Conditional Volatility of Equity Real Estate Investment Trust Returns: A Pre- and Post-1993 Comparison

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Abstract

We examine the dynamic behavior of Equity Real Estate Investment Trust (EREIT) volatility in a GARCH context 1972–2006 using monthly EREIT returns, and comparing volatility performance for "early" Equity REITs 1972–1992 with that of "modern" EREITs 1993–2006. Consistent with findings for conventional firms, we find that EREIT conditional volatility is time-varying, persistent, and predictable. There is a positive relationship between expected return and expected risk in EREIT stocks pre-1993, but the relationship disappears after 1993. We find no evidence that negative shocks affect EREIT volatility differently from positive ones in either time period. Different from reported results for conventional firms, we find that changes in the conditional volatility of fundamental macroeconomic

variables have strong explanatory value for future changes in EREIT volatility. Finally, comparing EREIT volatility performance with volatility in the Russell 2000 Index, a proxy for small stocks, we find that EREIT volatility behaves differently from that of small stocks in many respects, indicating that risks in the small stock index cannot effectively proxy for risks in the EREIT market.

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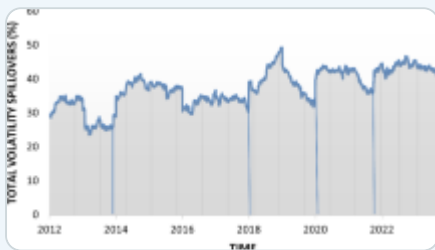
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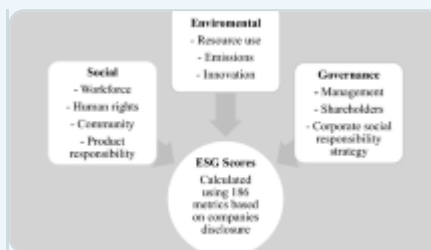
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Notes

1. For example, the Chicago Board Options Exchange (CBOE) is now trading options on the EREIT Index.

2. Under the null hypothesis of no serial correlation, the Ljung and Box ([1978](#)) Q-statistics are distributed as chi-square with m degrees of freedom, where m equals the number of restrictions.

3. The unit root tests are performed on the real returns of EREITs, the Russell 2000 and four macroeconomic variables. The null hypothesis of a unit root is rejected for all the variables at the 1% significance level.

4. The first lag of the return series is also included in the mean equation to account for the autocorrelation induced by nonsynchronous trading in the REIT market.

5. The appropriate GARCH specification for each security is chosen based on the Ljung–Box test statistic of no serial correlation in the level and squared standardized residuals for 12 and 20 lags.

6. Application of GARCH-M relaxes the assumptions of linearity, independence, and constant conditional variance.

7. The GARCH-M and TARCH specifications are estimated under the GED distribution.

8. EGARCH and TARCH models have been widely used to test for asymmetric effects of news on the conditional volatility. However, the TARCH specification is more attractive because it requires the estimation of fewer parameters.

9. The conditional volatilities of macroeconomic variables are obtained by fitting the GARCH specification. The GARCH specification for each of the macroeconomic variables is reported in Table 3.

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