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Pricing Efficiency and Investor Reactions in J-REIT Property Acquisitions: An Analysis of Acquisition Price and Fair Value

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The Japanese real estate investment trust (J-REIT) market is the second-largest REIT market globally and has played a key role in property acquisitions in Japan over the past two decades. This study examines pricing efficiency in J-REIT acquisitions over a period of 20 years and focuses on whether properties are acquired at underpriced or overpriced amounts relative to fair values and how investors reacted. This study finds that J-REITs acquire the most properties below fair value, with significant variation across types of assets and sellers. Notably, acquisitions from related parties tend to be less underpriced as opposed to those from third parties. This study also assesses investor reactions to underpriced acquisitions by analyzing the cumulative abnormal returns of J-REIT investment unit prices around acquisition announcements with seasoned equity offerings. Our findings indicate that investors are not highly attentive to differences between acquisition prices and fair values, as they do not react to the amount of underpriced acquisitions. This study contributes to understanding valuation dynamics in J-REIT acquisitions and offers insight into investor sentiment regarding pricing efficiency. The work underscores the importance of assessing the fairness and strategic implications of property acquisitions.

Keywords
REIT, Acquisition price, Fair value, Appraisal value, Valuation, Pricing efficiency

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1. Introduction

The Japanese real estate investment trust (J-REIT) market is the second-largest REIT market in the world, after the United States (U.S.), and is attracting attention from investors globally. According to the Association for Real Estate Securitization (2023), J-REITs owned 4,550 properties at the end of 2022, with a total value of 21.87 trillion Japanese yen.[1] These properties span various types of assets, including office, retail, residential, hotel, logistics/industrial, land-only, parking, and healthcare facilities. Their locations range from the central business district (CBD) in Japan and suburban areas to surrounding regions and other regional markets. Given this diversity, it is important to examine how J-REITs have conducted property transactions over the past 20 years.

Property acquisitions play a crucial role in J-REITs, especially for investors, as they have been reported to impact J-REIT investment unit prices. Property acquisition announcements have various information, such as asset type, location, seller type, and acquisition price. The seller type can be classified as either a related party or a third party. The acquisition price is a particularly important factor as previous research has suggested that REITs tend to acquire properties at a premium compared to other buyers. Therefore, it is essential to consider how an acquisition price is underpriced or overpriced relative to its fair value when acquiring a property.

In addition, it is necessary to examine cases where REITs have acquired properties at underpriced or overpriced amounts and whether investors react to these acquisitions. The extent to which a property is acquired underpriced or overpriced can be assessed by comparing the acquisition price to its fair value (Fair Value), as determined by a third-party real estate appraiser. Since J-REITs own many properties and are required to obtain and disclose their Fair Values, a comparative study of acquisition prices and Fair Values can be conducted accordingly.

This study first summarizes trends in J-REIT property acquisitions over the past 20 years, by focusing on asset type, location, seller type, and acquisition price. The work then examines the extent to which properties are acquired underpriced or overpriced amounts compared to their Fair Value, by considering factors such as asset type and location, capitalization rate based on net operating income (Cap Rate), acquisition price, and seller type. Finally, to assess whether investors react to underpriced or overpriced property acquisitions, this study analyzes the correlation between the cumulative abnormal returns of J-REIT unit prices around the acquisition announcements and the amount of underpriced or overpriced acquisitions. As a result, this study provides insights

[1] 1 JPY: 0.0075 USD at the end of 2022.

into the extent to which investors focus on differences between the acquisition prices and Fair Values.

This study contributes to the understanding of valuation dynamics in J-REIT property acquisitions and offers insights into investor sentiment regarding pricing efficiency. The work urges investors to carefully evaluate the fairness and strategic implications of J-REIT acquisitions.

2. Literature Review

The importance of property acquisitions in J-REITs has been highlighted in previous studies. Ohashi and Sawada (2004) and Tsao and Maekawa (2007) report that public announcements of J-REIT property acquisitions affect J-REIT unit prices. Property acquisitions are also closely linked to fundraising through equity offerings, which make them a critical factor for J-REITs. Ong et al. (2011) find that the amount of property acquisitions since the previous seasoned equity offering (SEO) influences REIT unit prices, while Soyeh et al. (2021) report that the timing of equity offerings is affected by the value of the underlying assets in the property market. These findings suggest that both the property acquisitions themselves and their transaction values play an important role in REIT performance.

Regarding the characteristics of REITs in Asia including Japan, Nagano (2013) empirically validates the employment of regional characteristics and use of real estate assets as proxies for asset liquidation value and confirm that these proxies are related to the capital and liability structures of J-REITs. Chen et al. (2016) report that while sponsored REITs opt for higher levels of leverage and loans with longer maturity, externally managed REITs are associated with lower leverage and loans with shorter maturity. In addition, Liow and Song (2019) report that within-Asia REIT markets appear to be more risk-connected than U.S./Asia REIT markets.

Regarding property acquisition prices by REITs, Hardin and Wolverton (1999) find that equity REITs pay a premium over market value when acquiring properties. Similarly, Akin et al. (2013) and Kim and Wiley (2019) report that REITs tend to acquire properties at higher prices than other buyers. On the other hand, Brady and Conlin (2004) find that properties acquired by REITs outperform those acquired by non-REITs. These findings indicate that while REITs often purchase properties at higher prices, they tend to acquire high-quality assets. Additionally, previous studies have identified factors that influence the property acquisitions of REITs, including CEO overconfidence and CEO age, which impact the aggressiveness of acquisitions (Eichholtz and Yönder, 2015; Zhang and Ooi, 2022).

Regarding property sellers in REIT transactions, Downs et al. (2016) report that Asian REITs frequently acquire properties from related parties. Furthermore, Nagano (2016) finds that property acquisitions from related parties are also linked to financing methods. Yonekura (2013) analyzes the Cap Rates in J-REIT property acquisitions from 2002 to 2013 and reports that acquisitions from related parties are relatively lower than those from third parties. However, a higher Cap Rate does not indicate an underpriced property acquisition, as an underpriced property acquisition means a property acquisition price lower than its Fair Value. The Fair Value is typically defined as the market price estimated by a third-party appraiser.

Saito (2010) compares acquisition prices and Fair Values in J-REIT property acquisitions from 2003 to 2009 and reports that most acquisitions are at or below their Fair Value, with few transactions above their Fair Value. Hisatsune (2015) identifies an unusually high number of transactions where the acquisition prices closely match their Fair Values, thus suggesting that the acquisitions from the related parties influence these pricing patterns, particularly during the global financial crisis in 2008. However, since only 29 cases involved acquisitions from related parties in Hisatsune (2015), a long-term analysis is necessary to draw more definitive conclusions.

Based on the above findings, this study examines the characteristics of the differences between acquisition prices and Fair Values in J-REIT property acquisitions by using 20 years of data. Furthermore, the study investigates whether these differences have an impact on J-REIT unit prices to understand investor reactions.

3. Data and Methodology

3.1 Data

In this study, we use data from TOREIT, a J-REIT data service provided by Tokyu Land Corporation, which contains a variety of information obtained from all J-REIT disclosures from their first listing in 2001 to the present. This study uses data on asset type and location, acquisition price, Fair Value at acquisition, Cap Rate, seller type, and acquisition date.

Among the 8,062 total property acquisitions from 2001 to the end of 2022, transactions are categorized into six property types: Office, Retail, Residential, Hotel, Logistics/Industrial, and Others. The Others category includes land-only properties, parking facilities, and healthcare properties. The locations of the acquired properties are classified into Tokyo CBD, Tokyo suburb, near Tokyo, and regional areas. Specifically, Tokyo CBD refers to the five central wards of Tokyo, Tokyo suburb covers the Tokyo metropolitan area outside the CBD, near Tokyo includes the Kanto region outside of Tokyo, and regional areas

encompass other major cities such as Osaka and Nagoya. The sellers are classified into related parties, third parties, and others.

To calculate the difference between the acquisition price and Fair Value at the time of acquisition, co-owned properties are excluded because their Fair Value typically represents the value of the entire property, rather than the proportion acquired by a J-REIT. As a result, the final sample size is reduced to 7,562 transactions. The Fair Value and Cap Rate at acquisition are obtained from third-party appraisals.

For the analysis of how differences between acquisition price and Fair Value impact J-REIT unit prices, this study focuses on the cumulative abnormal returns around property acquisition announcements with SEOs, when a large number of properties are acquired simultaneously. There are 233 SEO announcements over a 16-year period from October 2001 to October 2017. Among them, 209 cases where property acquisitions are disclosed on the same day or the day before the SEO announcement are selected as the sample. Data on J-REIT unit prices and other variables required for cumulative abnormal return calculations are obtained from the LSEG Datastream.

3.2 Methodology

This study first summarizes J-REIT property acquisition trends over the past 20 years, and analyzes the number of acquisitions, acquisition prices, property types, locations, and seller types. Then whether the acquisition prices were underpriced or overpriced is examined. The Underpriced Rate for each acquisition is calculated by using the following formula: Underpriced Rate = (Fair Value at acquisition - acquisition price) / acquisition price*100.

A positive value indicates that the property is acquired at a discount (underpriced), while a negative value indicates that the property is acquired at a premium (overpriced). The time-series characteristics of the Underpriced Rate are analyzed by examining the annual trends.

Based on time-series trends, the period since 2009 after the global financial crisis is selected for further investigation because the crisis was a turning point that has continued to shape acquisition trends to the present day. The sample is divided into deciles based on the Underpriced Rate, and the following characteristics are analyzed within each decile:
- Proportions of different asset types and locations
- Average Cap Rates
- Average acquisition prices (in million JPY)

Finally, the event study method is used to analyze changes in the J-REIT unit prices which is considered as the announcement of an SEO with a property acquisition, following Ohashi and Sawada (2004), Tsao and Maekawa (2007), Kawashima et al. (2011), and Ota and Takahashi (2018, 2025). The event period

is set to 3 and 11 days, which comprise 1 and 5 days before and after the event as well as the day of the event (announcement of the SEO), respectively. The return, assuming that no event occurred, is called the normal return. The normal return is calculated as the average return for 100 days, from Day 11 to Day 110, before the announcement of an SEO. The abnormal return is derived by subtracting the normal return from the actual return in the event period.

This analysis uses single-factor and multi-factor models to determine the normal returns. First, in the single-factor model, the Tokyo Stock Price Index (TOPIX) is used to represent the market portfolio, and the parameters are estimated as follows:

$$NR_{it} = \alpha + \beta T_t \quad (1)$$

where NR_{it} is the normal return of REIT i at time t. α and β are the estimated coefficients, and T_t is the return of TOPIX.

Regarding the multi-factor model for J-REIT, Tsao and Maekawa (2007), Kawashima et al. (2011), and Ota and Takahashi (2018, 2025) use the Tokyo Stock Exchange REIT Index (TSE REIT Index) for an index that represents the industry as an additional factor. Thus, following previous research, the TSE REIT Index in this study is as follows:

$$NR_{it} = \alpha + \beta_1 T_t + \beta_2 X_t \quad (2)$$

where α, β_1, and β_2 are the estimated coefficients; T_t is the return of TOPIX; and X_t is the return of the TSE REIT Index at time t.

The coefficients of determination in the total sample are 0.102 for the single-factor model and 0.457 for the multi-factor model. Therefore, a multi-factor model with a higher coefficient of determination is adopted in this study. The abnormal return is calculated by subtracting the normal return from the actual return during the event period as follows:

$$AR_{it} = R_{it} - NR_{it} \quad (3)$$

where AR_{it} is the abnormal return of REIT i at time t, and R_{it} is the actual return.

3.3 Institutional Background of J-REIT Property Acquisitions and Requirement for Fair Valuation

J-REITs are externally managed, and the asset management company conducts due diligence and obtains fair value from the appraiser before acquiring a property. At the time of acquisition, the J-REIT discloses both the acquisition price and fair value to show the appropriateness of the transaction to investors. When acquiring a property from a related party, the J-REIT takes care to avoid conflicts of interest by disclosing the name of the party, price at which they originally acquired the property, and timing of that acquisition.

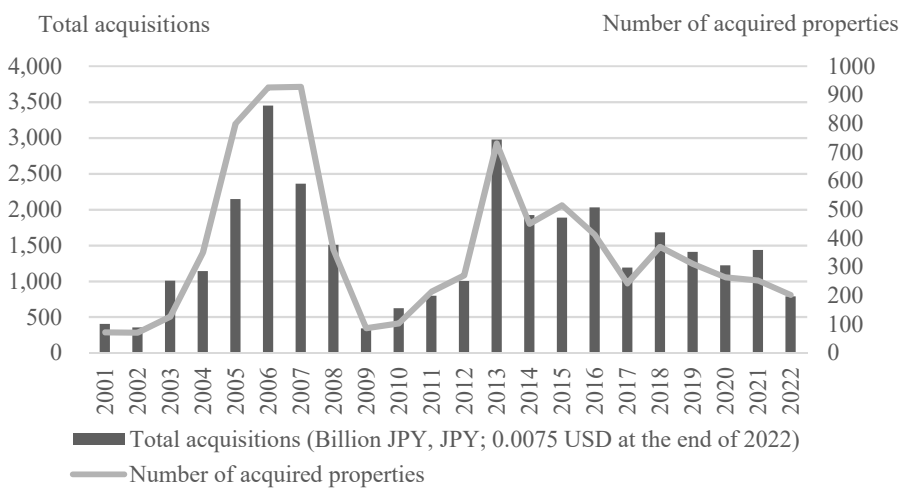
Regarding fair valuation, Wolverton and Gallimore (1999), Gallimore and Wolverton (2000), and Crosby et al. (2009) report that client influences could affect property appraisals. However, in the case of J-REITs, Article 42 of the Financial Instruments and Exchange Act prohibits REIT managers from influencing appraisers, thus ensuring greater objectivity in valuation. Therefore, this study does not consider such appraisal bias in the Fair Value assessments.

4. Results

4.1 Trends in Property Acquisitions in J-REIT

Figure 1 shows the total property acquisitions and number of properties acquired by J-REITs. A total of 8,062 properties are acquired from the first listing in 2001 through to the end of 2022. Since the number of properties owned by J-REITs at the end of 2022 is 4,550, the remaining 3,512 properties had already been sold. Summarizing the year-by-year trends in property acquisitions, 2006—the year before the global financial crisis—recorded the highest acquisition volume and the highest number of properties acquired. However, following the crisis, the acquisitions declined significantly in 2009. A subsequent increase in acquisitions can be observed in 2013. Since then, both the total property acquisitions and the number of acquired properties show a slight downward trend.

Figure 1 Trends in Total Property Acquisitions and Number of Properties Acquired by J-REITs[2]



[2] 1 JPY: 0.0075 USD at the end of 2022

Figure 2 shows the ratio of property acquisitions in J-REITs by asset type. In the early years of J-REITs (2001–2003), acquisitions were predominantly focused on office and retail properties, which are generally classified as commercial properties. From 2004 onward, residential property acquisitions have increased, followed by a notable rise in logistics and industrial property acquisitions starting in 2013. In recent years, particularly in 2020 and 2022, logistics and industrial properties represent the most frequently acquired asset type, likely influenced by the growth of e-commerce due to the COVID-19 pandemic.

Figure 2 Trends in Ratio of Property Acquisitions in J-REITs by Asset Type

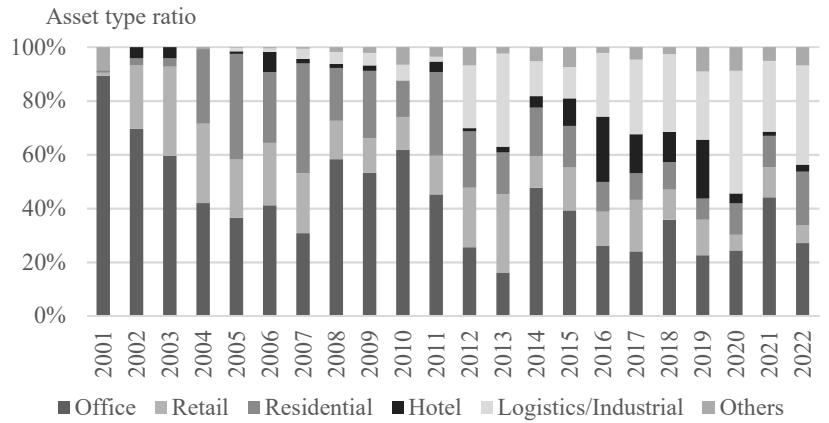


Figure 3 shows the ratio of property acquisitions by property location. In the early years of J-REITs, the majority of acquisitions were concentrated in Tokyo, including both the Tokyo CBD and suburban Tokyo. However, this ratio has been gradually declining since 2011. Recent data indicate that the share of acquisitions in Tokyo has fallen below 50%, which suggests increased acquisitions in the other areas. The rise in logistics and industrial property acquisitions may explain for the growing presence of properties in areas near Tokyo and regional areas, as such properties are less commonly found within Tokyo.

Figure 3 Trends in Ratio of Property Acquisitions in J-REITs by Location

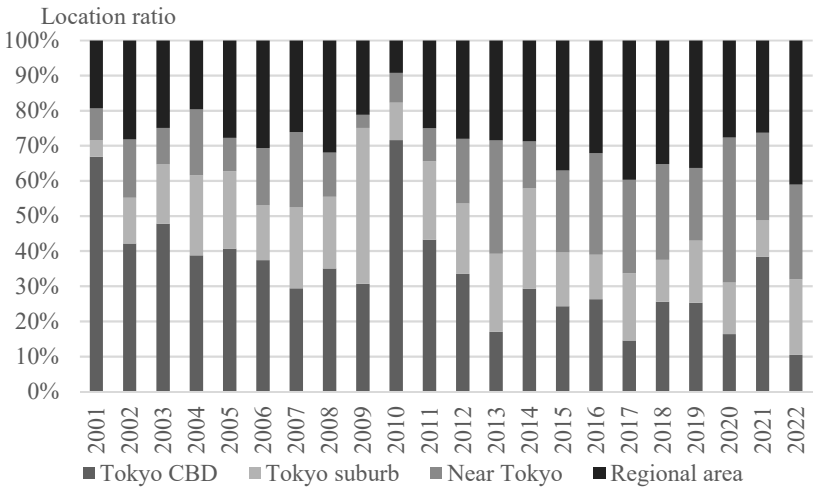
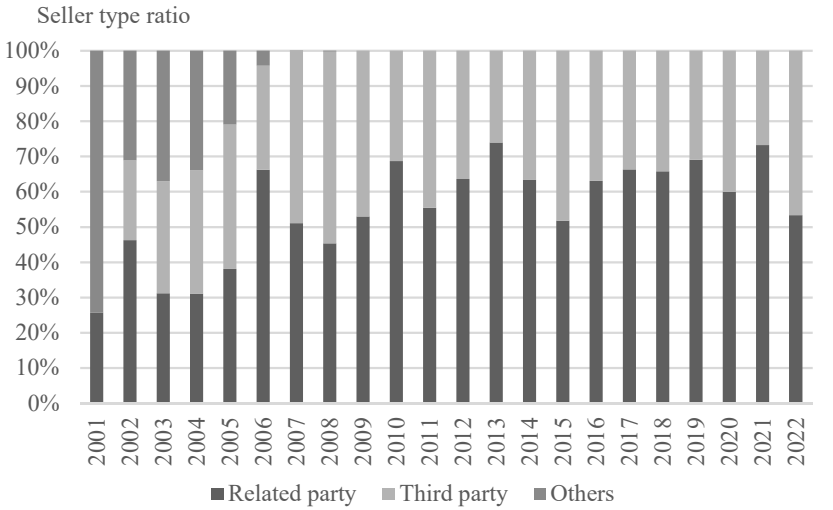


Figure 4 shows the ratio of acquired properties in J-REITs by seller type. The category "Others" includes properties acquired before listing or those with unclear classification. Many properties fell into this category in the early years of J-REITs. Since 2006, no significant trend has emerged in acquisitions by seller type, although some year-to-year variations are observed.

Figure 4 Trends in Ratio of Property Acquisitions in J-REITs by Seller Type



4.2 Examination of Underpriced or Overpriced Acquisitions in J-REITs

The Underpriced Rate of the acquisition price is calculated as follows: (Fair Value at acquisition - Acquisition value) / Acquisition value *100.

The maximum Underpriced Rate is 49.1%, while the minimum is -36.8%. The mean is 4.7%, with a standard deviation of 5.3%. Figure 5 shows a histogram of the Underpriced Rate for J-REIT property acquisitions. The highest frequency of acquisitions falls within the 0.0–2.0% range, with the number of acquisitions gradually declining as the Underpriced Rate increases. Meanwhile, only 22 cases (0.5% of the total) exhibit an Underpriced Rate below 0%, thus indicating that such occurrences are extremely rare. This finding suggests that J-REITs primarily acquire properties at prices below, yet close to, their Fair Value.

Figure 5 Histogram of Underpriced Rate of property acquisitions in J-REITs

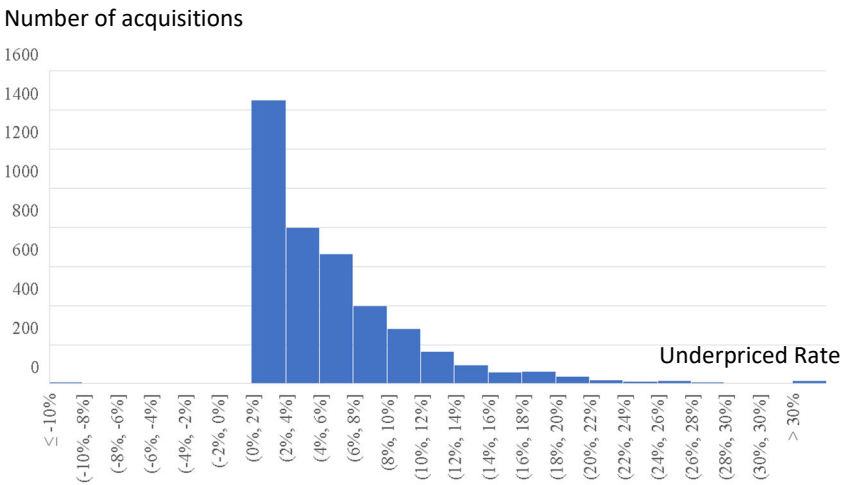
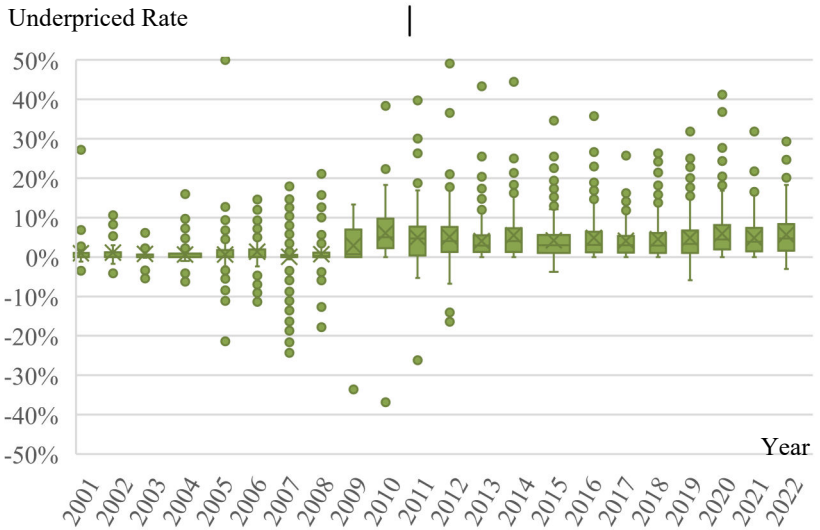


Figure 6 shows a box-and-whisker plot of the Underpriced Rate over time. From 2001 to 2008, the Underpriced Rate fluctuated at around 0%. However, after 2009, the number of acquisitions with negative Underpriced Rates significantly declines, with the interquartile range (first to third quartiles) consistently falling between 0% and 10%. This shift indicates a structural change in the acquisition pricing following the global financial crisis, as previously noted by Saito (2010) and Hisatsune (2015). One possible reason for this trend is that, since the 2008 global financial crisis, it has become difficult for J-REITs to raise funds from investors through SEOs. As a result, they have had to demonstrate the

attractiveness of the properties that they acquire, which may have reduced overpriced property acquisitions. The crisis was not an isolated event but rather a turning point that has continued to shape acquisition trends to the present day. The subsequent analysis will focus on the period from 2009 onward.

Figure 6 Box-and-whisker Plot of Underpriced Rate of J-REIT Property Acquisitions over Time



4.3 Characteristics of Underpriced Property Acquisitions in J-REITs

The sample of 4,118 properties acquired since 2009 is divided into deciles based on the Underpriced Rates of the property acquisition prices (Table 1) to see if there is a trend in the Underpriced Rate based on the nature of the property acquisition.

Figure 7 shows the ratio in deciles of Underpriced Rate by asset type. The results indicate that logistics and industrial properties tend to have lower Underpriced Rates, as they constitute a large proportion of the lowest decile. Conversely, properties classified as "Others" exhibit higher Underpriced Rates, mostly in the 8th to 10th deciles. Hotel acquisitions also show notable variation, with a low share in the first decile but a relatively high share in the third decile.

Table 1 Decile by Underpriced Rate of Property Acquisition Price

Quantile	Discount Rate	Sample Size
1	-36.8% ― 0.2%	412
2	0.2% ― 0.9%	412
3	0.9% ― 1.5%	412
4	1.5% ― 2.5%	413
5	2.5% ― 3.4%	411
6	3.4% ― 4.5%	412
7	4.5% ― 5.9%	410
8	5.9% ― 7.6%	413
9	7.6% ― 10.8%	413
10	10.8% ― 49.1%	410

Figure 7 Ratio in Deciles of Underpriced Rate by Asset Type

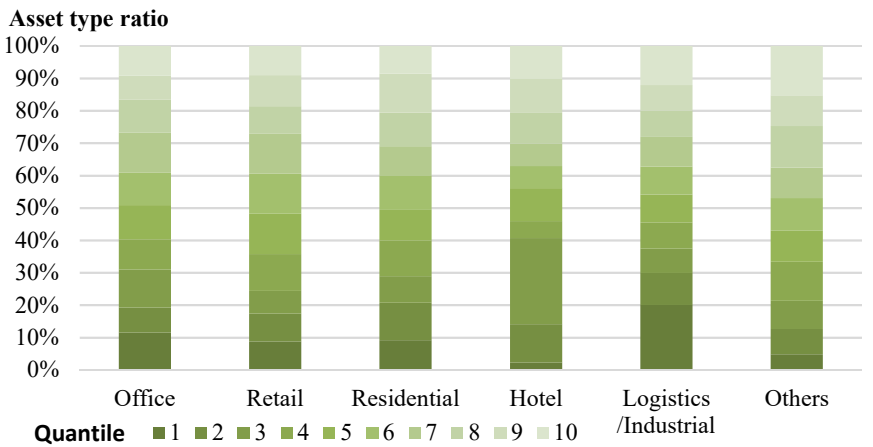


Figure 8 shows the ratio in deciles of Underpriced Rate by location. While minor differences are observed, no clear trend emerges across locations.

Figure 9 shows the average Cap Rate and acquisition date by the Underpriced Rate decile. Excluding properties without Cap Rate information reduces the sample size from 4,118 to 3,950. The results show that properties in the lowest decile tend to have older acquisition dates and higher Cap Rates. Given that Cap Rates have gradually declined between 2009 and 2022, this suggests that higher Cap Rates are associated with acquiring properties at lower prices relative to Fair Value.

Figure 8 Ratio in Deciles of Underpriced Rate by Location

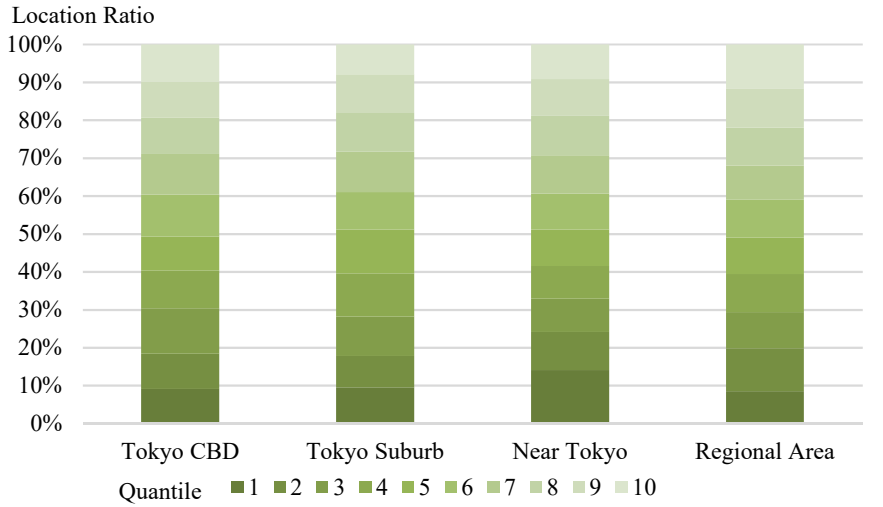


Figure 9 Average Cap Rate and Acquisition Date by Underpriced Rate Decile

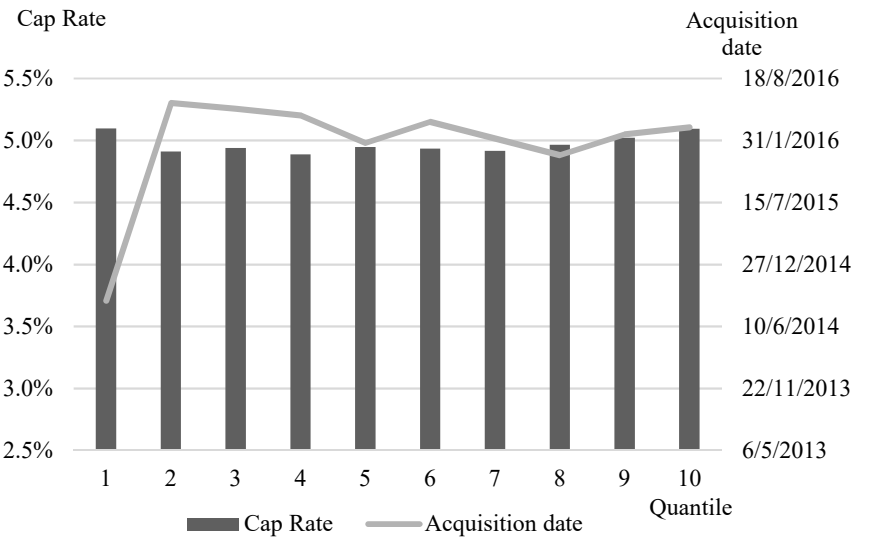
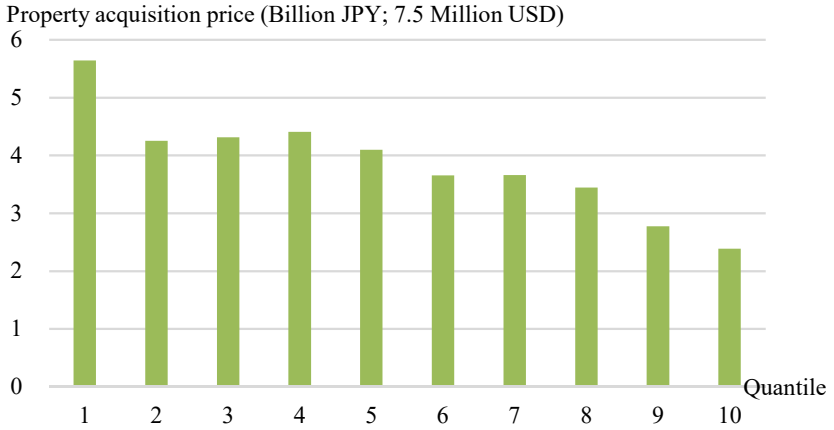


Figure 10 shows the average property acquisition price by decile. The results indicate that higher-priced properties are less likely to be acquired at a discount.

Figure 10 Average Property Acquisition Price by Underpriced Rate Decile



Next, the Underpriced Rate was examined by seller type. Properties acquired after 2009 were categorized as either acquired from related parties or third parties. Figure 11 shows the ratio of related parties and Third Parties across deciles. On average, 59% of acquisitions involve related parties, while 41% involve third parties. The proportion of related parties decreases, and that of third parties increases, from the first to the tenth decile. This indicates that properties acquired from related parties tend to have lower Underpriced Rates.

Figure 11 Ratio of Related Parties and Third Parties by Underpriced Rate Decile

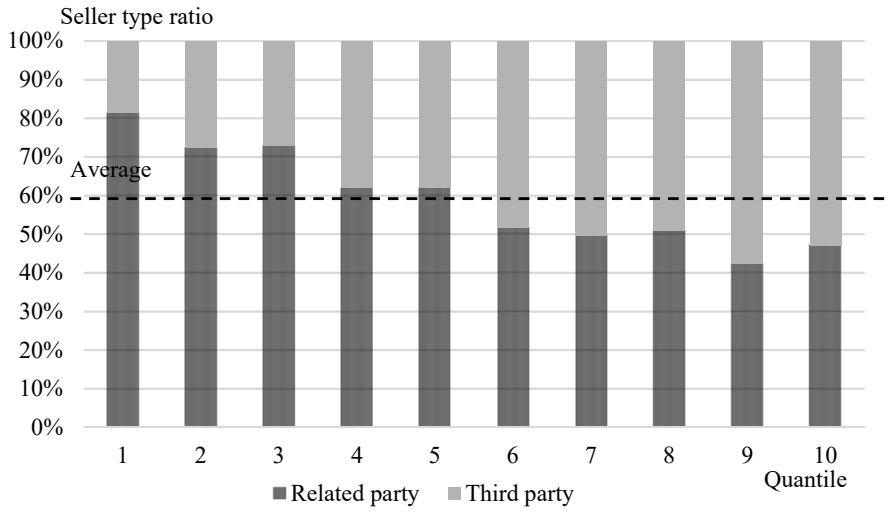


Table 2 shows the correlation coefficients among the Underpriced Rate, property acquisition price, Cap Rate, and related parties as a seller type. The results suggest that the Underpriced Rate is lower when acquisition prices are higher and sellers are related parties. However, the correlation coefficients are not particularly strong, potentially due to the high frequency of zero values in the Underpriced Rate. No significant correlations can be observed among the other variables.

Table 2 Correlation Coefficients of the Underpriced Rate, Property Acquisition Price, Cap Rate, and Related Party as a Seller Type

	Underpriced Rate	Property acquisition price	Cap Rate	Related party
Underpriced Rate		-	-	-
Property acquisition price	-0.134		-	-
Cap Rate	0.033	-0.188		-
Related party	-0.174	0.058	0.084	

Excluding samples without cap rate information, a stepwise multiple regression analysis was conducted with the Underpriced Rate as the dependent variable and asset type, location, cap rate, property acquisition price (log-transformed), and seller type as the explanatory variables, based on a sample of 3,950. The results of the best-fitting model, selected based on the minimum AIC, are presented in Table 3. The coefficient of determination is low at 0.075, which may be partly attributable to the clustering of Underpriced Rates around zero. Among the explanatory variables, acquisition from related parties and property acquisition price exhibit particularly large absolute t-values. These findings suggest that acquisitions from related parties and higher acquisition prices are associated with lower Underpriced Rates.

A two-sample t-test was conducted which assumed unequal variances to assess the difference in Underpriced Rates between acquisitions from related and third parties. The results showed a t-value of -10.660 and a p-value of 0.000, thus indicating a statistically significant difference at the 1% level (Table 4). This confirms the existence of a significant difference in underpriced rates between the acquisitions from the two seller types.

Table 3 Result of Multiple Regression Analysis for Underpriced Rate

Variables	Coefficient	Standard Error	t-value	p-value
(Intercept)	-0.044	0.075	-0.586	0.558
Acquisition from related party	-0.019	0.002	-11.464	0.000 ***
Property acquisition price (LN)	-0.011	0.001	-10.141	0.000 ***
Retail	-0.019	0.003	-7.516	0.000 ***
Office	-0.012	0.003	-4.009	0.000 ***
Hotel	-0.012	0.004	-3.442	0.001 ***
Acquisition date	0.000	0.000	3.236	0.001 ***
Tokyo CBD	0.108	0.037	2.912	0.004 ***
Suburban Tokyo	0.101	0.037	2.730	0.006 ***
Cap rate	0.005	0.002	2.729	0.006 ***
Regional area	0.099	0.037	2.696	0.007 ***
Near Tokyo	0.095	0.037	2.598	0.009 ***
Residential	-0.007	0.003	-2.373	0.018 **

Notes: *** Significant difference at 1% level, **Multiple correlation coefficient: 0.273, and Coefficient of determination: 0.075.

Table 4 T-test Result for Difference in Underpriced Rates in Acquisitions from Related and Third Parties

	Related party	**Third party**
Mean	3.96%	5.83%
Variance	0.22%	0.34%
Observations	2,358	1,592
Degrees of Freedom	2,907	
t Statistic	-10.660	
P(T <= t) two-tail	0.000	

4.4 Investor Reactions to Differences between Acquisition Prices and Fair Value

The cumulative abnormal returns of the J-REIT unit prices around the announcement of property acquisitions with SEOs were calculated for two event periods: 3 and 11 days. The basic statistics for the Underpriced Rates and the 3-day and 11-day cumulative abnormal returns, along with the property acquisition prices and Fair Values, are shown in Table 5. The average cumulative abnormal return is -1.3% for both the 3-day and 11-day periods, thus indicating negative values in both cases.

Table 5 Basic Statistics of Underpriced Rate and Cumulative Abnormal Returns of J-REIT Unit Prices around Property Acquisitions

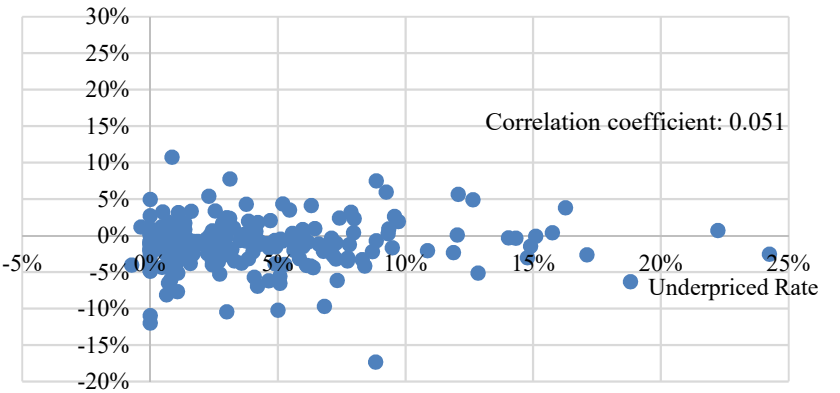
	Property Acquisition Price (100 million JPY)	Fair Value (100 million JPY)	Underpriced Rate	3-day Cumulative Abnormal Return	11-day Cumulative Abnormal Return
Minimum	5	5	-0.7%	-17.3%	-19.7%
Maximum	1101	1101	24.2%	10.7%	25.3%
Mean	243	252	4.2%	-1.3%	-1.3%
Median	196	206	3.0%	-1.1%	-1.5%
Standard Deviation	178	183	4.3%	3.4%	4.8%

A scatter plot of the Underpriced Rate and 3-day and 11-day cumulative abnormal returns is shown in Figure 12. Figure 12 does not show a discernible trend between the Underpriced Rates and cumulative abnormal returns. The correlation coefficients are as follows:
-Underpriced Rates and 3-day cumulative abnormal returns: 0.051, and
-Underpriced Rates and 11-day cumulative abnormal returns: 0.067.

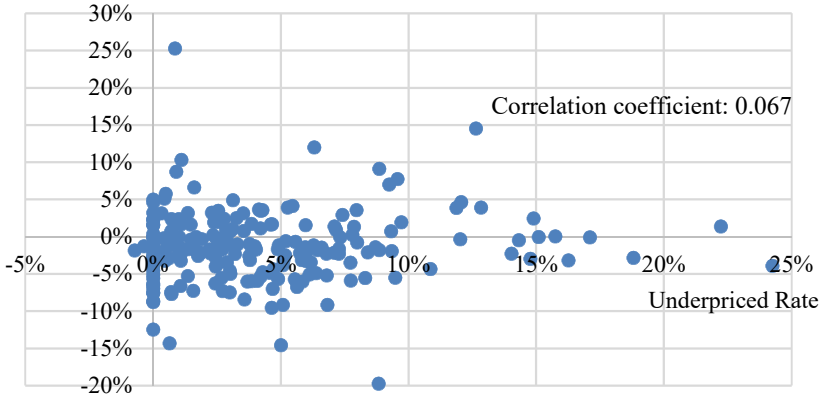
These values suggest that there is almost no correlation between the Underpriced Rates and cumulative abnormal returns.

Figure 12 Scatter Diagrams of Underpriced Rate and Cumulative Abnormal Returns of J-REIT Unit Prices around Property Acquisitions

Panel A: 3-day Cumulative Abnormal Returns



Panel B: 11-day Cumulative Abnormal Returns



Considering the lack of correlation between the Underpriced Rates and cumulative abnormal returns, which may be due to fewer property acquisitions, the sample was restricted to cases where the median property acquisition exceeds 20 billion JPY (150 million USD at the end of 2022; number of samples: 99). The correlation coefficients in this subset are as follows:
- Underpriced Rates and 3-day cumulative abnormal returns: 0.089, and
- Underpriced Rates and 11-day cumulative abnormal returns: 0.058.

These results, consistent with the analysis with the full sample, indicate almost no correlation.

Based on this analysis, the Underpriced Rates show virtually no relationship with the cumulative abnormal returns, which suggests that underpriced property acquisitions do not have a positive impact on the J-REIT unit prices. This implies that investors do not focus on the differences between acquisition prices and Fair Values, as they do not react to underpriced property acquisitions.

The SEO-related factors also influence changes in investment unit prices. Stepwise multiple regression analyses are conducted with the Underpriced Rate on the set of variables previously identified in a previous study (Ota and Takahashi, 2025) as influencing the unit prices at the time of SEOs: dividend change in the next financial period, change in the TSE REIT Index, the ratio of market value to the capital stock ratio, amount of the SEO, borrowing ratio, and asset type dummies (Table 6). In the best-fitting models with the lowest AIC, the Underpriced Rate is not adopted. To further examine its effect, multiple regression analyses are conducted by manually adding the Underpriced Rate to these models (Table 7). The results show that the Underpriced Rate is not statistically significant, thus confirming that it does not influence the unit prices. All variance inflation factors (VIFs) are below 3, which indicates no multicollinearity among the explanatory variables.

Table 6 Summary of Proposed Explanatory Variables

Variable	Overview
Underpriced rate	The ratio of the difference between the fair value at acquisition and the acquisition price to the acquisition price
Dividend change in the next financial period	Dividend change rate in the next financial year forecast after an SEO
Dividend change dummy for the following period (not disclosed)	Dummy variable without an announcement of dividend change rate in the next two financial years forecast after an SEO
Change in Tokyo Stock Exchange REIT Index	The most recent 30 business days change in the Tokyo Stock Exchange REIT Index
The ratio of market value to the capital stock	Market value is divided by capital stock in the most recently published financial statement
Amount of the SEO	The amount of capital increase (the number of units issued for new investment equity × closing price) is divided by the market value
Borrowing ratio	Interest-bearing debt in the latest management account is divided by total assets
Asset-based dummy (asset type)	Asset type dummy variable: Comprehensive, Complex, Offices, Housing, Hotels and Inns, Logistics, Commercial, Healthcare and Hospitals

The borrowing ratio in this model is adopted as a possible endogenous explanatory variable. As the decision to conduct SEO or borrow a loan from a bank may be made, depending on the interest rate and cost of capital, a Wu–Hausman test was conducted by using a two-stage least squares regression with borrowing ratio as the endogenous variable, and yield spread and yield spread change as the control variables. This study uses the difference between dividend yield and the six months unsecured call rate for the yield spread and most recent 30 business days change in the yield spread for the yield spread change. The test result reveals a test quantity of 1.542 and a p-value of 0.216 for the 3-day cumulative abnormal returns and a test quantity of 2.062 and a p-value of 0.153 for 11-day cumulative abnormal returns. The borrowing ratio may potentially affect the dividend change, and vice versa. Therefore, the endogenous variable is changed to the dividend change in the next financial period and the Wu–Hausman test conducted again. The test result reveals a test quantity of 1.390 and a p-value of 0.240 for the 3-day cumulative abnormal returns and a test quantity of 1.856 and a p-value of 0.175 for the 11-day cumulative abnormal returns. The results are not significant at the 5% level and, as such, the hypothesis of endogeneity is not confirmed.

Table 7 Regression Results for 3-day and 11-day Cumulative Abnormal Returns

Panel A: 3-day Cumulative Abnormal Returns
Multiple correlation coefficient: 0.458, Coefficient of determination: 0.210

Variables	Coefficient	Standard Error	t-value	p-value
(Intercept)	-0.045	0.014	-3.260	0.001
Dividend change in the next financial period	0.094	0.028	3.325	0.001***
Change in Tokyo Stock Exchange REIT Index	0.092	0.033	2.824	0.005***
Ratio of market value to capital stock	0.008	0.003	2.383	0.018**
Asset based dummy (Residential)	-0.011	0.006	-1.807	0.072*
Amount of the SEO	0.015	0.009	1.674	0.096*
Dividend change dummy for the following (not disclosed)	-0.008	0.005	-1.614	0.108
Asset based dummy (Hotel)	0.015	0.010	1.524	0.129
Asset based dummy (Office)	-0.008	0.006	-1.421	0.157
Borrowing ratio	0.041	0.030	1.345	0.180
Underpriced rate	0.019	0.052	0.365	0.716

Panel B: 11-day Cumulative Abnormal return
Multiple correlation coefficient: 0.537, Coefficient of determination: 0.288

Variables	Coefficient	Standard Error	t-value	p-value
(Intercept)	-0.074	0.019	-3.994	0.000
Dividend change in the next financial period	0.179	0.038	4.690	0.000***
Change in Tokyo Stock Exchange REIT Index	0.154	0.044	3.520	0.001***
Ratio of market value to capital stock	0.014	0.005	3.028	0.003***
Asset based dummy (Hotel)	0.027	0.013	2.027	0.044**
Amount of the SEO	0.023	0.012	1.917	0.057*
Dividend change dummy for the following (not disclosed)	-0.012	0.007	-1.838	0.068*
Borrowing ratio	0.071	0.041	1.727	0.086*
Asset based dummy (Residential)	-0.011	0.008	-1.364	0.174
Underpriced rate	0.046	0.070	0.650	0.516

***Notes*:** Significant difference at ***1%, **5%, and *10% levels

In the case of J-REITs, it has been confirmed that underpriced property acquisitions do not affect investment unit prices. The analysis in Section 4.3 shows that key factors that influence the underpriced rate include acquisitions from related parties and the size of the property acquisition. These suggest that the properties acquired are not underpriced. In Japan, as reported by Takizawa et al. (2016), larger properties are generally considered higher-grade in office buildings. Accordingly, a higher property acquisition price is likely to reflect a larger property size and higher quality. Investors may therefore accept the lack of underpriced property acquisitions if the property is sufficiently high grade. However, in the case of acquisitions from related parties, a low Underpriced Rate may raise concerns about potential conflicts of interest. These findings suggest that investors should pay more attention to the Underpriced Rate when evaluating property acquisitions.

5. Conclusion

This study has summarized the trend of J-REIT property acquisitions over the past 20 years and examined the extent to which a property is acquired underpriced or overpriced relative to its Fair Value, along with the underlying factors. Additionally, the work examines the correlation between the degree of underpricing or overpricing of the acquisition prices and the cumulative abnormal returns of J-REIT unit prices around the acquisition announcements to assess investor reactions to these differences.

The key findings are as follows:

- Trends in property acquisitions in J-REIT

After summarizing the year-by-year trends in property acquisitions, the results indicate that the number of acquired properties declined significantly in 2009 following the global financial crisis. A sharp increase in acquisitions can be observed in 2013. Since then, both property acquisition and the number of acquired properties have exhibited a slight downward trend. In the early years of J-REITs (2001–2003), acquisitions primarily focused on office and retail properties, which are generally classified as commercial properties. From 2004 onward, residential property acquisitions have increased, followed by an increase in logistics and industrial property acquisitions since 2013.

- Examination of Underpriced Rate of acquisition prices

The largest number of acquisitions have Underpriced Rates between 0.0% and 2.0%, with the frequency of acquisitions decreasing as the Underpriced Rate increases. Conversely, 22 cases (0.5% of the total) exhibit Underpriced Rates below 0%, thus indicating acquisitions above fair value, which is considered extremely rare. These findings suggest that J-REITs generally acquire properties at prices below fair value, albeit often close to fair value.

- Characteristics of underpriced property acquisitions

A notable characteristic of the Underpriced Rate is that acquisitions from related parties tend to exhibit lower Underpriced Rates. Additionally, the

Underpriced Rate has an inverse relationship with the acquisition price. This means that a higher average acquisition price results in a lower Underpriced Rate. A higher property acquisition price is likely to reflect a larger property size and higher quality, and such properties are not usually acquired at a discount.

- Investor reactions to the differences between acquisition prices and Fair Value

Multiple regression analyses are conducted for the 3-day and 11-day cumulative abnormal returns of J-REIT unit prices with Underpriced Rates. The results show that the Underpriced Rate is not statistically significant, thus confirming that it does not influence the unit prices. This suggests that investors are not highly attentive to the differences between acquisition prices and Fair Values.

This study clarifies the trends in J-REIT property acquisitions and the characteristics of the differences between acquisition prices and Fair Values. Property acquisition from related parties generally raises concerns regarding potential conflicts of interest in acquisition prices. Therefore, for the healthy growth of the J-REIT market, it is important for investors to be aware of and actively monitor J-REIT acquisition prices to mitigate conflicts of interest.

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