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Motivation Change of CFLD's Real Estate Investment Measurement Model and Analysis of the Economic Consequences

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Abstract: *In 2006, the Ministry of Finance of China issued the CAS3 accounting standard, introducing the fair value measurement model into the measurement of real estate investment. However, by the end of 2021, A-share listed companies that changed their cost measurement model of real estate investment to the measurement model of fair value accounted for a very small proportion of all A-share listed companies holding real estate investment in China. This paper selects China Fortune Land Development Co., Ltd. (CFLD), a representative company, as the case object, and studies its motivation of changing the measurement model of real estate investment in 2018 from three aspects: earnings management, profits of major shareholders, and compensation management of senior managers, and analysis of economic consequences from both short-term and long-term perspectives. It is expected to provide references for stakeholders to correctly interpret the disclosed fair value information of real estate companies and for relevant listed companies to reasonably adopt the fair value measurement model.*

Keywords: *Real estate investment, the fair value measurement model, motivation change, economic consequences, China Fortune Land Development Co., Ltd (CFLD)*

1. Introduction

1.1. Background of research

In 2006, the Ministry of Finance of China issued the CAS3 accounting standard, which introduced the fair value measurement model into the measurement of real estate investment. In 2014, the Ministry of Finance issued the No. 39 Standard Document, which improved a series of problems existing in the practical application of the fair value measurement model in the field of real estate investment and standardized the use of the fair value measurement model.

Table 1: Application Status of Investment Real Estate Measurement Model of A-share Listed Companies in China

Project	In 2014	In 2015	In 2016	In 2017	In 2018	In 2019	In 2020	In 2021
The Number of Companies Holding Real Estate Investment	1144	1254	1305	1525	1680	1894	2175	2301
The Number of Companies Using the Cost Measurement Model	1086	1186	1222	1438	1591	1802	2077	2587
The Number of Companies Using the Fair Value Measurement Model	58	68	83	87	89	92	98	106
The Proportion of Companies Using the Fair Value Measurement Model	5.07%	5.42%	6.36%	5.70%	5.30%	4.86%	4.51%	4.61%

Data Source: CSMAR Database

According to Table 1 above, by the end of 2021, among the 2,301 A-share listed companies that hold real estate investment in China, 106 companies adopt the fair value measurement model, accounting for only 4.61%.

In addition, through the CSMAR database, there are 30 listed companies in the real estate industry among the 106 listed companies that choose the fair value measurement model, and the total assets and the proportion of investment real estate in total assets of these 30 listed companies are much larger than those of listed companies in other industries. China Fortune Land Development Co., Ltd. (CFLD) ranks second among the 30 listed companies in terms of total assets, and it changed the measurement model of

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real estate investment in 2018 after the Ministry of Finance of China improved relevant standards.

Therefore, this thesis takes China Fortune Land Development Co., Ltd. (CFLD) as the research object from the perspectives of asset nature, asset scale and policy influencing factors, and analyzes the motivation change of its real estate investment measurement model and the economic consequences.

The fair value measurement model can improve the relevance of accounting information. When a listed company chooses the fair value measurement model, the company's stakeholders will get more real and useful accounting information, which is conducive to their decision-making. Some scholars used old cases in their research on measurement model of real estate investment, most of which happened before the Ministry of Finance of China perfected relevant standards in 2014. And some scholars had conducted relevant empirical research after 2014, but they need more persuasive cases. In this paper, CFLD is selected as the case object.

In terms of research methods, except using horizontal and vertical financial indicators to explore the company's performance, the event study method is also used to analyze the short-term market reaction of case events. The research and analysis of this paper is expected to provide reference for stakeholders to correctly interpret the disclosure of fair value information in real estate companies and the rational use of the fair value measurement model by China's A-share listed companies. The research and analysis of this paper are expected to provide references for stakeholders to correctly interpret the disclosed fair value information of real estate companies and for Chinese A-share listed companies to reasonably adopt the fair value measurement model.

2. Motivation Change of CFLD's Investment Real Estate Measurement Model

2.1. Introduction of CFLD

Founded in 1998, China Fortune Land Development Co., Ltd. (stock code: 600340) is a leading operator of new industrial cities in China. CFLD adheres to the strategy of focusing on core metropolitan areas and is committed to becoming China's leading real estate investment, development and operation management platform for core metropolitan areas driven by new industrial cities and related businesses and commercial real estate and related businesses.

There are active real estate leasing and market transactions, where real estate the investment held by CFLD is located, and CFLD can obtain the market price and other relevant information from the same or similar real estate market, so as to make scientific and reasonable assessment of the fair value of the real estate investment, that means the fair value of the real estate investment can be obtained continuously and reliably by CFLD.

Based on the above background, CFLD has changed the measurement model of its investment real estate from the cost measurement model to the fair value measurement one since October 1, 2018. And it has adopted the retrospective adjustment method for accounting treatment and made retrospective adjustment to the data in comparable annual financial statements. The following Table 2 shows the assets of CFLD in 2018 and the three years before and after it.

Table 2: Status of Asset in CFLD from 2015 to 2021 (Unit: Ten Thousand Yuan)

Annual	Investment Real Estate	Gains & Losses from Changes in Fair Value	Total Assets
2015	80,739.97	-	16,862,335.21
2016	137,326.81	-	24,990,332.88
2017	287,420.86	1,273.56	37,586,471.39
2018	224,630.00	10,072.87	40,971,183.41
2019	334,038.00	9,620.55	45,781,194.65
2020	850,257.46	4,693.80	48,876,235.88
2021	801,321.10	- 140,401.84	44,096,415.41

Data Source: Annual Report of CFLD

2.2. Motivation - earnings management

From the perspective of management opportunism, in order to keep the surplus level in a stable or rising status, some companies will take some measures such as adjusting accounting policies to achieve their goal. Under the fair value measurement model, the fluctuation of the fair value in real estate

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investment will impact the profit of company. And the value of gains and losses from changes in fair value is based on a certain degree of subjective assessment, which provides the possibility for companies to manipulate earnings. If the annual earnings of a company are volatile or poor, the company is likely to increase or decrease the earnings value by using the fair value changes of the investment real estate, in order to achieve the goal of stabilizing the surplus level.

Table 3: Impact of Changes in Fair Value of Real Estate Investment (Unit: Ten Thousand Yuan)

Year	Asset-liability Ratio	Gains & Losses from Changes in Fair Value	Net Profit	Net Profit Growth Rate	Net Profit Growth Rate After Deducting Gains & Losses from Changes in Fair Value
2016	84.78%	-	616,811.83	23.68%	23.68%
2017	81.10%	1,273.56	880,657.10	42.78%	42.63%
2018	86.64%	10,072.87	1,180,274.60	34.02%	33.17%
2019	83.90%	9,620.55	1,468,495.0 8	24.41%	23.76%

Data Source: Annual Report of CFLD

According to Table 3 above, it is obvious that the investment properties held by CFLD in areas with high market transaction activity will continuously bring gains from changes in fair value to the company, thus increasing the company's overall profit growth rate. Profit status is the key to measuring growth. CFLD chose a new investment real estate measurement model in the development stage of the company, which can satisfy its purpose of "better" financial statements and completing earnings management to a certain extent.

In addition, as shown in Figure 1, which is the results of CFLD's return on total assets (ROA) around 2018, after CFLD changed the investment real estate measurement model, its ROA increased compared with that before the change, which was beneficial to further improve the smoothness of financial data.

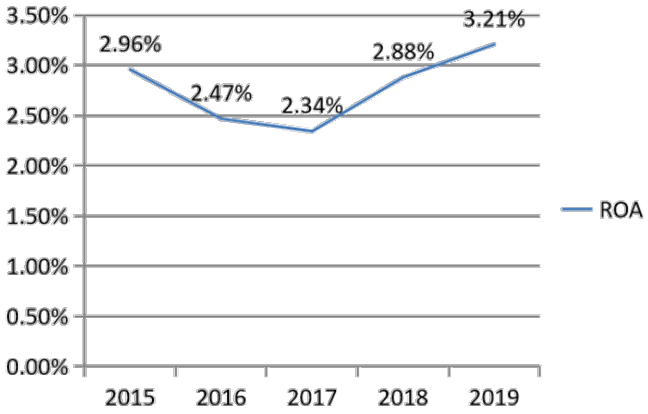

Figure 1: CFLD's ROA Comparison

2.3. Motivation - profit of major shareholders

CFLD's development strategy is to drive commercial real estate and residential real estate simultaneously, in order to obtain more income through a two-wheel drive model. Specifically, it takes residential development as its main business and strives to build a commercial complex on this basis. According to CFLD's financial reports, as of December 2017, CFLD's property rental business is mostly distributed in first-tier cities, and the market is highly active. In addition, CFLD has hired Zhongxingcai Guanghua Certified Public Accountants as its report disclosure agency in recent years. As a non-prestigious accounting firm, Zhongxingcai Guanghua Certified Public Accountants has some problems in auditing quality and supervision. We can reasonably deduce that CFLD's major shareholders encounter little resistance when making decisions.

As one of the largest real estates listed companies in China, CFLD has a huge number of participants in market activities. Different stakeholders have great differences in the degree of mastery of information. Lacking information make market participants often receive opaque and relatively lagging information, which makes them have no competitive advantage in the market. On the contrary, the major shareholders of CFLD are at the head of the information chain of fair value of real estate investment. The weak supervision and management system of fair value information of investment real estate in China is not perfect, which are reflected in the selection of appraisal agencies, value information reports issued by

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appraisal agencies, and the disclosure of fair value information of investment real estate.

For CFLD's major shareholders, there is a certain motive to make the statements look "better" to obtain high returns, and viciously increase the company's capital through beautiful statements, forcing minority shareholders to reduce their shareholding ratio due to their inability to subscribe for new shares. According to financial reports from 2018 to 2021, the proportion of additional equity issued by CFLD each year is much higher than that in 2017. From the perspective of shareholders, the major shareholders of CFLD hold more shares than before, and the proportion of retail investors is gradually decreasing, which confirms the motivation of major shareholders to obtain more interests.

2.4. Motivation - compensation management of senior managers

CFLD's 2018 annual financial report shows that the compensation of senior managers consists of three parts. The first part is the basic remuneration that determined by the position and responsibilities of the senior managers. The second one is the floating part, which is related to the completion of the company's overall business performance, organizational performance assessment results and individual performance assessment results. And the last but not least one is equity incentive plan.

The second part equation is "Floating Bonus = Base Remuneration × Performance Pay Multiple × Performance Pay Adjustment Coefficient". The "Performance Pay Multiple" is determined by the business performance appraisal method. The "Performance Pay Adjustment Coefficient" is determined by the actual completion of the company's assessment of profit and return on equity. In addition, according to the disclosure of CFLD's 2018 annual financial report, CFLD passed stock options and restricted stock incentive plan and related proposals on June 8, 2018. Therefore, the senior managers obtained a huge number of restricted stocks.

In conclusion, except the fixed salary, the senior managers of CFLD can also get additional annual bonus and equity incentive bonus based on the company's business performance, which to some degree provides the motivation for the company's managers to make the decision to change the measurement model of real estate investment.

CFLD's choice of the new investment real estate measurement model meet the rising housing price coincidentally, and the real estate investment it held has brought hundreds of millions of fair value changes in just a few months. The real estate market is still active even though China has introduced a variety of policies to stabilize housing prices in recent years. The gains from changes in fair value of the real estate investment held by CFLD have shown a steady upward trend, which not only enables the company to have more total assets, but also increases its total profits, making the financial statements look "better" to a certain extent, thereby achieving the compensation target of the company's senior managers.

3. Economic Consequences

3.1. Literature review on economic consequences

William R. Scott proposed in The Theory of Financial Accounting that economic consequences mean that the choice of accounting policy will affect the value of a company. In this chapter, the short-term and long-term research contexts are sorted out, and the short-term market reaction of the measurement model change of investment real estate is analyzed by using the event study method, and the long-term corporate performance is analyzed by comparing various financial indicators before and after the measurement model change.

It is worth mentioning that in academic community, there is still a question of "Whether financial performance should be included in the study of economic consequences?". By reviewing a large number of historical documents, Wang Hai (2007) made a comparative analysis of the empirical evidence from multiple financial indicators before and after Lenovo Group's overseas mergers and acquisitions (M&A) to study the economic consequences of M &A. Kong Lingming (2018) selected a number of financial indicators reflecting the company's comprehensive performance from levels of profitability, debt paying ability, development ability and operation ability, and conducted an empirical study on the long-term economic consequences of executive divestment in China's A-share main board market. Ma Jian and Li Lianjun (2020) compared the horizontal and vertical financial indicators to analyze the changing trend of the operation and profitability of sample companies before and after the establishment of the financial sharing model and explored the economic consequences of the financial sharing model. These previous

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studies provide references for long-term economic consequences analysis in this chapter.

3.2. Analysis of short-term economic consequences

The short-term behavior of companies refers to the speculative behavior taken by the operators in order to achieve a certain short-term specific purpose. The event study method believes that the price of stocks in the market will rise and fall with the impact of specific events, which shows that the market is rational. The specific event referred to in this paper is the behavior of A-share listed companies changing the measurement model of real estate investment, that is, the case object CFLD officially implemented the fair value measurement model on October 1, 2018. Due to the fact that the market is closed during the National Day holiday, I set October 8, 2018, as the base date, selected three trading days before and after the time as the event period, and took 60 days before the event period as the estimation window for parameter estimation. The financial data such as daily closing price and closing index needed in the calculation process are all derived from the CSMAR database.

3.2.1. Model selection

Market model methods that are widely used by current scholars are used to estimate the normal rate of return of stocks. The specific formula is as follows.

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} \quad (1)$$

$$R_{i,t} = (P_{i,t} - P_{i,t-1}) / P_{i,t-1} \quad (2)$$

$$R_{m,t} = (P_{m,t} - P_{m,t-1}) / P_{m,t-1} \quad (3)$$

The $R_{i,t}$ represents the actual return of the company's stock on day "t". The $R_{m,t}$ represents the return of the entire market on day "t". The α_i and the β_i are parameters to be estimated. The $P_{i,t}$ and the $P_{i,t-1}$ represent the closing price of the company's stock on day "t" and day "t-1" respectively. The $P_{m,t}$ and the $P_{m,t-1}$ represent the stock market closing index on day "t" and day "t-1" respectively.

3.2.2. Parameter estimation

CFLD is listed on the Shanghai Stock Exchange, so the Shanghai Composite Index is used for the stock market index. Using formulas (2) and (3), the values of each $R_{i,t}$ and $R_{m,t}$ in the estimation window are calculated respectively. And then put the values into formula (1) one by one, obtaining α_i and β_i by regression equation.

3.2.3. AR & CAR calculation

Use formula (2) in the event window to calculate the actual return ratio $Ri_{,t}$ on day "t", and use the formula (1) to calculate the expected return ratio $R'_{i,t}$. Then subtract the $R'_{i,t}$ from the $R_{i,t}$, calculating the AR and the CAR of the company.

The above methods are used to calculate the short-term economic consequences of CFLD, which are AR and CAR. The results are shown in Table 4 below.

Table 4: AR & CAR of CFLD before and after the Event

Time Window		-3	-2	-1	0	1	2	3
Project	AR	0.60%	-0.85%	0.41%	-0.10%	0.16%	0.14%	-2.53%
	CAR	0.60%	-0.25%	0.16%	0.06%	0.22%	0.36%	-2.17%

According to the calculation results, the short-term market reaction of CFLD is remarkable. After the official implementation of the fair value measurement model of investment real estate on October 8, 2018, CFLD immediately received a positive market reaction. The AR significantly increased after the event date, and the CAR peaked on the second trading day. CFLD has a large scale overall, and real estate investment account for a relatively high proportion of its assets. If there is an additional income from changes in the fair value of investment real estate in future operating years after changing the measurement model, the market will respond positively to this additional income.

3.3. Analysis of long-term economic consequences

In the long run, what economic consequences will CFLD's change in the measurement model of real estate investment have? Will its long-term performance increase or decrease? I will discuss them in this section.

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Return on asset (ROA) and return on equity (ROE), as indicators to measure the long-term profitability of companies, differ in their practical applications, the former one is applicable to measure the profitability of companies' overall assets, while the latter one is applicable to measure the profitability of net assets, namely shareholders' equity. The financial leverage coefficient of listed companies is generally high in the real estate industry, and the asset-liability ratio is above 64% on average. As an important asset of listed companies in the real estate industry, the gains and losses from changes in fair value of real estate investment will affect the financial statements. Therefore, for the consideration of high leverage coefficient, I selected ROA as an indicator to measure the long-term economic development of CFLD, and analyzed the changes of related financial indicators of CFLD before and after the change of measurement model of real estate investment. And I selected earnings per share (EPS) to measure its long-term profitability comprehensively.

At first, obtain the industry average value of ROA and EPS of China's A-share real estate industry from 2017 to 2020 from the CSMAR database. And then obtain the ROA and EPS data of CFLD before and after 2018 (the year of measurement model change) after excluding the impact of the gains and losses from changes in fair value of real estate investment. Finally, get the difference between CFLD and the industry average value. The calculation results are shown in Table 5 and Table 6 below.

Table 5: Comparison between the ROA of CFLD and the Industry Average (Unit: Ten Thousand Yuan)

Index	In 2017	In 2018	In 2019	In 2020
Net Profit	880,657	1,180,275	1,468,495	480,574
Total Assets	37,586,471	40,971,183	45,781,195	48,876,236
Gains & Losses from Changes in Fair Value of Investment Real Estate	1,274	10,073	9,621	4,694
ROA after Excluding Gains & Losses	2.34%	2.86%	3.19%	0.97%
Industry Average ROA	2.96%	2.20%	2.17%	0.40%
Difference between CFLD and the Industry Average	-0.62%	0.65%	1.02%	0.57%

Data Source: CSMAR Database

Table 6: Comparison between the EPS of CFLD and the Industry Average (Unit: Ten Thousand Yuan)

Index	In 2017	In 2018	In 2019	In 2020
Equity	295,494.67	300,325.17	301,328.59	391,323.67
Total Assets	37,586,471	40,971,183	45,781,195	48,876,236
Gains & Losses from Changes in Fair Value of Investment Real Estate	1,274	10,073	9,621	4,694
EPS after Excluding Gains & Losses (Unit: Yuan)	2.98	3.93	4.87	1.23
Industry Average EPS (Unit: Yuan)	0.59	0.64	0.63	0.52
Difference between CFLD and the Industry Average (Unit: Yuan)	2.37	3.29	4.24	0.71

Data Source: CSMAR Database

It can be seen from the tables that before 2018, when CFLD changed its real estate investment measurement model, its ROA was lower than the industry average; while its ROA was significantly higher than the industry average after changing the measurement model. At the same time, the indexes in the EPS section also increased.

In 2020, due to COVID-19, the individual index, the industry average index and the difference between them have all declined obviously. However, it is undeniable that China's housing prices have continued to rise after 2016, and with the adjustment of macro policies, they have shown a steady upward trend. The change in measurement mode of investment real estate makes CFLD perform well in important financial indexes that reflect the company's long-term operating performance. The gains and losses from changes in fair value of real estate investment have injected impetus into its long-term economic development.

4. Conclusion

Through the case study and analysis of CFLD, it can be concluded that when the listed company is large in scale, has a high degree of information asymmetry, and is not subjected to a high-quality auditing

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by an accounting firm, there are sufficient motivation to choose the fair value measurement model of real estate investment to make the financial statements look "better", optimize capital structure, manipulate earnings, realize equity incentives and meet the financing needs.

From the perspective of economic consequences, choosing the fair value measurement model has a certain positive impact on the short-term market response, and the market will give relatively obvious and good feedback to companies that change the measurement model of real estate investment. In addition, thanks to the continuous development of China's real estate industry, the changes in the fair value of investment real estate can bring considerable benefits to companies and promote their long-term operation and development.

Meanwhile, in the process of research, there are also some uncertain problems. For example, companies including CFLD would increase their costs of information disclosure after choosing to use the fair value measurement model, and there is the uncertainty of gains and losses from changes in the fair value of investment real estate. It is suggested that China should improve the system of information disclosure, establish a platform of information sharing, and help companies reduce disclosure costs. The regulatory authorities should strengthen supervision to prevent companies from manipulating earnings artificially. And relevant companies should improve market sensitivity, pay close attention to macroeconomic policies, and choose investment real estate measurement model scientifically, prudently and reasonably.

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