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The impacts of the 2008 and 2011 crises on the Japan REIT market[☆]

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ABSTRACT

This empirical paper studies the fundamental value of the J-REIT price from impact of the 2008 financial crisis and the 2011 Japan earthquake between May 2003 and December 2014. The results show that the fundamental value of the J-REIT is determined only by the real estate price in the long-run. The short-run deviations from the fundamental value of the J-REIT price occur during the 2008 crisis and the 2011 earthquake because the trading volume by foreigners exceeded 50%. The deviations from the fundamental value were less persistent during 2008 and 2011 because the 2011 earthquake caused Japanese investors to focus on earthquake risk while foreigners departed from investing in the J-REIT market.

1. Introduction

The Real Estate Investment Trust (REIT) provides to its beneficiaries a stream of income derived from rents with long contracts that work similar to real estate ownerships. Since the REIT can diversify its risk in various trust funds traded in the market, the REIT effectively incorporates the merits of stock investment into real estate investment. The price of REIT is literally known as the hybrid price (Giliberto, 1990). The determinants of the REIT price have extensively been studied, especially the impact of the stock market or the real estate market on the REIT price. Studies by Peterson and Hsieh (1997), Karolyi and Sander (1998), and Ling et al. (2000), for example, showed that the stock price has a stronger effect on the REIT price than the real estate price. In the case of the US, Barkham and Geltner (1995) used Granger-causality to show that the real estate price cannot be the determinant of the REIT price. In addition, Redman and Manakyan (1995) showed from investments in western United States that healthcare properties are the most significant variable in explaining the REIT return. In studying the effect of changeable determinants, Clayton and Mackinnon (2003) used the variance decomposition and a rolling regression to separate the REIT return variability into components directly related to stock, bond, and real estate-related return indices, and the findings clearly show that the returns to securitized real estate reflected the underlying un-securitized assets.

There are also studies on the Japan REIT (J-REIT) market since 2001. For example, based on the J-REIT price of 2001–2004, Ohashi et al. (2005) failed to identify the significant effect of the real estate prices and the vacancy rates. The STB Research Institute (2007) found that the J-REIT price has a stronger positive relationship on the real estate price than the sum of the stock and bond price returns in the period 2004–2007. In considering the J-REIT as a specific topic, Tang et al. (2014) found that the positive market reaction to debt refinancing by the REIT was more pronounced during the credit crunch in the period 2007–2009. Ooi et al. (2011) showed that the sources of economic gains associated with the acquisitions by the REIT included the gain in economies of scale and a better management by the acquiring firm. Thus, while the fundamental value for the US-REIT price is widely examined, there are very few studies for the J-REIT.

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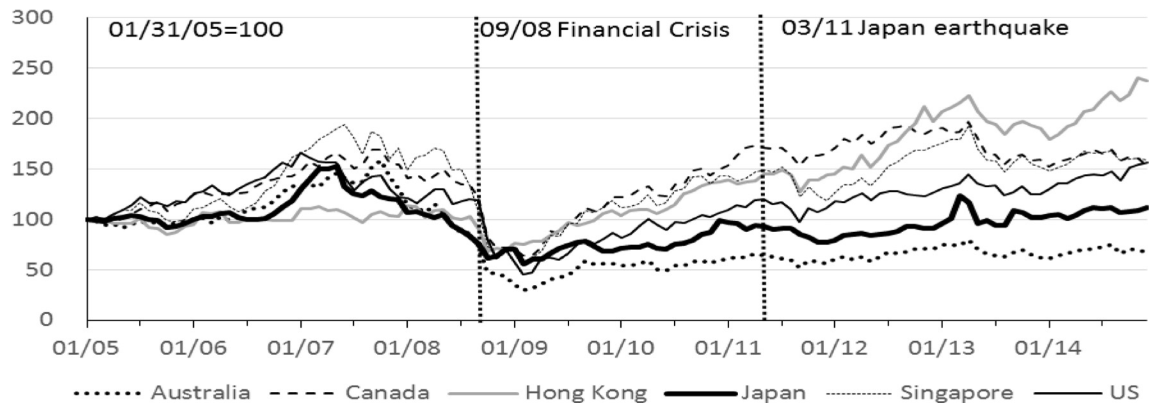

Fig. 1. The REIT indices compared
Source: S&P Capital IQ, S&P Global Market Intelligence.

In relation to the 2008 global financial crisis, Case et al. (2012a, b) studied the effect of the 2008 crisis on the dividend policy in the US-REIT market. Chang and Chen (2014) examined evidence of contagion in global REITs returns over the period 2006–2010 using daily REITs indices for 16 countries. The 2008 crisis that triggered by the 'subprime loan' shock in the housing markets changed the financing method. Indeed, beginning from the 1990 s when the US-REIT was developed, there has been a lack of evidence on real estate shock on the REIT price, except in Kallberg et al. (2008) whom studied the New York REITs in response to the catastrophic events of September 11, 2001, and revealed that on the day when markets reopened, the REITs with significant exposure in the New York area outperformed the broader REIT office index by 4.1%, and it lasted till mid-November before the abnormal REIT returns disappeared. These studies showed that the US-RIET responded to stock prices more sensitively, but not deviated from its fundamental value in the long-run.

On the contrary, the Great Earthquake in Japan with a recorded magnitude scale of 9.0 on March 11, 2011, had negatively affected Japan's real estate market, as many properties were destroyed by the tsunami, especially in the cities located along the eastern oceanfront. Although such a natural disaster occurred only every 200–300 years in Japan, the 2011 earthquake crisis could provide a comparative event study on the J-REIT prices with situations in other countries. Fig. 1 shows that although the J-REIT made a quick recovery after the 2008 crisis, its price dropped and stayed low when compared to the prices of other REITs in US, Singapore and Hong Kong. The J-REIT market was the only world market that experienced the two shocks in 2008 and 2011. However, as well as the researches for the US-REIT, there are very few papers which investigate why and how the J-RIET deviated from its fundamental value in the very long-run.

Although the price of REIT is literally known as the hybrid price, meaning that the fundamental value of the REIT is determined both by the real estate price and the stock price, it will be interesting to see if the J-RIET will deviate from its fundamental value in the very long-run. This paper investigates the fundamental value for the J-REIT price with monthly data from May 2003 to December 2014. This study is based on the 2008 and 2011 shocks in the J-REIT market in three aspects: (i) what determines the fundamental value for J-REIT in the long-run; (ii) why did the short-run deviations occur during the 2008 crisis and the 2011 earthquake; and (iii) why the deviations were less persistent than the REIT in other countries. This investigation provides important findings that can have effect on the basic structure of the J-REIT market which has not been investigated by the previous papers. Moreover, the first two aspects will be useful to international property investors and policy-makers as they might be interested in the J-REIT after the 2011 earthquake. For example, whether the REIT price would be dominated by real estates that faced the impact of earthquake tsunami or by the stock price could be an interesting decision for the investors. Indeed, the decrease in real estate price as a result of the earthquake tsunami would delay the recovery of the J-REIT prices, as shown in Fig. 1, despite of the increase of stock price as shown in Fig. 3(a) when compared to other markets. The third aspect will show whether the shock is permanent or temporary. If the shock has a permanent effect, the J-REIT price would not have a positive recovery sign, as shown in Fig. 3(a).

Section 2 briefly reviews the development of the J-REIT market. Section 3 describes the econometric methodology. Section 4 describes the monthly data and presents preliminary analyses. Section 5 reports the empirical results and examines how the real estate price and the stock price are affecting the REIT prices from the two events in 2008 and 2011. Section 6 presents the concluding remarks.

2. Overview of the J-REIT Markets

The J-REIT was first listed in September, 2001, in the Tokyo Stock Exchange, and by March 2014, a total of 42 J-REITs were listed. As of November, 2014, the scale of Japan's REIT market has become the largest in Asia, and is the world's third largest in the amount of outstanding, as shown in Table 1. The share of the US-REIT in the world reached 60.2% at the end of November 2014, which surpassed the second largest of Australia (6.3%) and the third of Japan (6.1%). The world's largest eight REITs occupied 93% of the world total.

Similar to other world REITs, the J-REIT has various types of real estates in its portfolio. The 'specialized type' includes offices, houses, commercial facilities and hotels, and the 'unified or composite type' includes several kinds of real estates based on assets holding. All major REIT countries shown in Fig. 1 have experienced a drastic fall in the REIT prices after the 2008 crisis (Lehman shocks), but the REIT prices had quickly recovered in Singapore and Hong Kong and even in the US. The J-REIT price, however, was under further attack after the 2011 earthquake and remained stagnant.

Fig. 2(a) shows the fluctuation in the market capitalization between the J-REIT market and the total stock market in the 1st Section of the Tokyo Stock Exchange. For the fifteen years from 2001 to 2015, market capitalization has achieved over 9 trillion Japanese yen, while the ratio of the J-REIT market to TOPIX has remained at 2.5%, which could have been constrained by the 2008 and 2011 events. On the other hand, Fig. 2(b) shows the ratio between the J-REIT market capitalization and all stocks for TOPIX as well as the