Explaining the Discount to NAV in REIT Pricing: Noise or Information?

By Jim Clayton and Greg MacKinnon

Executive Summary

The relationship between public (securitized) and private (unsecuritized) market pricing of real estate assets exhibits substantial variability over time. Throughout much of the 1990s, REITs traded at significant premiums to net asset or liquidation (NAV), but since the latter part of 1998 they have generally traded at discounts to NAV. What factors drive these short-run fluctuations in the pricing of REIT shares relative to the underlying real state owned by REITs? Understanding the link between pricing in the two markets has taken on a new importance in recent years, as the REIT sector has grown in size and institutional investors have come to play a more prominent role in the market.

This paper provides new insights into the dynamics of the short-run relationship between REIT prices and the value of underlying REIT properties (NAV). It seeks to answer the following question: *do departures of REIT share prices from NAV reflect "noise" or "information"?* Specifically, did the discounts from NAV observed in 1999 represent a temporary mispricing of REIT shares due to investor overreaction, or alternatively "correct" pricing based on rational projections of future underlying property market fundamentals including revised liquidity considerations?

According to the *noise theory*, fluctuations in departures from NAV are caused by changes in investor sentiment. That is, when investors become (irrationally) pessimistic about REITs, the value of REIT shares is pushed below their true, underlying value. Similarly, if investors are overly optimistic about REITs, share prices may be above NAVs. Rational investors are unable to arbitrage away the mispricing because the unpredictability of investor sentiment exposes them to "noise trader risk". Hence, rational investors face an extra risk because they have to predict the behavior of noise traders, which implies that REIT prices may be down in part because of the noise trader risk premium. The noise theory is consistent with explanations given by many investment professionals for the behavior of REIT values. That is, when REITs were viewed as growth stocks during the 1993-1997 period, noise traders were attracted to REITs and helped push prices up. Once REIT prices began to fall and growth prospects diminish the noise traders moved on to high tech glamour stocks, pushing REIT prices below NAV. Because irrational shifts in investor sentiment are mean reverting, however, REIT share values will eventually rise to match, or even exceed, their NAVs as the irrational discount disappears.

Rather than rely on the assumption of irrational investor sentiment, the *information theory* of departures from NAV is based on the idea that the REIT market is more informationally efficient than the unsecuritized real estate market and, in fact, leads the real estate market. That is, price discovery occurs in the securitized market and hence the dramatic fall in REIT values was forecasting a future downturn in direct property

markets, and therefore NAVs. This implies that discounts to NAV should narrow, but that they narrow as NAVs come down in line with REIT share prices, not as REIT prices go up. Consistent with this explanation is that, following a sustained period of high returns throughout much of the 1990s, REIT investors and analysts alike began to question the prices some REITs were paying for properties early in 1998. In addition there were early warning signals of overbuilding in some markets. Hence, there was increasing concern about the REIT's abilities to make accretive acquisitions and maintain their strong pace of FFO growth. Hence, the drop in REIT prices may have rationally reflected expectations of the future performance of unsecuritized property markets.

Interestingly, both the noise and information theories imply that departures from NAV should be mean reverting, and will narrow over time. However, the process by which the convergence occurs is entirely different. The question is whether discounts narrow because stock prices rise or because NAVs fall. In reality, the true story may combine elements of both theories.

Our empirical analysis consists of two parts that explore the determinants of both the level of and changes in premiums to NAV in REIT pricing over the 1996-1999 period. The first part of the paper specifies and estimates a model of cross-sectional and time variation in premiums to NAV using a sample of individual REITs. We find that the level of premium to NAV is positively related to REIT size (market capitalization), debt to equity ratio and the level of REIT liquidity as measured by the relative effective spread. Changes in premiums to NAV over time have a strong common element across REITs, which is related to but not entirely explained by a common element in REIT liquidity. The common sector effects in both premiums and liquidity are more pronounced, as REIT values plummet in 1998 and REITs sell at discounts to NAV in 1999.

The second part of the paper examines REIT market microstructure dynamics to determine if the common effect in REIT pricing relative to NAV found in the first part of the paper reflects informed trading (information) or noise (sentiment). We examine changes in REIT bid-ask spreads in relation to fluctuations in the average REIT sector premium to NAV. We find that the transaction costs of trading in REITs (i.e. spreads) increase when REIT prices are getting closer to NAV and decrease when REIT prices are moving away from NAV. This result holds when controlling for changes in trading volume and changes in volatility. These findings are consistent with a higher proportion of uninformed (noise) traders being in the market when REIT prices are diverging from NAV, but when REIT prices are getting closer to NAV, there is a higher proportion of informed traders in the market. Overall our results are consistent with both the noise and the information theories, but at different points in the REIT premium to NAV cycle. That is, the relative proportion of informed traders is higher at turning points as the divergence between REIT prices and NAVs shrinks. Uninformed or noise traders push REIT prices away from NAVs following the initial price moves cause by informed traders.