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Are Public and Private Real Estate Returns and Risks the Same?

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Background

- Real estate securities are indirect claims on the underlying real estate assets
- By being exchange-traded, they provide more liquidity and hence more flexibility
- They also allow to ‘hold the market’
- Investors are interested in comparing the two types of real estate
- Much of the extant research has focused on the linkages between real estate securities and direct real estate
- There is a consensus that in the longer run real estate securities are related to the underlying real estate
- Our focus is on comparing the return and risk features of the two types of real estate

Previous Literature

- There are four previous studies that are closely related to ours
  - These are based on careful data modifications and comparisons of the mean returns and sometimes variances of assets (F-test or no formal testing); all study the U.S. market
- Geltner and Kluger (1998)
  - REIT-based ‘pure-play’ portfolio returns were greater than NCREIF returns in three out of four sectors during the 1987-1996 period
  - REIT-based volatilities were typically higher
- Pagliari et al. (2005)
  - Control for property-type mix, leverage, and appraisal smoothing in the NCREIF index
  - 3%-point difference between REIT (12.3%) and direct market (9.3%) returns for 1981-2001 period, not statistically significant difference (F-test)
  - The hypothesis of equivalent REIT and direct real estate return variances cannot be rejected (F-test)

Previous Literature (Cont'd)

- Riddiough et al. (2005)
  - Cater for property-type mix, leverage, and management fees
  - 3%-point difference between REIT (10.4%) and direct real estate (7.4%) returns during 1980-1998, no test for statistical significance of this difference
- Ling and Naranjo (2015)
  - Control for property type, leverage, and management fees
  - REIT market has outperformed the private real estate market in the office and retail sectors over the period 1994-2011
  - In the multifamily and industrial sectors they observe the opposite
  - Statistical significance of the return differences not tested

Aim and Contributions

- To provide evidence on the return and risk of REITs and direct real estate by taking into account:
  - Property-type mix
  - Leverage of REITs
  - Portfolio management fees
- Contributions to existing literature:
  - We test for a one-to-one relationship between securitized and direct real estate for a period that includes the Global Financial Crisis
  - We use a cointegration framework rather than F-tests which suffer from several drawbacks
  - We examine how the annualized standard deviation of both types of real estate varies with the time horizon and whether the figures are statistically different from one another (based on Wild bootstrapped VR statistics)

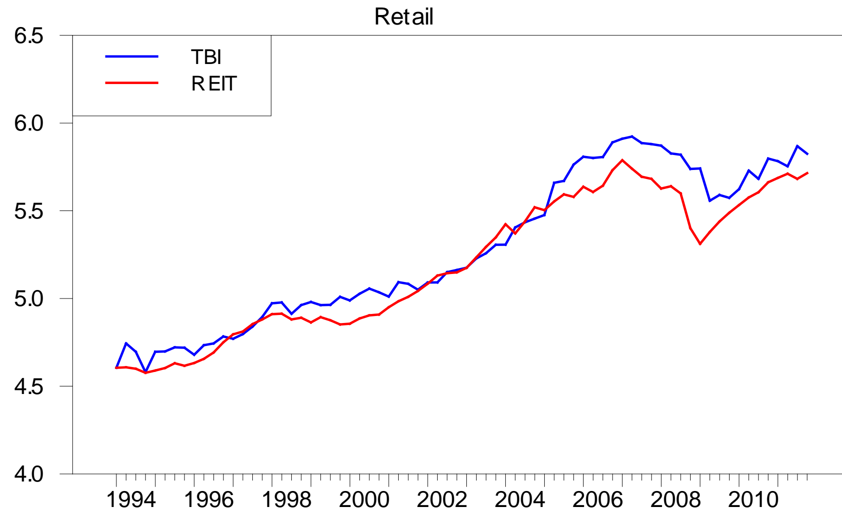
Data and Method

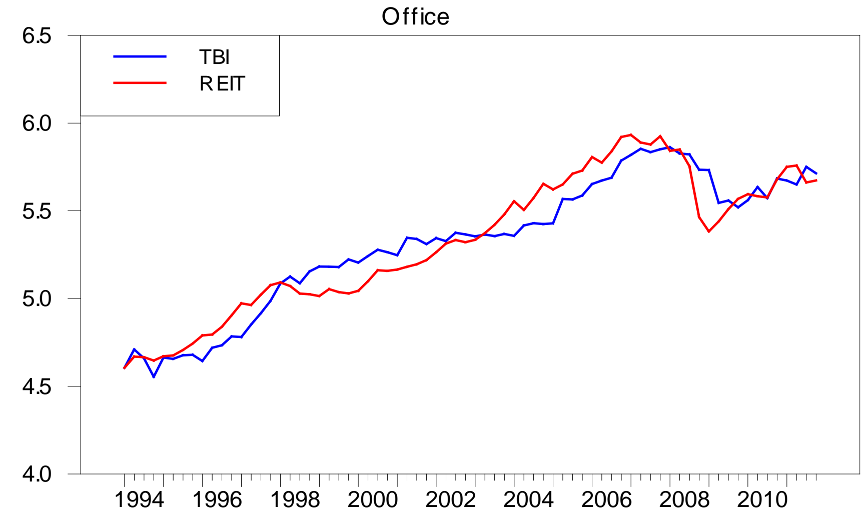
- U.S. data (NAREIT and TBI) for 1994-2011 and U.K. data (EPRA and IPD) for 1991-2011 (quarterly data)
- Direct and securitized real estate total returns for 4 sectors in the U.S. (Office, Retail, Industrial & Apartments) and 2 in the U.K. (Office & Retail)
- REIT returns are delevered using actual quarterly leverage figures
- 80 bps portfolio management fees (sensitivity analyses)
- We test for cointegration between securitized and direct real estate returns and for a one-to-one relationship
- Much more reliable than F-tests (sensitive to time period, outliers and normality assumption) and based on an economic rationale
- We compare the standard deviations of the two types of real estate for various time horizons

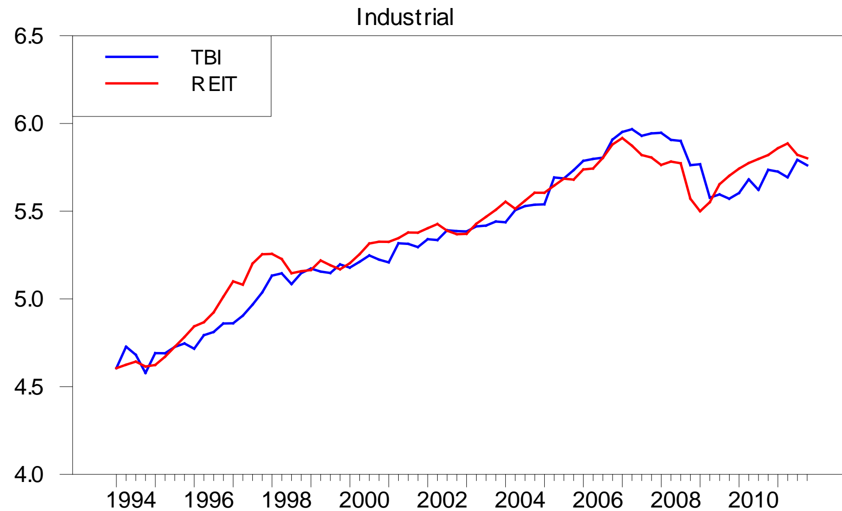
Return Comparison

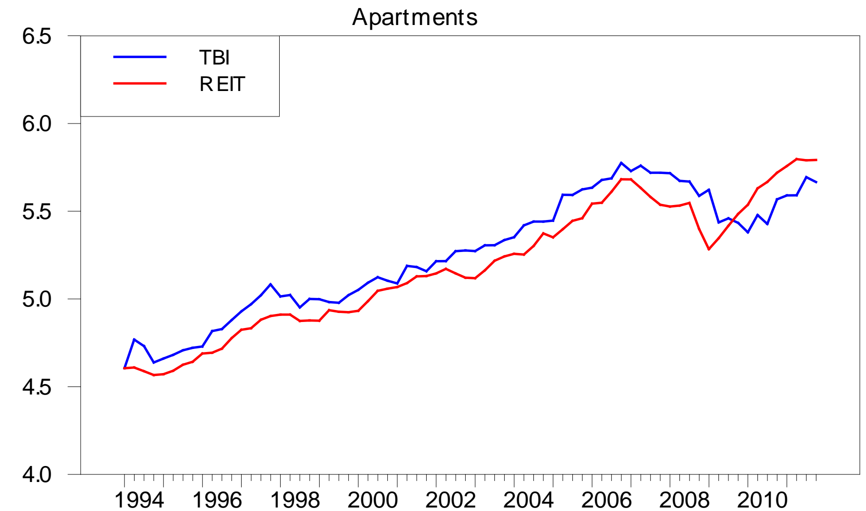
- Evidence of cointegration between securitized and direct real estate returns (not for offices in the U.K.)
- The one-to-one relationship is accepted for all property types except for retail in the U.S. (direct returns are higher)
- Results generally robust to 50 and 120 bps management fees

Return Comparison – U.S.

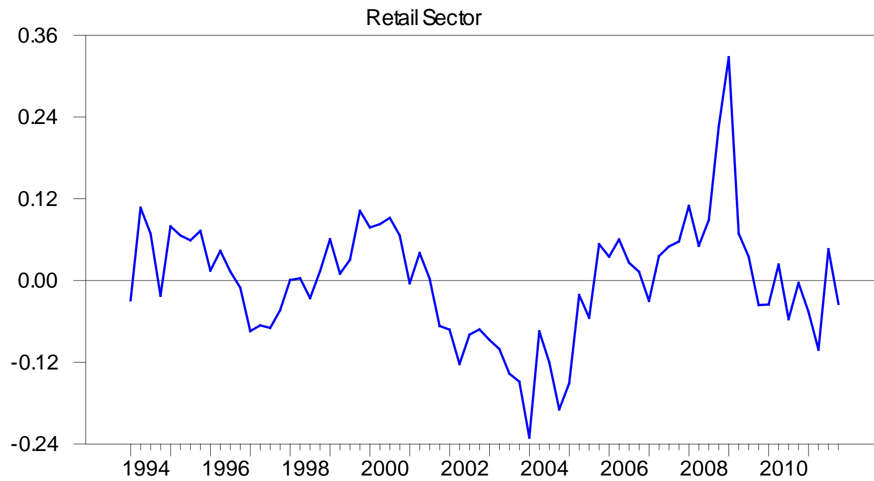


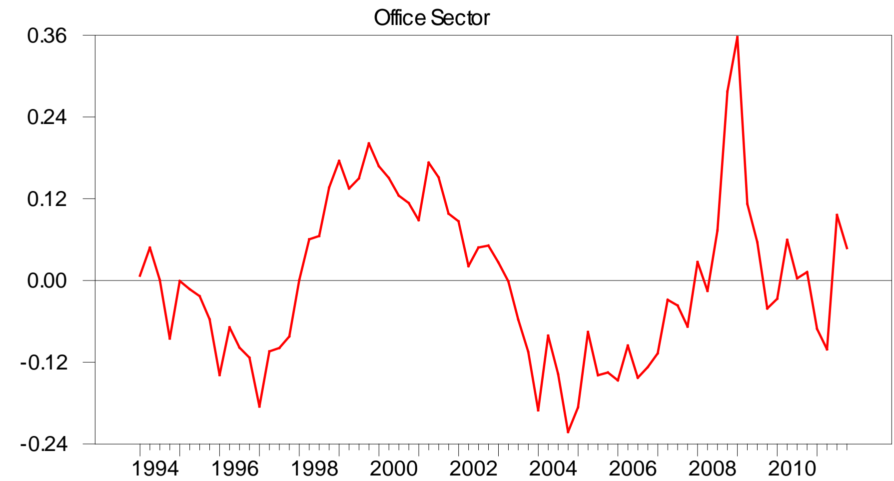


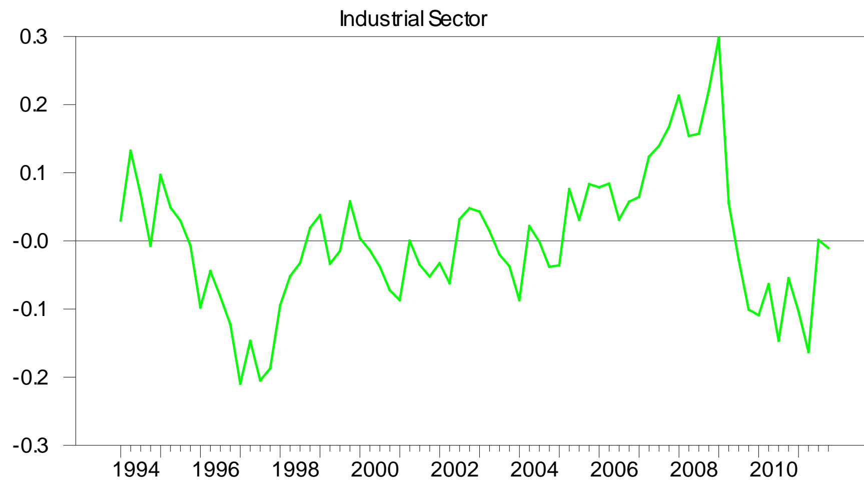


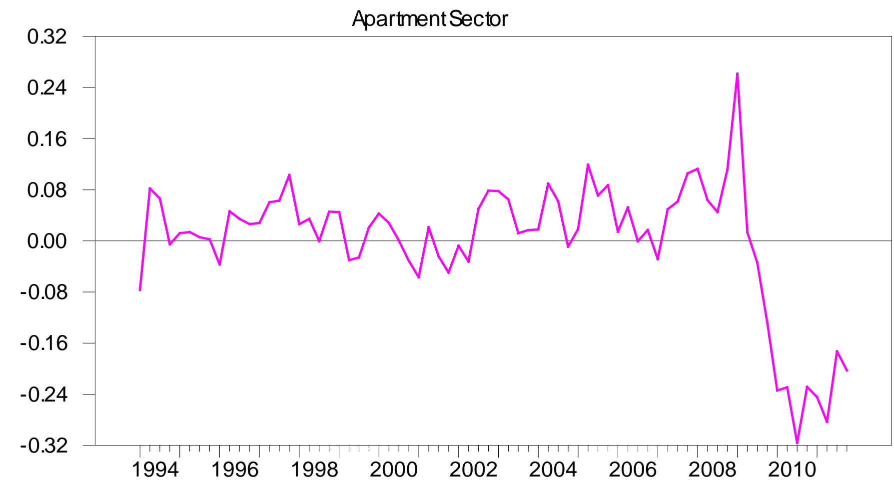


Deviations of TBI Indices from Long-Term Relations – U.S.

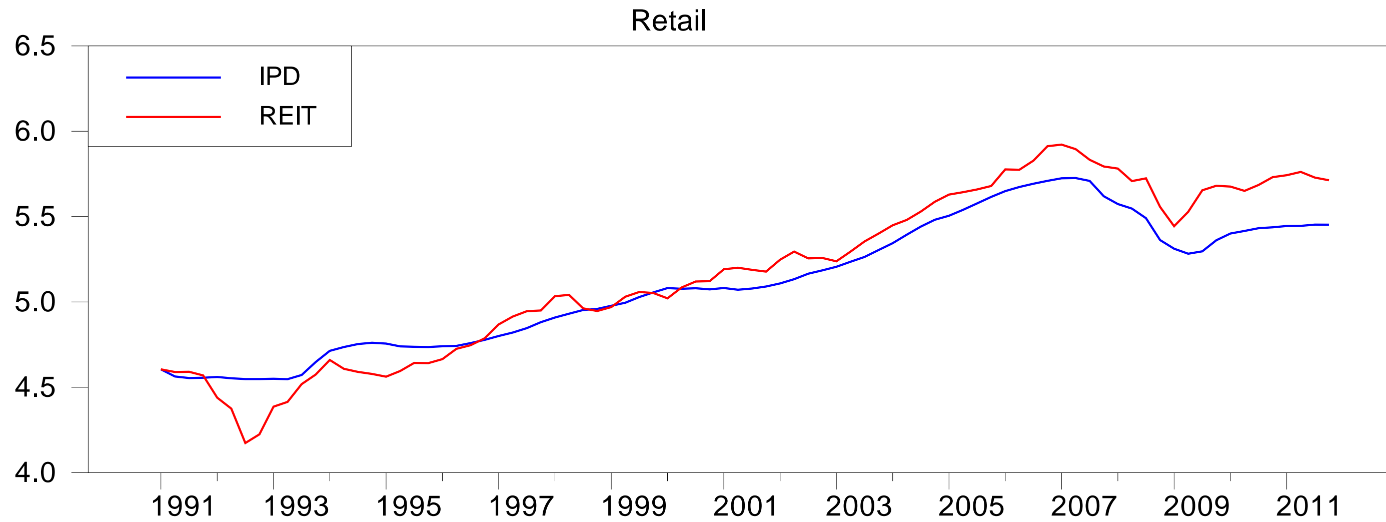


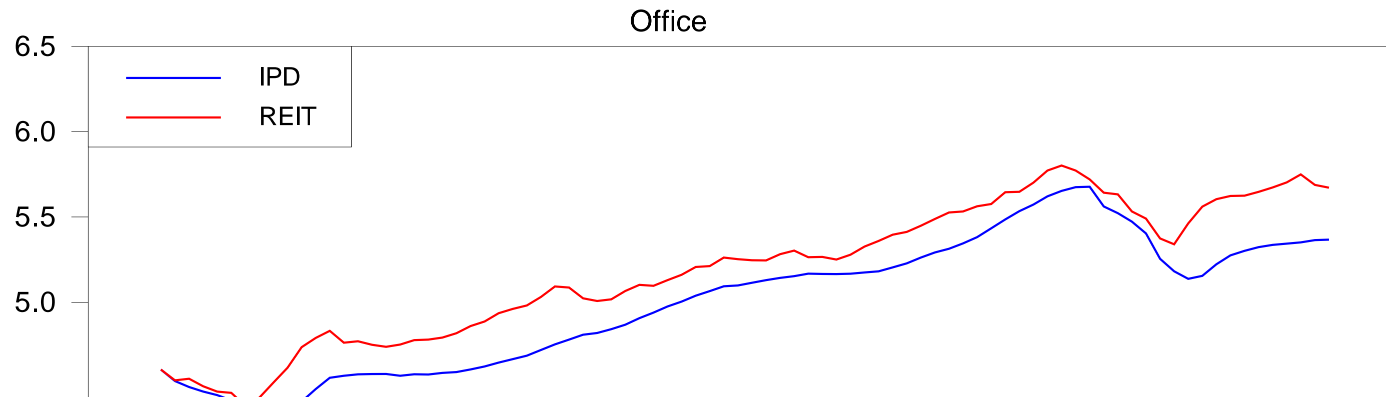






Return Comparison – U.K.





Deviations of IPD Index from Long-Term Relation – U.K. Retail

Standard Deviation Comparison – U.S.

Retail

Standard deviation: 0, 0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.1

Investment horizon: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Office

Standard deviation: 0, 0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.1

Investment horizon: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Industrial

Standard deviation: 0, 0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.1

Investment horizon: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

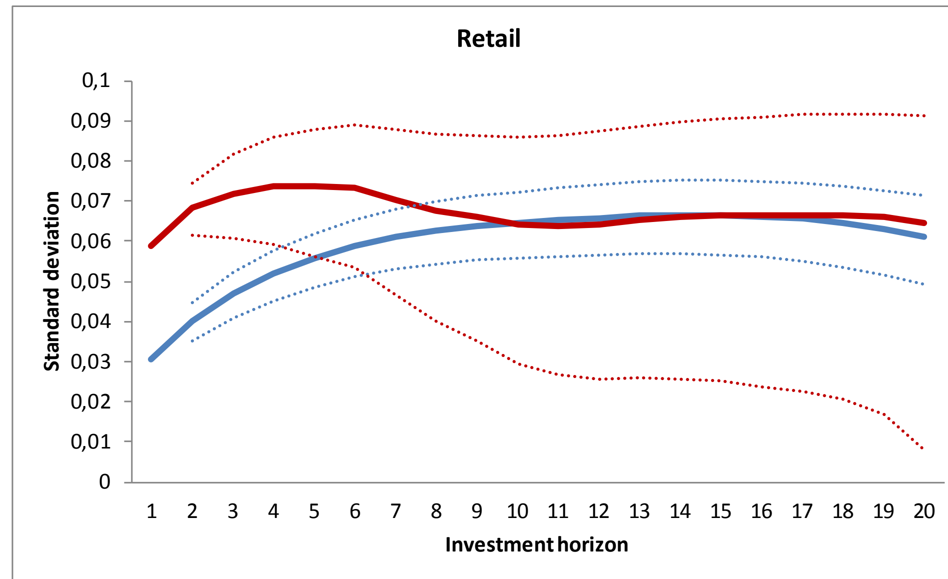
Apartments

Standard deviation: 0, 0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09

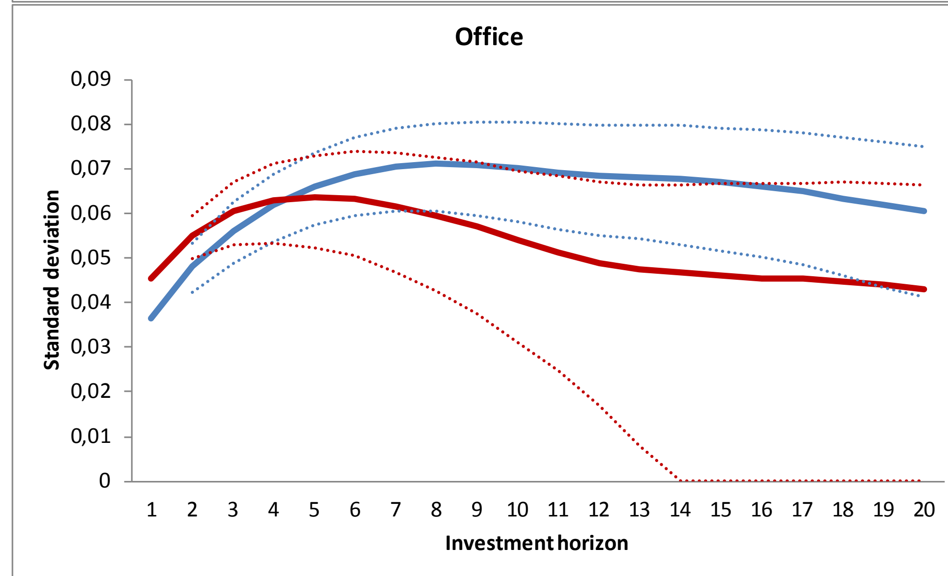
Investment horizon: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Blue=Direct Red=REITs

Standard Deviation Comparison – U.K.



Blue=Direct
Red=REITs



Summary and Practical Implications

- When property type, leverage and management fees are accounted for, there is usually a one-to-one relationship between securitized and direct real estate returns
- The annualized standard deviations of the two types of real estate are not statistically different from one another whatever the time horizon considered (except in the short run for retail in the U.K.)
- REITs and direct real estate would appear to be substitutes in a long term investment portfolio
- Obviously much easier to hold a well diversified portfolio with REITs than with direct real estate
- Given that hedging instruments are more readily available for REITs, a direct real estate exposure may be hedged with REIT derivatives