

An empirical investigation of relationship between REITs return and stock return : case of USA and Japan

Nguyen Duc Hanh、陳美玲

E-mail: 317705@mail.dyu.edu.tw

ABSTRACT

The main purpose of this study is to explore the relationship between REIT return and Stock market return in United States and Japan. By employing the Granger Causality test to exam the causality between REIT return and Stock market return variables in United States and Japan, respectively. Next, we are applied Ordinary Least Square test to investigate the long-term relationship between REIT return and Stock market return in United States and Japan, respectively. Moreover, VAR model and Impulse Response Function used to investigate the relationship between REIT return and Stock return in short-term and provide the result from a shock to the variables in the system. Our empirical results find that REIT return cause in Stock market return in both countries but it is not true in vice versa. Therefore, investor can rely on the past performance of stock return to predict the behavior of REIT return in both countries. Furthermore, the results of Ordinary Least Square test reveal that exist the long-term relationship between REIT return and Stock return in United States and Japan, while we also found a positive relationship between Japan REIT return and United States stock return. Finally, Impulse Response Function results reveals that the response to shock of United States stock return is stronger and longer than Japan stock return.

Keywords : REIT return、 stock return、 Granger causality、 VAR model、 impulse response function

Table of Contents

中文摘要	iii	Abstract	iii
iv Acknowledgement	v	Content	v
vi Table	viii	Figure	viii
ix Chapter 1 Introduction	1	1.1 Background and Motivation	1
1.2 Objectives	6	1.3 Chapter outline	6
6 Chapter 2 Literature Review	8	2.1 The relationship between REIT return and Stock return	8
Methodology	12	3.1 Data Description	12
Methodology	13	3.2	12
4.1 Descriptive statistics	22	Chapter 4 Empirical Results	22
25	22	4.2 ARCH tests	22
4.3 Unit Root Test	26	4.3	26
27	26	4.4 Granger Causality Test	26
4.5 Ordinary Least Square Test	29	4.5	29
30	29	4.6 Vector Autoregressive Model Test	30
42	30	Chapter 5 Conclusion and Suggestions	42
43	42	5.1	42
44	42	5.2 Suggestions	42
44	44	5.3	44
44	44	5.4	44
44	44	5.5	44
44	44	5.6	44
44	44	5.7	44
44	44	5.8	44
44	44	5.9	44
44	44	5.10	44
44	44	5.11	44
44	44	5.12	44
44	44	5.13	44
44	44	5.14	44
44	44	5.15	44
44	44	5.16	44
44	44	5.17	44
44	44	5.18	44
44	44	5.19	44
44	44	5.20	44
44	44	5.21	44
44	44	5.22	44
44	44	5.23	44
44	44	5.24	44
44	44	5.25	44
44	44	5.26	44
44	44	5.27	44
44	44	5.28	44
44	44	5.29	44
44	44	5.30	44
44	44	5.31	44
44	44	5.32	44
44	44	5.33	44
44	44	5.34	44
44	44	5.35	44
44	44	5.36	44
44	44	5.37	44
44	44	5.38	44
44	44	5.39	44
44	44	5.40	44
44	44	5.41	44
44	44	5.42	44
44	44	5.43	44
44	44	5.44	44
44	44	5.45	44
44	44	5.46	44
44	44	5.47	44
44	44	5.48	44
44	44	5.49	44
44	44	5.50	44
44	44	5.51	44
44	44	5.52	44
44	44	5.53	44
44	44	5.54	44
44	44	5.55	44
44	44	5.56	44
44	44	5.57	44
44	44	5.58	44
44	44	5.59	44
44	44	5.60	44
44	44	5.61	44
44	44	5.62	44
44	44	5.63	44
44	44	5.64	44
44	44	5.65	44
44	44	5.66	44
44	44	5.67	44
44	44	5.68	44
44	44	5.69	44
44	44	5.70	44
44	44	5.71	44
44	44	5.72	44
44	44	5.73	44
44	44	5.74	44
44	44	5.75	44
44	44	5.76	44
44	44	5.77	44
44	44	5.78	44
44	44	5.79	44
44	44	5.80	44
44	44	5.81	44
44	44	5.82	44
44	44	5.83	44
44	44	5.84	44
44	44	5.85	44
44	44	5.86	44
44	44	5.87	44
44	44	5.88	44
44	44	5.89	44
44	44	5.90	44
44	44	5.91	44
44	44	5.92	44
44	44	5.93	44
44	44	5.94	44
44	44	5.95	44
44	44	5.96	44
44	44	5.97	44
44	44	5.98	44
44	44	5.99	44
44	44	6.00	44

REFERENCES

- Ambrose, A. E., & Griffiths, M. (1992). The Fractal Structure of Real Estate Investment Trust Returns: The Search for Evidence of Market Segmentation and Nonlinear Dependency. *Journal of the American Real Estate and Urban Economics Association*, 14(1), 25-54.
- Apergis, N., & Lambrinidis, L. (2007). More Evidence on the Relationship between the Stock and the Real Estate Market. *Journal of Social Science Research Network*, 17(2), 24-50.
- Bley, J., & Olson, D. O. (2003). An Analysis of Relative Return Behavior: REITs vs Stocks. EFMA 2003 Helsinki Meetings. *Journal of Social Science Research Network*, 15(4), 11-48.
- Corgel, J. B., & Rogers, R. C. (1991). Market Trading Characteristics of REITs Tests of the Stock Market and Hybrid Securities Hypotheses. Working paper, Cornell University.
- Clayton, J., & MacKinnon, G. (2002). The Relative Important of Stock, Bond, and Real Estate Factors in Explaining REIT Returns. *Journal of Real Estate Finance and Economics*, 24(4), 112-132.
- Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association*, 74(336), 427-431.
- Dickey, D. A., & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica*, 49 (4), 1057-1072.
- Engle, R. F., & Granger, C. W. J. (1982). Co-integration and error correction: Representation, estimation,

and testing. *Econometrica*, 55(2), 251-276. Ghosh, C., Miles, M., & Sirmans, C. F. (1996). Are REITs Stocks? *Real Estate Finance*, fall, 46-53.

Gyourko, J., & Keim, D. (1992). What Does the Stock Market Tell Us about Real Estate Returns? *Journal of the American Real Estate and Urban Economics Association*, 11(3), 457-485. Gyourko, J., & Linneman, P. (1988). Owner-occupied Homes, Income-producing Properties, and REITs as Inflation Hedges: Empirical Findings. *Journal of Real Estate Finance and Economics*, 23(1), 347-372. Glascock, J. L., Lu, C., & Raymond, W. S. (2000). Further evidence on the integration of REIT, bond, and stock returns. *Journal of Real Estate Finance and Economics*, 20(2), 177-194.

Hudson, W., & Susan, T. C. (2001). Why Real Estate? *The Journal of Portfolio Management*, 29(2), 20-32. Hartzell, J. C., Kallberg, J. G., & Liu, C. H. (2005). The role of underlying real asset market in REIT IPOs. *Real Estate Economics*, 33(1), 27-50. Kim, J. W., Leatham, D. J., & Bessler, D. A. (2007). REITs' dynamics under structural change with unknown break points. *Journal of Housing Economics*, 16(1), 37-58. Kei, S. C., Hung, C. Y., & Sin, T. B. (2008). Time-varying performance of four Asia-Pacific REITs. *Journal of Property Investment & Finance*, 26(3), 210-231.

Ling, D. C., & Naranjo, A. (1999). The integration of commercial real estate markets and stock markets. *Journal of Real Estate Finance and Economics*, 27(3), 483-515. Liu, C. H., & Mei, J. (1992). The predictability of Returns on Equity REITs and Their Co-Movement with Other Assets. *Journal of Real Estate Finance and Economics*, 14(5), 401-418. Liu, Y. A., & Pan, M. (1997). Mean and volatility spillover effects in the U.S. and Pacific-Basin stock markets. *Multinational Finance Journal*, 24(1), 47-62. Li, J., Mooradian, R. M., & Shiawee, X. Y. (2003). Economic Forces, Asset Pricing, and REIT Returns. *The Journal of Econometrics*, 18(2), 110-120. Liu, C. H., Hartzell, D. J., Greig, W., Grissom, T. V. (1990). The integration of the real estate market and stock market: Some preliminary evidence. *Journal of Real Estate Finance and Economics*, 35(3), 216-282.

Liow, H. K., & Yang, H. (2005). Long-Term Co-Memories and Short-Run Adjustment: Securitized Real Estate and Stock Markets. *The Journal of Real Estate Finance and Economics*, 31(3), 215-229. McIntosh, W., & Liang, Y. (1998). REITs: What Are They? *The Journal of Real Estate Finance and Economics*, 29(4), 211-229. Okunev, J., Wilson, P., & Zurbrugg, R. (2000). Relationships between Australian Real Estate and Stock Market Prices - A Case of Market Inefficiency. *Journal of Forecasting*, 14(2), 181-192. Ooi, T. L. J., Newell, G., & Sing, T. F. (2006). The Growth of REIT Markets in Asia. *Journal of Real Estate Literature*, 14 (2), 175-180. Phil, S. (1999). REITs: Outstanding value or same old story? *Journal of Financial Planning*, 12(1), 38-39. Paladino, M., & Herbert, M. (1998). REIT stocks do not diversify stock portfolios: An update. *Journal of Real Estate*, 27(4), 39-40. Pan, M. S., & Hsueh, L. P. (1998). Transmission of Stock Returns and Volatility between the U.S and Japan: Evidence from the Stock Index Futures Markets. *Journal of Asia-Pacific Financial Markets*, 5(1), 211-215. Von, F. G. M., & Jeon, B. N. (1989). International Stock Price Movements: Links and Messages. *Paper on Economic Activity*, 11(1), 125-179. Ziering, B., Winograd, B., & McIntosh, W. (1997). The Evolution of Public and Private Market Investing in the New Real Estate Capital Markets. *The Journal of Portfolio Management*, 40(2), 111-125.

Fei, P., Ding, I., & Deng, Y. (2010). Correlation and Volatility Dynamics in REIT Returns: Performance and Portfolio Considerations. *The Journal of Portfolio Management*, 36(2), 113-125.