Real Estate Risk Exposure of Equity Real Estate Investment Trusts

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Abstract

This study examines the linkage between equity real estate investment trust (REIT) returns and the private real estate factor. The results reveal a tighter connection between REIT and the private real estate market starting from 1993. In addition, large-cap REITs seem to behave more like real estate than do small-cap REITs. Overall, the results are consistent with three notions: (1) that institutional investors provide information-gathering services (Bradrinath et al., *Rev. Financ. Stud.*, 8:401–430, 1995), (2) that a more sophisticated investor base improves information flow, and (3) that a high degree of participation from institutional investors strengthens the linkage between REIT returns and the underlying real estate factor (Ziering et al., *The evolution of public and private market investing in the new real estate capital markets*, Prudential Real Estate Investors, Parsippany, NJ, 1997).

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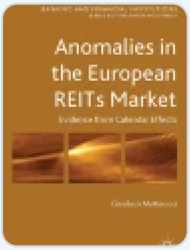

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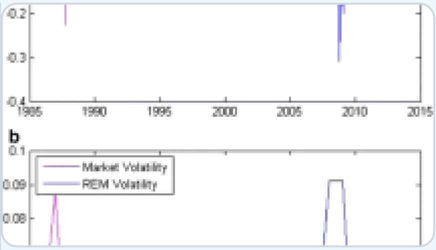

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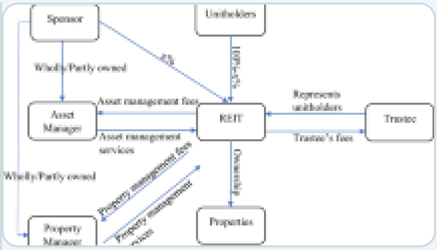

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Notes

1. This structural change is concentrated on equity REITs (Chan et al. 1998).

2. The results of Glascock et al. (2000) are consistent with the notion that REITs

and traditional stocks share some common risk factors (Peterson and Hsieh 1997).

3. Following He (2002) and Tuluca et al. (2000), this study does not unsmooth *NC*. Tuluca et al. (2000) give two reasons not to unsmooth the series: (1) investors have access to returns of commingled real estate funds that comprise NCREIF; and (2) the ways to correct the problems inherent in the appraisal-based series are still under refinement.

4. Tuluca et al. (2000) show the first and fourth lag returns of NCREIF index significantly influence REIT returns in the 1978–1995 period. Intuitively the informational lead-lag relation suggests positive influences of lag returns of NCREIF index on EXREIT. Interestingly, while the fourth lag returns of NCREIF index have a significant and positive influence, its first lag returns exert a counter-intuitive, significant, and negative influence on returns of NAREIT index in their study.

5. Liziere and Satchell (1997) provide evidence that capital switches between real estate and equity markets in the United Kingdom. Charney (2001) provides evidence suggesting capital switching within the real estate sector in Canada.

6. Institutional investors have focused on large-cap REITs in search of liquidity (Graff and Young 1997).

7. This is a direct analogy of Subrahmanyam’s (2006) argument about the relationship between the stock and real estate markets. Subrahmanyam (2006) finds that order flows and returns in the stock market negatively forecast REIT order flows, but not REIT returns. Case and Shiller (2003) mention capital switching between the stock and real estate markets as a popular theory.

8. A negative return relationship between two investment substitutes is

suggested by Subrahmanyam (2006) and Liziere and Satchell (1997).

9. The authors would like to thank an anonymous referee for suggesting the inclusion of lagged NCR.

10. We also performed regression analysis with the inclusion of the fourth-lag NCR. We did not find the fourth lag helpful in explaining REIT returns in either the whole sample period or any sub-period. The largest absolute value of associated *t* statistics is 0.90, which is not statistically significant at any conventional significance level.

11. This analysis does not include the 1978–1979 data because EXBREIT and EXSREIT start in 1980. The authors would like to thank an anonymous referee for suggesting the treatment on the 1991–1992 data.

12. Our full-sample results are similar to Clayton and Mackinnon's (2003, p.47) full-sample finding. In Table 2, the insignificance of NCR over the period 1978–2003 may reflect the influence of its small, negative estimates over the 1993–2003 period.

13. We also estimate the four-factor and six-factor models over the 1978–1989 period. Consistent with Giliberto (1990), equity REITs are significantly related to the unsecuritized real estate market over this period.

14. Similar to Claytkn and Mackinnon's (2003) finding, the coefficients of NCR over the full sample period are insignificant in Table 3. This may reflect the facts that Lag(NCR) is not a relevant variable before 1990s and that, as a result, it is not properly treated in the full-sample regressions.

15. Given its influence, failure to incorporate Lag(NCR) is likely to under-estimate the coefficients for NCR (Greene 2000; Gujarati 2003). The

insignificant and negative estimates for NCR in Table 2 confirm this.

16. In line with the NAREIT results, the regressions excluding Lag(NCR) in Table 4 under-estimate the coefficients of NCR when compared to their counterparts in Table 5.

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