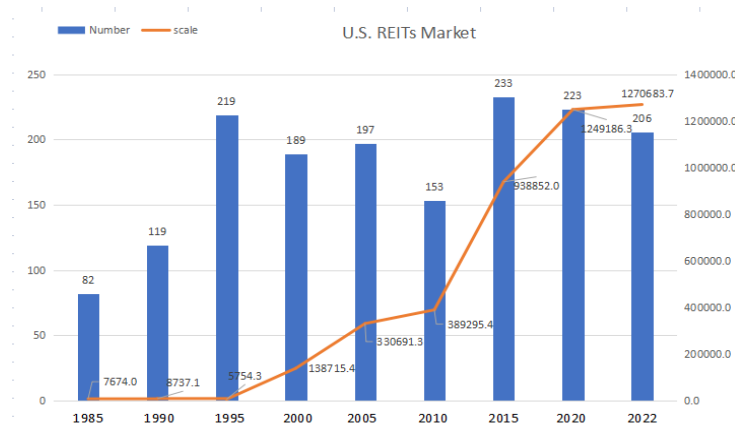


Figure 1: number and scale of U.S. REITs Data Resource: Nareit, compiled by the author.

3. Analysis of the Fullgoal Capital Water Closed Investment Trust Fund

Fullgoal Capital Water Closed Investment Trust Fund (Fullgoal Capital Water Closed REITs) is a financial innovation product of "fund+Securitization" [3]. It has a complex structure of a three-layer trading relationship of "public funds - asset backed securities - project companies". The following is an introduction to different levels:

1.The project company level: including the original equity holders of the Hefei and Shenzhen projects, Capital Securities Co., Ltd., and the project companies, Hefei Capital, and Shenzhen Capital (both of which are wholly owned subsidiaries of Capital Co., Ltd.).

2.Asset backed securities layer: Participants include the manager of the asset backed securities plan (Fullgoal Asset), the original equity holder, the project company, and ABS investors, of which ABS investors are the public fund manager, Fullgoal Fund. Fullgoal Fund signs the "Fullgoal Capital Water 1st Infrastructure Asset Support Special Plan Asset Support Securities Subscription Agreement" with the plan manager and delivers the subscription funds. The plan manager, by establishing the Fullgoal Capital Water 1st Infrastructure Asset Support Special Plan, acquires all equity and debt of the project company as the basic asset. So, the original equity holder transfers its equity and bond right to the plan manager.

3.Public offering fund layer: participants include ABS plan manager Fullgoal Asset, public offering fund manager Fullgoal Fund, original equity holder Capital Securities. Public funds raise funds through public offerings, purchase asset-backed securities, and invest in project subsidiaries. According to relevant regulations, the fund share held by the strategic investor Capital Securities shall not be less than 20%.

In summary, investors indirectly held shares in the project company by investing in Fullgoal Capital water closed REITs, thereby indirectly investing in projects in Hefei and Shenzhen.

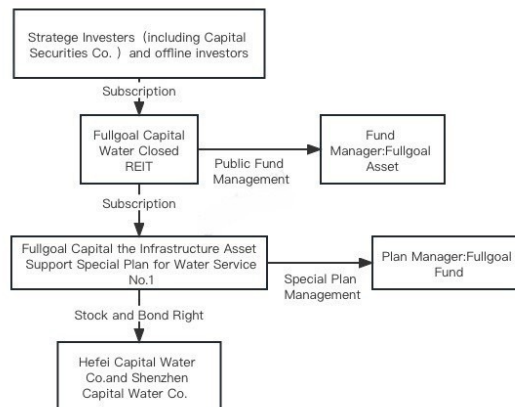


Figure 2: the structure of the Fullgoal Capital Water Closed Investment Trust Fund
 The graph is translated from: the Fund Prospectus (1st in 2023) [4]

4. Analysis of project structure

4.1. Analysis of the company

4.1.1. Brief introduction of Hefei Project

Hefei Project, located in Hefei City, Anhui Province, is a municipal infrastructure project of sewage treatment.

In actual operation, the business of Hefei Capital Water Co., Ltd. mainly includes sewage treatment, middle water treatment and sludge treatment, among which the middle water treatment business is the additional business of sewage treatment. According to the data of the second quarter of 2023 and the quarterly report of the same period of last year (Table 1), the revenue of sewage treatment in 2022 and the second quarter of 2023 is about 32MM yuan and about 26MM yuan respectively, both accounting for more than 90% of the total quarterly revenue. Other businesses such as water treatment and sludge treatment accounted for less than 10% of the total revenue. The most profitable business of Hefei project is sewage treatment.

Table 1: Hefei project in the second quarter of 2022 and 2023 business income statement

Composition	Current period (April 1, 2023 - June 30, 2023)		Corresponding period of last year (April 1, 2022 - June 30, 2022)	
	Amount (RMB)	Percentage of total revenue of the project (%)	Amount (RMB)	Percentage of total revenue of the project (%)
Sewage treatment revenue	32MM	90.74	26MM	90.76
Reclaimed water revenue	591K	1.7	387K	1.34
Sludge revenue	3MM	7.56	2MM	7.9
Total	35MM	100	29MM	100

Data Source: the second quarterly report of Fullgoal Capital Water Closed Infrastructure Investment Fund in 2023 [5]

The asset distribution of the company is as follows:

Table 2: Asset distribution of the Hefei Capital Company(units: yuan)

Fixed assets	5MM
Intangible assets	888MM
Assets in total	894MM

Data source: 2022 evaluation report of the Fullgoal Capital Water Closed Infrastructure Investment Fund (Hefei Shilihe Sewage Treatment Plant) [6]

From Table 2, approximately 99.44% of the net operating assets are intangible assets, namely the sewage treatment franchise of Hefei.

Here is analysis of important financial indicators:

Table 3: Important Financial Indicators of Hefei Capital Company

Item	Dec 31st,2018	Dec 31st,2019	Dec 31st,2020
Debt/Asset	49.38	62.38	64.52
EBITDA interest multiple	2.92	3.06	3.02
ROE	0.49%	1.87%	1.70%

Data source: In the Fund Prospectus (1st in 2023) [4]

The profitability and operating net cash flow of Hefei Capital's project(Table 3) were affected by the construction of the fourth phase of the Shiwulihe Sewage Treatment Plant in Hefei, but overall, it still presents relatively stable and sustainable characteristics, and the project has now been completed

and put into operation. The significant increase in operating revenue and net operating cash flow of Hefei Capital in the past three years has provided strong guarantees for debt repayment.

From the perspective of Hefei Capital's long-term debt repayment ability, the asset liability ratios of Hefei Capital in 2018, 2019, and 2020 were 49.38%, 62.38%, and 64.52%, respectively. Overall, the asset liability ratio is relatively stable. In 2018, 2019, and 2020, Hefei Capital's EBITDA interest multiples were 2.92, 3.06, and 3.02 respectively. EBITDA is high and growing and has a strong ability to guarantee debt interest repayment and the return of equity also grows significantly.

4.1.2. Brief introduction of Shenzhen Project

Shenzhen Capital Water Co., Ltd. was established on 26 November 2008 and its sub-projects include the Fuyong, Songgang and Gongming wastewater treatment plants. The main industries are water services, sewage and wastewater treatment services, and water supply and treatment equipment.

The Shenzhen project is a BOT (Build-Operate-Transfer) concession project, where Shenzhen Capital is responsible for the investment and construction of the project and has signed a concession agreement with the government to obtain the concession right of the project. Shenzhen Capital has the right to charge reasonable service fees, provided that adequate, continuous and qualified services have been provided during the concession period and within the concession area, and to recover the costs and taxes invested by Shenzhen Capital in the construction and operation of the project and to earn a reasonable profit from the sewage treatment service fees collected. After the completion of the renovation of the three sub-projects, the unit price of wastewater treatment volume for the Shenzhen project increased significantly, with the cost increase being smaller than the price increase. Revenues from the Shenzhen project have been stable in the recent past in general (Table 4).

Table 4: Shenzhen project in the second quarter of 2022 and 2023 business income statement [5,6]

composition	Current period (1 April 2023-30 June 2023)		Corresponds to same period last year (1 April 2022-30 June 2022)	
	Amount (yuan)	Percentage of total project	Amount (yuan)	Percentage of total income from the project
Sewage treatment revenue	42MM	99.11	44MM	98.85
Leachate revenue	381k	0.89	515k	1.15
Total	43MM	100.00	45MM	100.00

4.1.3. Capital Securities Co., Ltd.

It was established in February 2000 with a registered capital of 2.73 billion yuan. On December 22, 2022, the company was listed on the Shanghai Stock Exchange (stock code "601136"). It focuses on the investment and operation management of the Chinese water market.

In this project, Capital Securities is the operation and management organization of the infrastructure project and accepts the trust. In accordance with the provisions of relevant state departments, it provides operation and management work for infrastructure projects, and assumes responsibilities and risks within the content and scope of services.(Figure 3)

Capital Securities holding share in 2021

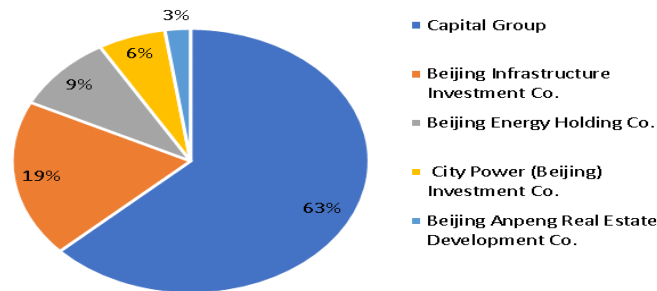


Figure 3: percentage of Capital Securities holding share in 2021. Data Resource: Capital Securities Annual Report 2021 [7]

4.2. Fund management method

The operation of the Fullgoal REIT system generally includes raising funds (including a series of specific processes such as signing contracts and listing transactions), investment, property custody, asset valuation and income distribution, etc. At the same time, it mainly involves Fullgoal Beijing Capital Water REIT as the public offering fund manager and China Merchants Bank as the public offering fund custodian. The following section elaborates on the operation of Fullgoal REIT and some management strategies.

The raising of Fullgoal Capital Water Closed REITs

Fullgoal Capital Water Closed REITs was listed and traded on the Shanghai Stock Exchange from June 21, 2021, after the fund manager in accordance with relevant regulations and after obtaining the securities, regulatory license issued by the China Securities Regulatory Commission. The fund, as a publicly offered infrastructure securities investment fund, will continue to operate as a contract-based closed-end fund until September 29, 2047. The total fund shares will remain unchanged during the validity period of the fund contract signed by the investor, the manager and the custodian.

According to the statistics of Fullgoal Capital Water Closed REITs's 2022 annual report, during the 2022 fundraising period, the fund shares held by institutions accounted for 78.06%, while the fund shares held by individuals accounted for 21.49%. (Figure 4) Among the fund shares held by individuals, the shares held by the employees of the fund manager during the raising period account for 0.0001%. It can be seen that Fullgoal Capital Water Closed REITs is widely fund-raising for the public and has various types of investors, which reflects the nature of its public offering fund.

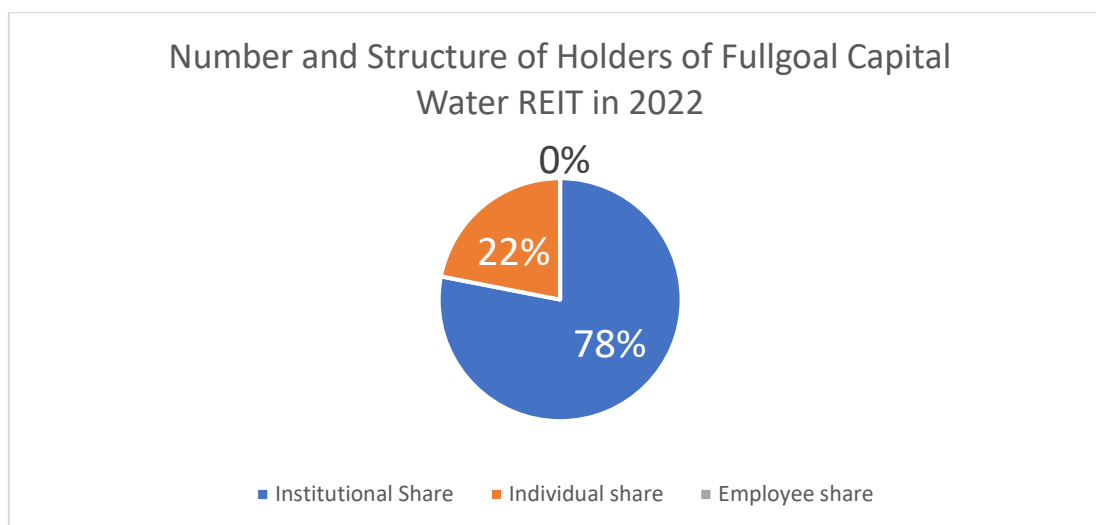


Figure 4: Pie chart of Fullgoal REIT Fund subscription in 2022 [6]

4.3. Fullgoal REIT's investment

4.3.1. Investment objective and investment percentage

In terms of investment objectives, Fullgoal Capital Water Closed REITs aims to acquire all equity of infrastructure project companies by investing in special purpose vehicles (SPVS) such as infrastructure asset-backed securities, and eventually acquire full management rights of relevant infrastructure projects. It is through this process of active investment and operation management that Fullgoal Capital Water Closed REITs can continuously improve the operating income level of infrastructure projects, thus being able to provide stable and long-term sustainable income distribution for fund shareholders.

To meet the above investment objectives, the proportion of Fullgoal Capital Water Closed REITs's investment in different objects, namely the fund's investment portfolio, is also limited accordingly. The most important of these is that no less than 80% of the fund's assets should be invested in the infrastructure asset-backed special plan. In practice, Fullgoal Capital Water Closed REITs, in accordance with this constraint, mainly invests in urban sewage treatment type infrastructure asset-backed securities and obtains full operating rights of infrastructure projects through penetration. This also clearly reflects the most basic function of Fullgoal Beijing Capital Water REIT as a kind of REIT serving real estate investment. For example, in the 2022 annual audit report, the total assets of Fullgoal Capital Water Closed REITs are RMB 1,753MM, which only exist in the two accounts of monetary capital and long-term equity investment, which are RMB 3MM and RMB 1,750MM respectively. Fullgoal Capital Water Closed REITs's equity investment in its Hefei and Shenzhen special plans accounted for 99.8% of the total assets, far exceeding the basic requirement of 80%.

4.3.2. Investment strategy

Fullgoal Capital Water Closed REITs has four different strategies to ensure reasonable investment of the fund and stable and sustainable operation of the fund according to the difference of its investment objects:

The first is the operation and management strategy of infrastructure funds. As for the investment subject of infrastructure, Fullgoal Capital Water Closed REITs can measure the current value and future development space of the investment projects by evaluating the industry cycle of the underlying assets, the risk of investment projects and the expected rate of return, and obtain stable

income through adjustment as much as possible. On this basis, the fund establishes appropriate valuation and forecast models based on the fundamentals of the underlying asset projects (such as location, sewage discharge standards, etc.) and operational fundamentals (such as positioning, business strategy, etc.).

Second, financing strategy. During the term of the fund, on the premise of controlling risks, Fullgoal Capital Water Closed REITs comprehensively uses financing methods, including but not limited to fund expansion, repurchase, direct or indirect external borrowing, etc. Especially in the infrastructure sector, Fullgoal Capital Water Closed REITs has outstanding advantages in financing, which can bring positive effects to the original stakeholders in the short term, including optimizing the capital structure, improving the solvency and investment income, and bringing additional wealth to the enterprise.

Thirdly, the strategy of expanding acquisition is discussed. Fullgoal Capital Water Closed REITs invests in the asset-backed special plan through fund expansion to expand the fund's underlying assets, diversify the operating risk of the underlying assets, and improve the fund's asset investment and operating income.

Fourth, the investment strategy of other investment varieties. In addition to investing in infrastructure asset-backed securities, Fullgoal Capital Water Closed REITs flexibly applies various term structure strategies, credit strategies, swap strategies and interest rate spread strategies to maximize portfolio returns under the premise of controlling interest rate risk and managing and controlling portfolio risk reasonably.

4.3.3. Property of Fullgoal Capital Water Closed REITs

Total assets of the Fund refer to the sum of the value of all investments of the Fund, including owned infrastructure asset-backed securities, other kinds of securities, bank deposits, principal and interest, fund receivables and others, which are reflected as total assets in the consolidated statements. (Table 5)

Table 5: Fullgoal Capital Water Closed REITs 2021 to 2022 Balance Sheet Asset Section

Balance sheet: Consolidated statement	Unit (YUAN)	
	2022 Annual Report	2021 Annual Report
Assets:		
Monetary funds	228MM	288MM
Accounts receivable	37MM	38MM
Inventory	769K	6MM
Fixed assets	9MM	6MM
Right-of-use assets	--	647K
Intangible assets	1.6B	1.7B
Deferred tax assets	857K	687K
Other assets	10MM	57MM
Total assets	1.8B	2B

Data Source: Fullgoal Capital Water REIT balance sheet [6,7]

4.4. Valuation of Fullgoal REIT

In accordance with the relevant regulations of China Securities Regulatory Commission, Fullgoal REIT conducts valuation and prepares accounting statements for individual infrastructure funds and consolidated entities at the half year and the last day of each natural year and completes the

verification of valuation results together with commercial banks within the disclosure period. In the process of fund valuation, valuation objects include but are not limited to infrastructure asset-backed securities, bonds, bank deposits, receivables, intangible assets, fixed assets, borrowings, payables, etc.

5. Chinese REITs case summary and suggestions

5.1. The conclusion of Chinese REITs

As one of the representative enterprises in the early stage of using REITs in China, Capital Group owns many heavy-duty water treatment assets. At present, the company's business expansion is accelerating, and the liquidity of capital is not very advantageous in the industry. The company's traditional financing channels are limited, and the revitalization of the underlying assets through new pilot financing means such as public REITs will help the company to resolve its financing difficulties, reduce financing costs and optimize the existing corporate asset structure.

For the specificity of the industry, the water industry, as an important factor influencing the national economic development, national strategic development plan and the standard of living of people's livelihood, Capital Group can get the government's support for the important industry as well as the benefits as a pilot of China's REITs. The advantage of being an important national industry can thus bring the company stable long-term income.

In addition, the company faces the risk of excessive financing pressure due to its large initial investment fund. However, the active management of risk by REITs, such as the clear establishment and management of requirements through legislation, guidelines, and other forms, can be effective in keeping the means of financing for businesses under the regulatory red line and from innovative paths to financing. Capital Group can make use of the equity and closed nature of REITs to reduce the debt ratio and the financing pressure in a short period of time.

In conclusion, Capital Group has used reinvestment, a new financing tool, to effectively optimize its assets and gain an advantage in the Chinese market. And this financing tool still has some commercial potential in the future market.

5.2. REITs investment advice

Since REITs are tools that have just entered the Chinese market, the development of REITs in China has not been a mature system for as long as it has been constituted in the United States and Japan. China's policy support for REITs has not yet been significantly introduced, which can also cause some inconvenience.

a) The system of municipal-owned assets, such as infrastructure assets, has not been adapted to REITs. As a result, Fullgoal Capital encountered difficulties in valuing infrastructure assets and inefficiencies in the transfer process when transferring assets. The state can improve the asset transfer process of REITs in the country by formulating relevant detailed procedural rules.

b) The industry in which the REITs product is located is also one of the important factors affecting its development. In the case study, Capital Group, as a water company, is able to ensure the daily operation of the city through its wastewater treatment business. This service, which has become a necessity for citizens, can bring long-term stable cash flow through the characteristics of REITs and safeguard high-quality underlying assets. For the other REITs projects such as highways also face the risk of a sudden decrease in travel volume caused by COVID-19. This proves that the type of industry of REITs products will affect the effectiveness of REITs usage, and it is recommended to choose stable projects with state support for investment.

c) Recently, China's public REITs projects are still in pilot status, resulting in a small number of REITs products in the market, and mostly in stable environmental protection or utility industries. But when public REITs go through the pilot stage, the state regulation of this may relax the restrictions.

As a result, underlying assets such as office buildings, shopping malls and residences may appear in the market in the future, bringing greater risks to REITs products. Investors will need to conduct more stringent risk assessment of these underlying assets to avoid losses.

d) REITs are excellent choices for stable investments because of their high rate of return on earnings and inherently light volatility. However, there is also a risk that their earnings may not meet expectations. Their projects have a long duration (ranging from 15-99 years) and are not redeemable in advance and can only be traded in the secondary market (and are likely to be sold at a discount in case of emergencies). The fact that some Chinese REITs are mainly used to reduce local liabilities and transfer risks from banks and state-owned financial institutions does not bring too much return to investors. On a micro level, this is not favorable to individual investors, and is more relevant to institutional investors (with an investable share of up to 80 per cent) who are investing for the long term.

6. Conclusion

In general, REITs provide a new channel for businesses to raise capital. On the one hand, it can reduce the dependence of municipalities on bank loans and reduce the financial risks caused by rising interest rates. On the other hand, the impact of national policies can be reduced. The COVID-19 outbreak has led to an economic downturn and increased financial support from the Chinese government for companies like Capital Securities, but they cannot always rely on government subsidies. If the economy recovers in the future, raising funds for the company's projects will become difficult. Currently, REITs are a good way to raise money.

Although China's REITs are still in the early stages of development, many companies are trying. The structure of the REIT issued by Capital Securities in this paper is reasonable, but efforts should be made to simplify the agency link. Capital Group as a typical case for other Chinese enterprises to learn and improve. In addition, the government still needs to continue to improve relevant laws, especially in terms of taxation, to incentivize more companies to issue REITs.

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Authors are sorted alphabetically. Can Liu, Jiabin Jin, Liyuan Tang, Puyu Zhao contributed equally to this work and should be considered co-first authors.

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