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Liquidity dynamics across public and private markets☆

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A B S T R A C T

In this paper we investigate cross-asset liquidity between equity markets and REITs and between REITs and private real estate markets. While many studies have investigated REIT liquidity, and there is an emerging interest in liquidity in the private real estate markets, there appears to be little knowledge of the dynamics of cross-market liquidity. We find lower levels of liquidity for REITs compared to a set of control firms matched on size and book-to-market ratios. Commonality in liquidity is also lower for REITs than the controls and the overall market. However, we do find an important difference in share turnover for REITs, which appears to have a higher level of commonality than found in other studies. We suggest that this may be due to the financial crisis. Additionally we find evidence of similar time-series variation in liquidity for public and private real estate markets. We also find significant directional causality for most liquidity proxies from the public to private real estate markets. Finally our results show that there is strong contemporaneous correlation between both public and private real estate market liquidity and the term spread and real investment and consumption spending. REIT liquidity measures based on intraday data also appear to contain important information not found in measures constructed from daily returns.

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1. Introduction

The financial crisis highlighted the important role played by liquidity in finance and real estate markets. This has stimulated a range of research focusing on the dynamics and cross-section commonality of liquidity, see for instance, Spiegel (2008), Korajczyk and Sadka (2008), and Naes et al. (2011). In this paper we examine liquidity measures and transmission across public and private real estate markets. In particular, using data on publicly traded real estate investment trusts (REITs) and trading data on commercial real estate, we document the transmission of a liquidity shock from public to private markets. Furthermore we examine the relationship between liquidity in real estate markets (both public and private markets) and macroeconomic variances and show how the transmission mechanism differs between public and private markets.

Using data on commercial real estate markets provides an appealing laboratory in which to consider cross-asset commonality and transmission in liquidity. In this case the underlying asset, commercial real estate, forms the main asset holding of publicly traded REITs and is the source of constant performance monitoring by a number of professional organization.[1] When considering all real assets markets, commercial real estate has the most detailed and extensive, validated set of performance data of any alternative asset class.

In terms of the dynamics of the liquidity process, we construct several recognized proxies for liquidity, based on quote and trade prices, and daily trading data, for REITs, a sample of control firms (matched for market capitalization and the book-to-market ratio), and the overall market. Several papers have examined liquidity proxies using daily trading data, see for instance, Marcato and Ward (2007), Brounen et al. (2009), and Cannon and Cole (2011). However, unlike these studies we include liquidity measures based on intraday quote and trade prices for REITs.

To preview our results, we find that REITs generally have a lower level of liquidity than either the controls or the overall market. After documenting the characteristics and dynamics of these series, we then consider the transmission of a liquidity shock between these series. Information about the transmission mechanism has implications for portfolio diversification as many investors choose to hold REITs as a diversifying asset class. Using Granger Causality tests, we find an intriguing result, even though the Amihud liquidity proxy for the market tends to lead REIT liquidity (Amihud, 2002), turnover in REITs does appear to lead overall market turnover. We discuss possible reasons for this in Section 4.

A further innovation in our study is the use of liquidity measures obtained from the direct real estate market. To date very few studies have considered liquidity measures in the direct real estate market and there is little understanding of the dynamic properties of this series of interest (see Clayton et al., 2008 for a related article). Using data from the MIT Transactions-Based Index (TBI) (see Fisher et al., 2007), we examine liquidity measures based on an Amihud-type of construct. Recently Bond and Slezak (2010) have used the latter measure as a liquidity proxy in a portfolio optimization exercise and the results of the present study would appear to support the use of this measure as a meaningful proxy for liquidity. We document the dynamic relationship between these measures and show some difference in the transmission mechanism between each measure and liquidity measures in the public markets. Furthermore, we find evidence of a strong connection between macroeconomic factors and liquidity in the private real estate market.

Our study extends the work of Marcato and Ward (2007) and Brounen et al. (2009) in three ways. Firstly, our sample covers the recent financial crisis and given the significance of liquidity in the crisis, provides important information to researchers and investors on the behavior of liquidity in crisis periods in these markets. Second, while our paper examines only US markets, it incorporates measures of liquidity from the public markets as well as private real estate markets. Most of the literature to date has primarily focused on REIT liquidity. Finally, our study investigates the relationships between macroeconomic factors and liquidity in real estate markets.

The outline of our paper is as follows. The next section reviews the relevant literature. Following that we describe the data and liquidity measures used in our study in Section 3. Section 4 outlines our

[1] Including the National Council of Real Estate Investment Fiduciaries (NCREIF), whose data is used in this study.