



Financial crisis, REIT short-sell restrictions and event induced volatility

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ABSTRACT

From September 19 through October 8, 2008 the SEC issued a short sale moratorium on approximately 800 financial stocks. The emergency order justified the ban based on concerns “that short selling in the securities of a wide range of financial institutions may be causing sudden and excessive fluctuations in the prices of such securities” (see [Securities and Exchange Commission, 2008](#)). Although Real Estate Investment Trusts (REITs) were initially excluded, the management of fourteen REITs requested that they be added to the restricted list. [Diamond and Verrecchia \(1987\)](#) develop a model in which short sale constraints decrease trading and increase the time required to adjust to new information resulting in greater price reaction. This research employs a GARCH version of the market model to test the impact of the SEC policy on the risk/return of the fourteen restricted REITs and a sample of fifty REITs not on the list. Rather than mitigate volatility it was determined that fifty of the sixty-four REITs in the combined samples exhibited significant event induced risk as a consequence of the ban with a significantly larger increase occurring among restricted REITs. A cross-sectional test failed to identify significant negative or positive abnormal returns as a consequence of the short sell ban.

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1. Introduction

Relative to direct ownership, Real Estate Investment Trusts (REITs) provide a highly liquid investment vehicle for real estate investors. There are essentially three types of REITs; equity REITs invest in and operate commercial property while mortgage REITs invest in commercial real estate mortgages and mortgage backed securities. Hybrid REITs invest in both properties and mortgages. In terms of size, the equity REIT category comprises about 92% of total REIT market capitalization.

Equity REIT investment generally concentrates on property type and/or geographic market in an effort to exploit management specialization to the benefit of shareholders. In 2010 the National Association of Real Estate Investment Trusts (NAREIT) reported 153 publicly traded REITs in twelve different property categories. About 22% of REITs are retail REITs that invest in retail property. Retail, office and residential represent over 55% all publicly traded REITs. REITs became much more attractive in the 1980s. The so-called “new REIT era” is associated with The Tax Reform Act of 1986 that eliminated the passive nature of REITs that did not allow trustees, directors or employees of a REIT to actively engage in the management or operation of REIT property.

In 1991 Kimco Realty was the first significant initial public offering of a modern, vertically integrated REIT designed to be internally managed and advised. ([Brueggeman & Fisher, 2008](#)). This modern and more attractive REIT structure coincided with a real estate “credit crunch” and the creation of the Resolution Trust Corporation that was established to dispose of problem properties acquired by government as a consequence of the Savings and Loan crisis. According to the NAREIT, REIT market capitalization during the 1990s increased by a factor of 20 and in 2006 exceeded \$389 billion but had declined to \$275 billion in 2009. Despite the impressive growth in REIT markets it is estimated that their total market capitalization represents only 6 percent of the total value of core commercial real estate in the U.S. suggesting that there is substantial room for continued growth.

Growth in the REIT market has fostered growth in REIT mutual funds and exchange traded funds. The expansion of REIT investment over the last twenty years reflects the new management structure, securitized real estate’s increased acceptance by the investment community and the success of using REIT IPO’s to repackage problem properties following the real estate crisis of the 1980s, a strategy that may be relevant to current markets. In February 2010 [The Congressional Oversight Panel](#) report titled “Commercial Real Estate Losses and the Risk to Financial Stability” predicted that \$1.4 trillion in commercial real estate mortgages would reset in the years 2010–2014 with almost half of these currently underwater. The REIT structure may once again prove to be a useful vehicle for re-capitalizing many of these problem properties.

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Investors prefer markets that are liquid and conform to the same rules and conventions as other well organized public security markets. An important element of securitized real estate's integration with public capital markets is the ability to short sell.

The debate over short selling resurfaced during the financial crisis. Following the demise of Bear Stearns in early 2008 short selling restrictions were imposed on a small number of financial stocks. After the collapse of Lehman Brothers investment bank in September of 2008, the SEC short sell restricted list included approximately 800 financial companies. Real Estate Investment Trusts (REITs) were initially excluded however the managers of fourteen REITs requested that they be added to the list. Regulatory justification for the restriction was based on the presumption that it would mitigate "excessive fluctuation in the prices" of financial institution securities (see *Securities and Exchange Commission, 2008*). *Diamond and Verrecchia (1987)* argue that consistent with rational expectations market participants anticipate short sale constraints when formulating pricing decisions and that they result in larger price reactions. Their model predicts that rather than mitigate volatility short sell restrictions will cause it to increase. Rational expectations would also suggest that the credible threat of expanded restrictions could even influence the risk of securities not currently on the list.

Evidence that short selling "may be causing sudden and excessive fluctuations in the prices of [financial] securities" and that a regulatory ban can mitigate volatility as suggested by the SEC is largely anecdotal. This research employs an event study methodology based on a GARCH market model to examine the impact of the SEC short sell restriction on the fourteen restricted REITs as well as a random sample of fifty REITs not on the list. The first objective of this research is to determine if the short sale ban was successful in reducing volatility in either restricted or unrestricted REITs. Second, if short sell constraints result in economically exploitable skewness, it should be reflected in abnormal returns. The GARCH model allows a cross-sectional event test for the presence of abnormal negative or positive returns as a consequence of the ban. The next section briefly examines the literature on REITs, constrained short-selling and event studies. The third section describes the advantages of the GARCH methodology. Section 5 presents the results of the model followed by a summary of conclusions.

2. REITs, constrained short-selling and the event study literature

Much of the REIT literature has focused on the risk/return performance of alternative property types, diversification features and the behavior of returns relative to securities markets (see *Glascok, Lu, & So, 2000; Gyourko & Nelling, 1996; Young, 2000*). The increase in REIT return volatility leading up to the financial crisis raised concerns among those in the industry. Much of the traditional appeal of REIT investing derives from the perception that REITs are an asset class that offers diversification, income and relative price stability in REIT shares. Some REIT managers believe that Exchange Traded Funds (ETF) and "naked shorting" created artificial volatility in the REIT market (see *The Durable Investor, 2008; Troianovski, 2008*).

"Naked shorting" occurs when traders have not actually borrowed the shares they sell short as required by securities law. It can result in "failure to deliver" which is the number of stocks in which large positions have not been properly delivered to investors. SEC Regulation SHO was supposed to address the problem of delivery failure. Implemented in 2005, SEC Regulation SHO mandated daily compilations of stocks that had experienced at least five consecutive days of delivery failures totaling at least 10,000 shares and at least a half percent of their outstanding shares. When a stock was

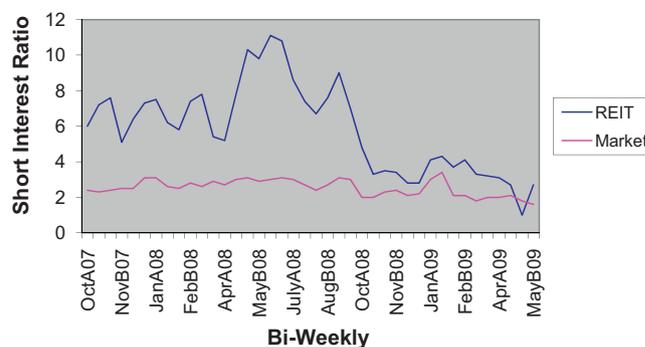


Fig. 1. Short interest ratio.

placed on the threshold list, traders were presumably required to close out failed deliveries by the 13th day after the trade.

The daily average number of stocks on the SHO threshold list grew from 300 issues in 2007 to 400 for the first nine months of 2008. Prior to the short sell moratorium the list increased to over 500 issues representing in excess of \$600 billion in value and included many REIT and financial stocks. On September 18, 2008 the SEC implemented a new rule that required short sellers who have sold shares but not delivered them to the buyer within three days of the trade, to deliver shares by the start of trading on the fourth day. Following the new rule and the short sell moratorium, the daily average of stocks on the threshold list declined to 100 issues in December of 2008 and 79 issues in March and April of 2009.

The time pattern of REIT short selling before and after the fall 2008 credit crisis is shown in Fig. 1 which plots the bi-weekly short interest ratio (total shares shorted divided by total average daily trading volume) from October 2007 through May 2009 for all stocks appearing on the *Short Squeeze (2009)* data base (approximately 16,000 issues and 120 REITs). Increases in the short interest ratio reflects rising bear sentiment but some technicians interpret it as an indication of pent up demand since shorted shares must ultimately be repurchased and returned to the lender. In the year preceding the September 2008 financial crisis, the short interest ratio for REITs was two to three times higher than for the entire market.

The large short interest ratio for REITs preceding the financial crisis is in contrast to previous REIT studies that examine earlier periods. *Blau, Hill, and Wang (2011)* found investors are less likely to short REITs than other securities. They suggest that REIT short sellers target REITs that are performing well instead of underperforming REITs. *Li and Yung (2004)* found that only high levels (the 90th percentile) of short interest are associated with significant negative REIT returns. They speculate that the bearish content of short interest may have been mitigated by the favorable risk characteristics of real estate securities for the period 1994–2001.

The percent of institutional ownership is also larger for REITs than it is for the market. As mentioned previously, some in the financial press attributed the increase in market volatility among REITs and financial stocks to short selling by institutional investors, especially leveraged Exchange Traded Funds. Over the time period shown in Fig. 1, institutions owned an average of 60% of REIT shares while institutional ownership was only 37% for the market. REIT institutional ownership fluctuated from a high of 69% to a low of 57% during this period. The correlation coefficient between the percentage change in institutional ownership and the percentage change in the short interest ratio was a positive .05 but was statistically insignificant. Although there was not a significant correlation between percentage change in institutional ownership and the change in the short interest ratio, institutional investors may

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