The Relative Value of Public Non-Listed REITs

Author  Paul J. Seguin

Abstract  In this paper, I evaluate equity claims to publicly registered, non-listed real estate investment trusts (REITs). Although market-determined equity prices for public non-listed REITs (PNLRs) are unavailable, I demonstrate that such equity claims are worth between 23% and 80% less than equity claims to identical underlying assets organized as listed REITs. Sources for losses include illiquidity, high transactions costs and sub-optimal capital, and organizational structures. An alleged advantage of PNLRs—higher current income—is unsustainable: REITs frequently reduce levels of promised returns to equity holders, only achieving these lower levels by issuing additional capital.

A dominant theme of financial innovation over the past 40 years has been the monetization of previously illiquid assets. Of relevance here has been the monetization of real estate cash flows through exchange-listed, publicly traded real estate investment trusts (REITs). As of December 31, 2012, roughly $603.4 billion was held by listed REITs (source: nareit.org).

There are at least three motives for the monetization of real estate claims in general, and of listed REITs in particular. In my subjective opinion of the ascending order of their impact on value, the first motive pertains to the regulatory environment. By first registering the REIT offering and then listing it on a stock exchange, REIT management has voluntarily entered into an environment of enhanced scrutiny and operational transparency through mandated disclosure. Aside from the oversight of the U.S. Securities and Exchange Commission (SEC) and its attendant regulations (especially the Acts of 1933 and 1934 and subsequent amendments), and all pertinent stock exchange regulations, additional scrutiny comes from FINRA, FASB, equity analysts, and, as the companies are widely held, the financial media. Further, registration and exchange listing provide well-defined, relatively efficient avenues for legal recourse and dispute resolution. Parties can avail themselves of securities law remedies and arbitration as opposed to real estate contract law.

The second motivation for the formation of a REIT is to mitigate the divisibility, “integer” or “granularity” problem inherent to investments in real property.
Because individual real properties are typically valued in the tens of millions of dollars (if not more), absent REITs, most individual investors do not have sufficient capital to gain exposure. Further, with a high barrier to entry, diversification within or across asset sub-classes is unfeasible for all but the wealthiest investors. Once claims are divided into small dollar amounts, however, access to real estate risk in general and diversification of risk across both property type and geographic region become practical. Ease of diversification afforded by the existence of REITs is further attenuated by the introduction of REIT exchange-traded funds (ETFs).

Of greatest importance to both valuation and this study is the liquidity gain due to continuous trading on secondary markets. Indeed, citing a point estimate of a liquidity gain of 23%, Benveniste, Capozza, and Seguin (2001) argue that liquidity is the veritable raison d’être for REITs.

In addition to the listed REIT, there are two additional REIT forms. The first form is the “private” REIT—a privately issued and narrowly held corporation or trust that meets all requirements for REIT status but is neither publicly registered nor listed on any exchange. As data are limited to IRS filings, systematic investigation is unfeasible.

The second additional organizational form of a REIT, the object of this investigation, is the REIT that is publicly registered and publicly offered, but not listed on a secondary market or exchange. Like exchange-listed REITs, PNLRs are bundles of real estate assets upon which fractional claims are issued. Because these are sold to the public, they are governed by the regulatory environment for all publicly registered securities. Underwriters or sponsors issue prospectuses with a uniform offering price of $10 per share. Each PNLR files 10-Ks, 8-Ks, and 8-Qs with the SEC and is subject to the Acts of 1933 and 1934. Accounting standards follow FASB/GAAP and disclosure conforms to Sarbanes-Oxley. Further, they must conform to IRS regulations pertinent to gaining and maintaining REIT status. Finally, like listed REITs, PNLRs are, despite their name, rarely “trusts” and are instead organized as C-corporations.

PNLRs are, however, distinguished by a number of crucial features. The most tautological is that, as they are not listed on a secondary exchange, they are not subject to exchange-based rules. However, the role of brokers in the primary and secondary markets is regulated by FINRA. As secondary-market liquidity is nonexistent, liquidity is provided through “liquidity (redemption) programs.” These programs typically allow for, at most, 5% redemption of an investor’s capital per year. In many cases, redemption is prohibited and in one case it is prohibited “even upon death.” Recent history has shown that even these modest redemption programs can be suspended or cancelled, apparently without shareholder approval. An example reads: “The Company reserves the right to change the purchase price of redemptions, reject any request for redemption, or otherwise amend the terms of, suspend, or terminate the Unit Redemption Program. As noted below, during 2011, the total redemption requests exceeded the authorized amount of
redemptions and the Board of Directors has and will continue to limit the amount of redemptions as it deems prudent.”

Initially, PNLR managements were not required to revise their net asset value (NAV). However, the FINRA Notice to Members 09-09/Rule 2340(c)(2) on February 4, 2009 “…requires REITs to recalculate their estimated price-per-share within 18 months of concluding the offering period (the period during which new investors can subscribe) and at least as frequently as every 18 months thereafter.”

Unlike a listed REIT (including the now common Umbrella Partnership REIT, or UPREIT) where a portfolio of properties exists before the IPO, PNLRs go through escrow. During this period—typically a three- to four-month process—neither fees nor commissions can be paid and if escrow is not broken within a year, all invested funds are returned. During escrow, a potential PNLR must raise funds sufficient to begin operations, as determined by state securities law, typically only $2 million. But they need not actually own any real property to break escrow. Further, a PNLR typically employs an external manager that is an “affiliate” of the company’s sponsor. Managerial compensation is typically an asset-based fee.

Finally, each PNLR to date has been organized with a finite-life structure. Proclaimed exit strategies vary from liquidation, to conversion into a listed REIT, to merging with or being subsumed by a listed REIT.

Although most public non-listed REITs were formed subsequent to 1990, they now represent 18% of the total registered REIT market, by market capitalization. With more than $8 billion in capital raised in each of 2011 and 2012 (source: Direct Investments Spectrum, 2013), PNLRs have experienced rapid growth and now have assets under management (AUM) exceeding $83 billion as of December 31, 2012, or 13.8% of the market capitalization of their listed cousins. (Source: SNL, BlueVault Partners). The time series of equity capital raised is presented in Exhibit 1.

In this study, I critically evaluate the comparative advantages claimed by PNLRs: lower return volatility and higher current income when compared to their listed counterparts. I then perform in-depth analyses of two crucial features: (1) the sustainability of high current equity returns and (2) the liquidity premium associated with PNLRs relative to their listed competitors. Next, I enumerate and value the relative disadvantages of this form including transactions costs, life-time (or duration) choice, and managerial structure.

Using a sample of 62 PNLRs, I show that returns-to-equity-holders, currently 7% on average, are unsustainable for the sample as a whole and for more than 80% of PNLRs individually. I then demonstrate that PNLRs accomplish such levels of cash flows to equity holders only by raising more capital in general and issuing more equity (equity raised/book equity averages 19.5%) in particular. Using a sample of 124 listed REITs and a statistical model that estimates their market value as a multiple of funds from operations (FFO), I show that a lack of
secondary market trading and limited redemption cause equity claims on PNLRs to be 11%–13% less valuable than those to their listed competitors. I then document that PNLRs have supra-optimal capital structures that further reduce their relative value. I then briefly enumerate additional relative wealth losses due to the choices of finite-life and external-management structures.

In a complementary study, Hartzell, Kim, Kimbrell, and Sprow (2012) examine 17 “full cycle” PNLR holding periods that terminate with a liquidity event. For their sample, such events include: being acquired (five), listing on an exchange (five, including four on the NYSE and one on NASDAQ), and merging (seven). They calculate that, on average, an investor who purchased shares of a PNLR at the beginning of their fund-raising and held until a liquidity event (an exit strategy) earned an IRR of 10%, which was “somewhat {140–170 bps per year} lower than the benchmarks” and that the median holding in their sample would experience a wealth loss of 16%, which they attribute to upfront fees. This study is important as it provides a dynamic analysis over the complete lifecycle of a PNLR.
My study differs from Hartzell, Kim, Kimbrell, and Sprow (2012) in at least two important ways. First, PNLR management chooses if and when to engage in an exit strategy. Thus, the results in Hartzell, Kim, Kimbrell, and Sprow may reflect selection bias with more successful PNLRs choosing to engage in a liquidity event. Second, although their results are consistent with losses due to up-front costs, I examine a menu of potential causes for value reduction beyond up-front costs.

In the next section, I provide a summary of the debate surrounding the appropriateness of PNLRs as investments. In the sections that follow, I describe the sample, provide an initial analysis of the data, and discuss a cash-flow-based model of return-to-equity sustainability, which I then test empirically. I then econometrically estimate the relative liquidity premiums between listed REITs and PNLR alternatives. Greater leverage and an estimate of its attendant value reduction are then presented. I next contrast the relative transactions costs between listed REITs in both the pre-IPO and secondary markets and PNLRs. I then estimate the relative valuation of organizational choice variables. I conclude with point estimates for the relative value of investments in the two REIT forms and suggestions for further investigation.

PNLRs as an Investment Class: A Primer

In this section, I enumerate the self-described advantages of PNLRs over their traded competitors, and summarize popular criticism of this form.

The Comparative Advantages of PNLRs

The industry standard is to refer to the two greatest advantages offered by PNLRs as “alpha” and “beta” (National Real Estate Investor, 2011). In this institutional context, their meanings are only tangentially related to their statistical or finance theory counterparts.

Since reported changes in NAV are rare and redemptions are, at best, limited, any “return” on investment is defined solely by dividends. In this context, alpha is synonymous with dividend yield. The PNLR industry’s self-reported median dividend yield was 6.7% (National Real Estate Investor, 2011), a number that exceeded that for both their listed competitors (3.8%) and the S&P 500 universe (1.9%). It is important to note that the term “dividend” in this context refers to aggregate dividends declared regardless of their IRS taxation definition. As with listed REITs, reported dividend yields include amounts that are treated as “returns-of-capital” of both original and subsequent investors.

Further, PNLR advocates allege that these dividend yields are more stable. During the financial crisis of 2007–2009, 49 listed REITs cut or suspended their dividends, with a median decrease across the 49 of 55%. In contrast, the National Real Estate Investor (2011) claims that the dividend yields for PNLRs remain...
sustainable regardless of the contemporaneous economic climate. The sustainability of these higher yields is one priority of my empirical investigation.

Industry regularity is to employ the term “beta” to refer to the volatility of the value of a PNLR investment. Listed REITs are subjected to the vagaries of the investing public; as a result, market-to-book ratios can vary widely with a posited range of ±40%. In contrast, as PNLRs have no market prices, there are no premiums. So, “premiums risk” and, therefore, “beta risk” is tautologically zero. \(^{10}\)

If accepted at face value, the above claims of higher returns and lower risks vis-à-vis their listed counterparts point to an investment that offers a “current sustainable dividend with low volatility (National Real Estate Investor, 2011).” Although I have yet to find an explicit statement of suitability, PNLRs are claimed to be “functionally different” from listed REITs and analogous to an institutional investment pool. Indeed, the National Real Estate Investor (2011) recommends that holders of these assets invest with a five-to-seven-year investment horizon.

### Popular Criticism of PNLRs

Poor realized performance including suspensions or reductions of redemptions, surprise revaluations, and high upfront fees have led to criticism. For example, Pruitt and Karmin (2012) highlight two PNLRs whose per share value fell by 74% (Cornerstone Core Properties) and 54% (Retail Properties of America) and state that FINRA received “54% more complaints regarding non-traded REITs in 2011 than it did in 2009.” Pruitt (2012) explains that complaints center on “high fees, poor disclosure, frozen redemptions and erratic valuations;” while Kelly (2013) states that “non-traded REITs created pain for investors...by cutting dividends and dropping their valuations.” Such complaints to FINRA led the association to issue a warning in August 2012 “cautioning investors to be careful before investing in the sector” (Bodamer, 2012). The SEC has asked ten unidentified PNLRs to provide better disclosure on their share valuations.

Regulators have also intervened. Popper (2013) reports that “FINRA issued a $14 million fine in October 2012 against an important purveyor of non-traded REITs in the New York area, David Lerner Associates” while the eponymous founder was fined $250,000 (source: Reuters). Further, the Massachusetts Secretary of the Commonwealth reached a $2.5 million settlement with LPL Financial over alleged lack of control over representatives who sold seven PNLRs. \(^{11}\)

### PNLR Sample

The sample is drawn from a list of 66 PNLRs reported by Blue Vault Partners, LLC. From this original list, I added Cole Credit Property Trust and American Realty Capital Trust and excluded six with insufficient operating results. \(^{12}\) Exhibit 2 contains a list of the remaining 62 active PNLRs, along with their original and December 31, 2011 dividend yields as a percentage of NAV and their current
### Exhibit 2 | The PNLR Sample

<table>
<thead>
<tr>
<th>REIT Name</th>
<th>Offering Yield</th>
<th>Current Yield</th>
<th>Redemption Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Realty Capital Healthcare Trust</td>
<td>6.60%</td>
<td>6.60%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>American Realty Capital New York Recovery REIT</td>
<td>6.05%</td>
<td>6.05%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>American Realty Capital Trust</td>
<td>6.50%</td>
<td>7.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>American Realty Capital Trust III</td>
<td>6.60%</td>
<td>6.60%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Apartment Trust of America</td>
<td>7.00%</td>
<td>3.00%</td>
<td>Suspended</td>
</tr>
<tr>
<td>Apple REIT Eight</td>
<td>8.38%</td>
<td>5.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Apple REIT Nine</td>
<td>8.38%</td>
<td>8.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Apple REIT Seven</td>
<td>8.38%</td>
<td>7.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Apple REIT Six</td>
<td>8.38%</td>
<td>7.20%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Apple REIT Ten</td>
<td>7.50%</td>
<td>7.50%</td>
<td>3% of Shares Outstanding</td>
</tr>
<tr>
<td>Behringer Harvard Multi-Family REIT I</td>
<td>4.40%</td>
<td>6.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Behringer Harvard Opportunity REIT I</td>
<td>3.00%</td>
<td>0.00%</td>
<td>“Not Even if You’re Dead”</td>
</tr>
<tr>
<td>Behringer Harvard REIT I</td>
<td>7.00%</td>
<td>1.00%</td>
<td>Suspended</td>
</tr>
<tr>
<td>Behringer-Harvard Opportunity REIT II</td>
<td>3.00%</td>
<td>5.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Bluerock Enhanced Multi-Family Trust</td>
<td>7.00%</td>
<td>7.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Carey Watermark Investors</td>
<td>4.00%</td>
<td>4.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Carter Validus Mission Critical REIT</td>
<td>7.00%</td>
<td>7.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>CB Richard Ellis Realty Trust</td>
<td>3.20%</td>
<td>6.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>REIT Name</td>
<td>Offering Yield</td>
<td>Current Yield</td>
<td>Redemption Policy</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>----------------</td>
<td>---------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>CNL Lifestyle Properties</td>
<td>5.00%</td>
<td>6.25%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>CNL Macquarie Global Growth Trust</td>
<td>8.00%</td>
<td>8.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>CNL Macquarie Global Income Trust</td>
<td>6.50%</td>
<td>6.50%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>CNL Healthcare Properties</td>
<td>4.00%</td>
<td>4.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Cole Corporate Income Trust</td>
<td>6.50%</td>
<td>6.50%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Cole Credit Property Trust</td>
<td>7.00%</td>
<td>6.29%</td>
<td>3% of Shares Outstanding</td>
</tr>
<tr>
<td>Cole Credit Property Trust II</td>
<td>7.00%</td>
<td>6.25%</td>
<td>3% of Shares Outstanding</td>
</tr>
<tr>
<td>Cole Credit Property Trust III</td>
<td>5.40%</td>
<td>6.50%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Cole Real Estate Income Strategy (Daily NAV)</td>
<td>5.50%</td>
<td>5.50%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Cornerstone Core Properties REIT</td>
<td>5.00%</td>
<td>0.00%</td>
<td>Suspended</td>
</tr>
<tr>
<td>Corporate Property Associates 15</td>
<td>4.5%</td>
<td>7.35%</td>
<td>Suspended</td>
</tr>
<tr>
<td>Corporate Property Associates 16</td>
<td>4.64%</td>
<td>6.67%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Corporate Property Associates 17</td>
<td>5.46%</td>
<td>6.50%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Dividend Capital Total Realty Trust</td>
<td>5.50%</td>
<td>5.91%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>GC Net Lease REIT</td>
<td>6.75%</td>
<td>6.75%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Grubb &amp; Ellis Healthcare REIT II</td>
<td>6.50%</td>
<td>6.50%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Healthcare Trust of America</td>
<td>7.25%</td>
<td>7.25%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Hines Global REIT</td>
<td>7.00%</td>
<td>7.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Hines REIT</td>
<td>6.00%</td>
<td>5.00%</td>
<td>Suspended</td>
</tr>
<tr>
<td>Independence Realty Trust</td>
<td>6.00%</td>
<td>6.00%</td>
<td>0%</td>
</tr>
</tbody>
</table>
The PNLR Sample

**Exhibit 2** (continued)

### The PNLR Sample

<table>
<thead>
<tr>
<th>REIT Name</th>
<th>Offering Yield</th>
<th>Current Yield</th>
<th>Redemption Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Income Trust</td>
<td>6.25%</td>
<td>6.25%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Inland American</td>
<td>5.00%</td>
<td>5.00%</td>
<td>Suspended</td>
</tr>
<tr>
<td>Inland Diversified</td>
<td>6.00%</td>
<td>6.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Inland Western (Retail Properties of America)</td>
<td>3.00%</td>
<td>2.25%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>KBS Legacy Partners Apartment REIT</td>
<td>6.50%</td>
<td>6.50%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>KBS REIT I</td>
<td>7.00%</td>
<td>5.25%</td>
<td>Suspended</td>
</tr>
<tr>
<td>KBS REIT II</td>
<td>5.70%</td>
<td>6.50%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>KBS REIT III</td>
<td>6.50%</td>
<td>6.50%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>KBS Strategic Opportunity REIT</td>
<td>3.00%</td>
<td>3.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Lightstone Value Plus REIT</td>
<td>7.00%</td>
<td>7.00%</td>
<td>2% of Shares Outstanding</td>
</tr>
<tr>
<td>Lightstone Value Plus REIT II</td>
<td>6.50%</td>
<td>6.50%</td>
<td>2% of Shares Outstanding</td>
</tr>
<tr>
<td>Moody National REIT I</td>
<td>8.00%</td>
<td>8.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Northstar Real Estate Income Trust</td>
<td>8.00%</td>
<td>8.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Paladin Realty Income Securities</td>
<td>6.00%</td>
<td>6.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Phillips Edison-ARC Shopping Center</td>
<td>6.50%</td>
<td>6.50%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Resource Real Estate Opportunity REIT</td>
<td>6.00%</td>
<td>6.00%</td>
<td>0%</td>
</tr>
</tbody>
</table>
### Exhibit 2 | (continued)

The PNLR Sample

<table>
<thead>
<tr>
<th>REIT Name</th>
<th>Offering Yield</th>
<th>Current Yield</th>
<th>Redemption Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentio Healthcare Properties</td>
<td>6.00%</td>
<td>2.50%</td>
<td>Suspended</td>
</tr>
<tr>
<td>Steadfast Income REIT</td>
<td>7.00%</td>
<td>7.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Strategic Storage Trust</td>
<td>4.30%</td>
<td>7.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>TNP Strategic Retail Trust</td>
<td>6.75%</td>
<td>7.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>United Development Funding IV</td>
<td>8.00%</td>
<td>8.20%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Wells Core Office Income REIT</td>
<td>5.00%</td>
<td>6.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Wells REIT II</td>
<td>2.50%</td>
<td>5.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Wells Timberland</td>
<td>2.00%</td>
<td>2.00%</td>
<td>5% of Shares Outstanding</td>
</tr>
<tr>
<td>Mean</td>
<td>6.00%</td>
<td>5.86%</td>
<td>3.87%</td>
</tr>
<tr>
<td>Median</td>
<td>6.50%</td>
<td>6.50%</td>
<td>5.00%</td>
</tr>
<tr>
<td>Min.</td>
<td>2.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Max.</td>
<td>8.38%</td>
<td>8.20%</td>
<td>5.00%</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1.55%</td>
<td>1.83%</td>
<td>2.01%</td>
</tr>
</tbody>
</table>

Notes: This table presents a list of the universe of 62 active public non-traded REITs as of December 31, 2011 with full reporting of operations. The second column presents the dividend yield offered in the earliest 10-K, while the third column presents data on the promised yield as of December 31, 2011.
redemption policies. Across this sample, the mean (median) original dividend yield was 6.0% (6.5%) with a range from 2% to 8.4%. While 13 PNLRs (20.9%) have reduced, cancelled or suspended dividend payment, 17 (27.4%) offer yields higher than their offering levels. However, as the magnitude of dividend declines are larger than the increases, the mean (median) December 31, 2011 dividend yield is 5.9% (6.5%) with a range of zero to 8.2%.

Turning to the redemption programs, 45 (72.5%) of the PNLRs offer 5% per annum. In contrast, nine (14.5%) have suspended redemption, and the Behringer Harvard REIT I does not allow redemption “Even if you’re Dead.” Two PNLRs did not explicitly suspend their redemption program, but as their FFO’s were negative, they redeemed no shares. Approximated measures of the annual redemption mean (median) is 3.87% (5.0%). Benjamin (2011) reported that: “Over the past two years, less than $35 million of the more than $4 billion in investor redemption requests has been honored…”

Exhibit 3 presents cross-sectional summary statistics for the key variables. The mean dollar value of AUM as of December 31, 2011 is roughly $1.33 billion. This mean is from a right-skewed distribution as the median is only slightly above one-quarter of the mean. The smallest amount of AUM, at Industrial Income, is only $1 million while the largest fund, Inland American, had $10.9 billion under management. Extracting from reported debt levels, mean and median debt-to-assets ratios are 46.5% and 51.7%, which translate into debt/equity ratios of 86.9% and 107.0%, respectively. In contrast, the mean debt-to-market-equity for exchange-traded REITs is only 45.1%.

Reported net income as of December 31, 2011 averaged −$6.8 million, with a median of −$2.1 million. Only 35.4% of the sample exhibited a positive accounting profit, while 74.2% exhibited a positive cash flow from operations. This difference reflects the magnitude of depreciation relative to earnings and reinforces the industry preference for funds from operations (FFO) measurement. Throughout this study, I use the terms FFO and my measurement of it, cash flows from operations (CFFO), interchangeably.

Although I summarize the reported numbers associated with general and administrative expenses (G&A), the economic significance of these numbers is inherently unreliable. Unlike their listed competitors, PNLRs are externally managed, which affords management great discretion in allocation at a variety of levels. Reported G&A averages $5.87 million or 2.0% of assets under management.

Almost 89% of the sample purchased property. While Exhibit 3 reports an unconditional mean of $163.8 million, a conditional mean can easily be constructed by dividing the mean by the probability of purchase: in this case, $163.8/0.887 = $184.7 million. This statistic is interpreted as the average dollar value of real estate assets purchased conditional on the PNLR having purchased property. Such conditional means can be calculated throughout Exhibit 3.
## Exhibit 3 | Summary Financial Data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
<th>% &gt; 0</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Balance Sheet</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Assets</td>
<td>$1,334,727</td>
<td>$351,008</td>
<td>$1,992,080</td>
<td>$1,013</td>
<td>$10,919,190</td>
<td></td>
</tr>
<tr>
<td>Total Liabilities</td>
<td>$666,975</td>
<td>$127,311</td>
<td>$1,123,386</td>
<td>$540</td>
<td>$6,255,876</td>
<td></td>
</tr>
<tr>
<td>Total Equity</td>
<td>$658,954</td>
<td>$185,841</td>
<td>$948,414</td>
<td>$(365)</td>
<td>$4,663,314</td>
<td>96.8%</td>
</tr>
<tr>
<td>D / (D+E)</td>
<td>46.5%</td>
<td>51.7%</td>
<td>22.7%</td>
<td>2.9%</td>
<td>106.0%</td>
<td></td>
</tr>
<tr>
<td><strong>Income Statement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Income</td>
<td>$(6,815)</td>
<td>$(2,108)</td>
<td>$56,734</td>
<td>$(309,545)</td>
<td>$94,488</td>
<td>64.6%</td>
</tr>
<tr>
<td>G&amp;A / Assets</td>
<td>2.0%</td>
<td>0.6%</td>
<td>7.6%</td>
<td>0.2%</td>
<td>60.0%</td>
<td></td>
</tr>
<tr>
<td><strong>Cash Flow Statement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash from Operations</td>
<td>$40,856</td>
<td>$3,738</td>
<td>$74,257</td>
<td>$(5,499)</td>
<td>$397,949</td>
<td>74.0%</td>
</tr>
<tr>
<td>Property Purchase</td>
<td>$(163,791)</td>
<td>$(42,687)</td>
<td>$357,105</td>
<td>$(2,342,527)</td>
<td>$—</td>
<td>88.7%</td>
</tr>
<tr>
<td>Property Sales</td>
<td>$19,601</td>
<td>$—</td>
<td>$47,540</td>
<td>$—</td>
<td>$196,257</td>
<td>29.0%</td>
</tr>
<tr>
<td>Net Property Cash</td>
<td>$(144,189)</td>
<td>$(32,655)</td>
<td>$367,345</td>
<td>$(2,342,527)</td>
<td>$196,257</td>
<td>16.1%</td>
</tr>
<tr>
<td><strong>Cash from Investing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt Issue</td>
<td>$183,486</td>
<td>$39,369</td>
<td>$350,025</td>
<td>$—</td>
<td>$1,791,737</td>
<td>80.6%</td>
</tr>
<tr>
<td>Debt Retirement</td>
<td>$(112,275)</td>
<td>$(10,516)</td>
<td>$233,301</td>
<td>$(1,168,278)</td>
<td>$—</td>
<td>83.9%</td>
</tr>
<tr>
<td>Net Cash from Debt</td>
<td>$71,211</td>
<td>$12,347</td>
<td>$210,834</td>
<td>$(223,439)</td>
<td>$1,301,115</td>
<td>61.3%</td>
</tr>
<tr>
<td>Equity Issue</td>
<td>$129,880</td>
<td>$31,602</td>
<td>$243,512</td>
<td>$—</td>
<td>$1,296,596</td>
<td>79.0%</td>
</tr>
<tr>
<td>Share Repurchase</td>
<td>$10,009</td>
<td>$327</td>
<td>$17,766</td>
<td>$—</td>
<td>$82,892</td>
<td>64.5%</td>
</tr>
<tr>
<td>Net Equity Issue</td>
<td>$119,871</td>
<td>$29,143</td>
<td>$240,766</td>
<td>$(62,588)</td>
<td>$1,254,706</td>
<td>74.2%</td>
</tr>
<tr>
<td>Cash to Shareholders</td>
<td>$(24,710)</td>
<td>$(3,704)</td>
<td>$42,178</td>
<td>$(229,109)</td>
<td>$—</td>
<td>90.3%</td>
</tr>
</tbody>
</table>
### Exhibit 3 | (continued)

**Summary Financial Data**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
<th>% &gt; 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash from Financing</td>
<td>$130,121</td>
<td>$34,911</td>
<td>$375,189</td>
<td>$(326,298)</td>
<td>$2,311,407</td>
<td>69.4%</td>
</tr>
<tr>
<td>Beginning Cash</td>
<td>$39,749</td>
<td>$6,785</td>
<td>$61,945</td>
<td>$—</td>
<td>$267,707</td>
<td></td>
</tr>
<tr>
<td>End Cash</td>
<td>$55,643</td>
<td>$15,692</td>
<td>$98,580</td>
<td>$—</td>
<td>$655,495</td>
<td></td>
</tr>
<tr>
<td>Supplemental Information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dividend Reinvestment</td>
<td>$20,749</td>
<td>$2,461</td>
<td>$36,935</td>
<td>$—</td>
<td>$199,591</td>
<td>87.0%</td>
</tr>
<tr>
<td>Return to Shareholders</td>
<td>$45,460</td>
<td>$6,250</td>
<td>$77,962</td>
<td>$(427,700)</td>
<td>$—</td>
<td>95.1%</td>
</tr>
</tbody>
</table>

Notes: This table presents cross-sectional summary statistics for a number of variables derived from 10-K filings of financial statements as of December 31, 2011 for the universe of 62 active public non-traded REITs. The column labeled “% > 0” presents that proportion of the sample for which the variable is greater than zero. All $figures are in ‘000’s.
that as a property purchase is a cash outflow, these numbers are reported as 
negatives.

Although 80.6% of the sample issued debt, perhaps surprisingly a higher number, 
83.9%, retired debt. The average PNLR, however, raised roughly $71 million in 
net debt capital. Over three-quarters (79%) of the sample raised equity capital 
totaling $8.05 billion. This is roughly 1.8 times the net amount of debt issued.

Roughly 90% of the firms distributed cash to shareholders during 2011. Such cash 
distributions to shareholders averaged 1.8% of (book) equity for the 62 firms in 
the sample, with a median of 2.8%. A key difference between these statistics and 
those reported in Exhibit 2 is due to the presence of dividend re-investment 
programs (DRIPs). The reported actual (net) cash outflows to equity holders, \( C_E \), 
captures the total dividends declared, or total returns to equity holders, netted 
against dividends re-invested through a DRIP that are added back, or:

\[
\text{Net Cash to Equity (} C_E < 0) = \text{Return to Equity (} R_E < 0) 
+ DRIP ( > 0),
\]

where \( R_E \) is (1) the (gross) return to shareholders, (2) the “alpha” from 2.1.1 
above, and (3) the metric used by PNLRs used to report returns to shareholders.

For example and using the sample means in Exhibit 3, a typical PNLR paid out 
$24.7 million to shareholders. However, dividends declared averaged $45.5 
million, of which fully $20.7 million or 45% were reinvested via their DRIP.

Return Sustainability

In this section, I examine the uses and sources of cash to shareholders. I develop 
a model of cash flows and the sustainability of cash flows available to 
shareholders.

Cash to Shareholders

Before examining the sources of cash available to shareholders, I note that the 
PNLRs in the sample lowered the hurdle of cash flow sustainability by lowering 
both dimensions of cash returns to shareholders. First, as outlined in Exhibit 2, 
12 of the 62 (19.4%) of the sample suspended their redemption programs. Of 
these 12, ten announced suspensions, while the remaining two implicitly 
suspended dividends since their CFFO’s were negative. Further, 17 of the 62 
(27.4%) reduced their dividends. The conditional mean reduction is 37.8%. 
Despite claims of less volatile cash flows to shareholders outlined above, these
numbers are comparable to those for the listed REITs, where 32.9% of the universe cut their dividends with a conditional mean of 55%.\textsuperscript{19}

\textbf{Sources of Cash}

I begin with an identity from the Statement of Cash Flows:

Beginning of period cash + cash flows from operations (CFFO) + cash flows from investing (CFFI) + cash flows from financing (CFFF) = end of period cash (ending cash, hereafter).

I next focus on CFFF and, maintaining the accounting standard of treating cash outflows as a negative and inflows as positive, write that:

\[
\text{CFFF} = \text{issuance (+) or retirement (−) of debt + issuance (+) or retirement (−) of equity + net cash dividends to equity (−) + other financing (±)}. 
\]

By substituting and re-arranging, I can write that:

\[
-C_E = \text{CFFO} - \Delta\text{Cash} + \{\text{CFFI} + \Delta\text{Debt} \\
+ \Delta\text{Equity} + \text{Other}\}, \tag{2}
\]

where \(C_E\) is the net (of the DRIP) cash (outflow) to equity holders; \(\Delta\text{Cash}\) is the change in cash from open to close; \(\Delta D\) is the net cash inflow from debt issuance; \(\Delta E\) is the net cash inflow from equity issuance;\textsuperscript{20} and \(\text{Other}\) is other financing.

In some cases, these “identities” are violated due to below-the-line gains or losses due to currency fluctuations. Results do not materially differ from those reported here regardless of whether these are treated as CFFOs, CFFF, or simply ignored.

Multiplying (1) by \(-1\) and substituting for \(-C_E\) in (2) yields:

\[
-R_E = -C_E + \text{DRIP} = \text{CFFO} - \Delta\text{Cash} \\
+ \{\text{CFFI} + \Delta D + \Delta E + \text{Drip} + \text{Other}\}. \tag{3}
\]

As \(C_E\) is an outflow and \(\text{DRIP}\) is an inflow, both \(-C_E\) and \(\text{DRIP}\) are both positive. Their sum, \(-R_E\) is also positive and represents the cash required to provide equity holders with their reported return \(R_E\).

I use equation (3) to help us define the concept of a “sustainable return to equity.” Simply put, if \(\text{CFFO}\) (hopefully, a positive number) exceeds returns to shareholders, \(R_E\), then I define that level of equity return as “sustainable.” If, in
### Exhibit 4 | Sources and Uses of Cash

<table>
<thead>
<tr>
<th>Variable</th>
<th>% of Assets</th>
<th>% of Equity</th>
<th>% &lt; 0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Returns to Shareholders</td>
<td>3.5%</td>
<td>7.0%</td>
<td></td>
</tr>
<tr>
<td>Cash From Operations:</td>
<td>3.0%</td>
<td>6.1%</td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>-0.5%</td>
<td>-0.9%</td>
<td>80.6%</td>
</tr>
<tr>
<td>Beginning Cash</td>
<td>3.0%</td>
<td>6.0%</td>
<td></td>
</tr>
<tr>
<td>Ending Cash</td>
<td>4.2%</td>
<td>8.3%</td>
<td></td>
</tr>
<tr>
<td>ΔCash</td>
<td>1.2%</td>
<td>2.3%</td>
<td>22.5%</td>
</tr>
<tr>
<td>Cash From Investing</td>
<td>-11.6%</td>
<td>-23.2%</td>
<td>83.9%</td>
</tr>
<tr>
<td>Property Cash Flow</td>
<td>-10.8%</td>
<td>-21.6%</td>
<td>77.4%</td>
</tr>
<tr>
<td>Debt Issuance</td>
<td>13.7%</td>
<td>27.4%</td>
<td>19.4%</td>
</tr>
<tr>
<td>Debt Repayment</td>
<td>-8.5%</td>
<td>-17.0%</td>
<td></td>
</tr>
<tr>
<td>Net Debt Cash</td>
<td>5.3%</td>
<td>10.9%</td>
<td>38.7%</td>
</tr>
<tr>
<td>Share Issuance</td>
<td>9.7%</td>
<td>19.5%</td>
<td>20.9%</td>
</tr>
<tr>
<td>Share Repurchase</td>
<td>0.8%</td>
<td>1.5%</td>
<td>64.5%</td>
</tr>
<tr>
<td>Net Equity Cash</td>
<td>10.5%</td>
<td>21.1%</td>
<td>79.0%</td>
</tr>
<tr>
<td>New Capital</td>
<td>15.9%</td>
<td>31.8%</td>
<td></td>
</tr>
<tr>
<td>DRIP</td>
<td>1.6%</td>
<td>3.2%</td>
<td></td>
</tr>
<tr>
<td>Other Financing</td>
<td>-4.2%</td>
<td>-8.1%</td>
<td>96.8%</td>
</tr>
</tbody>
</table>

Notes: For the 62 public, non-listed real estate investment trusts (PNLRs) with complete Statement of Cash Flow data for the year ended December 31, 2011. I first calculate cross-sectional averages for each of the listed variables. These cross-sectional means are then deflated by either the cross-sectional mean of total (book value of) assets or (book value of) equity. The final column presents the percentage of the individual observations that are less than zero.

Contrast, CFFO is less than the returns to shareholders, then equity returns are “unsustainable.”

Indeed, equation (3) specifically identifies the options open to the firm under this scenario. The firm must make up the shortfall through some combination of (1) a depletion of their cash reserves (ΔCash < 0), (2) a net sale of assets (CFFI > 0), (3) a net issuance of debt (ΔD > 0), (4) or of equity (ΔE > 0), or the equivalent of receiving cash from existing shareholders via re-invested dividends. Note that the last three options explicitly involve using newly invested money to meet reported returns to existing equity holders.

### Empirical Estimates of Available Cash

I begin the analysis of sustainability using the dataset described in Exhibit 4. As raw dollar figures are difficult to compare in the cross-section, numbers are
deflated by both total assets and total (book) equity. Each entry in Exhibit 4 is thus the cross-sectional average of the numerator divided by the cross-sectional average of either assets or equity. I choose to display the ratio of the means, or $E\{Y\}/E\{x\}$, in Exhibit 4 rather than the mean of the ratios, $E\{x/y\}$, as presented in Exhibit 2 and 3, for two reasons. First, those observations for PNLRs with, for example, negative book equity or negative CFFOs distort sample means of ratios. Second, as each entry is divided by the same sample mean, addition along a column is maintained.

The Returns to Shareholders row in Exhibit 4 shows that the returns as a percentage of equity averaged 7.0%. However, CFFOs, expressed either as a percentage of equity or a percentage of assets are, on average, insufficient to sustain these yields. The aggregate dollar shortfall in the dataset is $295 million. Further, as shown in column (3), fully 50 of the 62 (80.6%) of these REITs fail the sustainability test on a case-by-case basis. Exhibit 5 is a histogram of each PNLR’s short-fall deflated by its assets, or:

$$\frac{\{\text{FFO}–\text{Returns to Shareholders}\}}{\text{Total (book) Assets}}.$$ 

The mean of this (equally-weighted) series is $-2.02\%$ of assets while the median is $-1.53\%$. As the standard deviation of 4.19%, the t-statistic that the average shortfall equals zero is $-4.0$. The two mean statistics are essentially doubled when expressed as a percentage of (book) equity. One notable outlier is Bluerock Enhanced Multi-Family Trust, which distributed $9.77\%$ of assets to equity holders despite CFFOs that were $-17.8\%$ of assets.

As shown in Exhibit 4, over 77% of the sample increased their cash holdings. Though not reported, in aggregate the sample increased their cash holdings by $985$ million. This increase in cash reserves averages $1.2\%$ of assets and $2.3\%$ of equity, leading to cash balances of $4.2\%$ of assets and $8.3\%$ of equity as of December 31, 2011. In contrast, Hardin and Hill (2008) report that cash holding for their sample of public REITs is but $1.6\%$ of assets compared to over $18\%$ for non-REITs.

There are at least four consistent explanations for this increase in cash holdings. First, Pruitt (2012) reports that “new” REITs “will be setting aside some of the capital they raise for (redemptions).” A second reason may be a relatively unattractive primary real estate market. In a previous version of this study, I reported that trusts made purchases equal to $15.4\%$ of their assets during 2010. The same figure is $12.2\%$ for 2011. Cash holdings fell by $1.8\%$ during 2010, so the difference in cash holdings (+$1.2\%$ in 2011 vs. $-1.8\%$ in 2010) of $3\%$ of assets may reflect an ex ante perception of fewer profitable investments and the ex post $3.2\%$ (of assets) reduction in actual property purchases between the two years. A third reason may be that these PNLRs may need cash to satisfy the
This figure is a histogram depicting the relative frequency of proportional distribution shortfall. The variable is constructed as \( \frac{\text{FFO–Total Distributions}}{\text{Total (book) Assets}} \) for each of the 62 PNLRs with sufficient data. The mean of the series is \(-2.02\%\) the median is \(-1.53\%\) with a standard deviation of \(4.19\%\), yielding an inferred \(t\)-statistic that the average equal zero of \(4.0\). Twelve of the 62 (19.4\%) of the observations exceed zero. One outlier is Bluerock Enhanced Multi-Family Trust, which distributed 9.77\% of assets to equity holders despite CFFOs that were \(-17.8\%\) of assets.

variety of derivative compensation plans (Swensen, 2005) if share redemption is insufficient or said derivatives are cash-settled. Regardless, such stock-piling of cash exacerbates shortfalls. Finally, under the paradigm of Hardin and Hill (2008), an increase in cash held by PNLRs may reflect less access to capital and may indicate the potential for greater agency costs.

The cash deficit was not covered through the sale of assets. Cash flows from investing were roughly 11.6\% of assets and were cash outflows for 83.9\% of the firms. This is largely explained by (net) property acquisition that averaged 10.8\% of assets and was a net cash outflow for 77.4\% of the firms. Cash from financing is not included as one component of CFFF in cash flows to investors.

Therefore, cash (net) inflows from new financing are required to close the sustainability gap. Specifically, the sum of the sustainability gap plus the accumulation of cash reserves and expansion of properties under management are jointly financed by net debt (69.4\% of firms, with an average net inflow of 5.3\% of assets) and/or the issuance of equity (79.0\% of the firms with an average inflow
of 9.7%). Feng, Ghosh, and Sirmans (2007) conclude that “REITs with high growth opportunity and high market valuation raise funds through debt issues.”

As cash is fungible, it is impossible to allocate which sources of funds went towards property expansion. However, the arithmetic is unassailable: some of the newly raised and/or re-invested funds were employed in providing a dividend are not sustainable by current operations.

**Cash Sustainability, PNLR Maturity and the “J-Curve”**

I also examined the relation between a PNLR’s “maturity” and its cash flow sustainability. Efforts to model a dependent variable as a ratio of cash flows are thwarted by the preponderance of negative and zero values of FFO. Thus, to examine this relation, I run a logistic model with a binary dependent variable that equals 1 if, following the definition above, cash flows are sustainable and zero otherwise. The predictive variable is calculated as the number of calendar days between formation as extracted from their prospectus and December 31, 2011 divided by 365.4.

The estimated model is:

\[
Pr\{\text{FFO} > \text{Return to Shareholders}\} = \frac{1}{1 + e^{(3.54 - 0.398 \cdot \text{Age})}}
\]

and the fitted or predicted relation is plotted in Exhibit 6.

Consistent with the maturity: or “J-curve” hypotheses that posits that private or start-up funds should be expected to lose money in their early years, I find a positive relation between the age of the PNLR and the probability that CFFOs exceed cash flows to shareholders. The relation is both economically (standardized coefficient = 0.84) and econometrically \((\chi^2 = 8.13)\) significant. An induction from this model is that \(Pr\{\text{FFO} > \text{Cash to Shareholders}\} > 50\%\) when age exceeds 8.89 years.

The analyses of residuals identify curious cases. The two youngest PNLRs in the sample to pass the sustainability test are both micro-cap trusts: Cole Corporate Income Trust ($37 million in AUM) reported CFFO of $432,000 while disbursing only $213,000 throughout the year ending 1.7 years after formation (predicted probability = 5.4%) and Independence Realty Trust ($131 million in AUM), which reported FFO of $2.2 million while distributing only $5,000 just 2.8 years after formation. Although two of the three trusts that exceed 8.89 years of existence in the sample exhibit sustainability, Behringer Harvard (Age = 9.46 years) fails the sustainability test.
Using the same data, I estimate the time-varying beta model:

\[
\text{Return to Shareholders} = (\beta_0 + \beta_1 \text{Age}) \times \text{FFO} + \epsilon,
\]

via weighted least squares with (the inverse of) FFO as the weights, yielding parameter estimates of \(\beta_0 = 2.07\) and \(\beta_1 = -0.153\). Consistent with the logistic model above, the ratio of these two coefficients predict that the ratio of cash to shareholders to FFO (that is, \(2.07 - 0.153 \times \text{Age}\)) falls below one when \(\text{Age}\) exceeds 6.9 years.

I augmented both models with various metrics of size, including total assets, book equity, and their natural logarithms. In no case did these control variables approach significance.

Point estimates from the above logistic regression indicate that cash sustainability is rare for new PNLRs. Indeed, when evaluated at \(\text{Age} = 2\), the function predicts but a 13.6% probability that a PNLR would enjoy cash sustainability. Indeed, five
out of six PNLRs in the sample with Age < 2 years failed the sustainability test, with shortfalls ranging from $69,000 to $22.7 million.

To determine whether this prediction holds for listed-REITs, I examine data for the 10 that became active (listed non-zero assets for at least one 10-Q) in 2010 through 2011. Of these 10, eight reported positive FFOs. The two that did not report a positive FFO paid zero dividends. Seven of the remaining eight met the sustainability requirement with Chatham Lodging reporting a shortfall of only 0.15% of assets. In aggregate, these 10 generated FFOs that exceeded their dividends by $70 million.

Value and Liquidity

NAREIT summarizes what is arguably the primary motivation for the REIT organizational form: “Congress created REITs in the U.S. in 1960 as a way to make investment in large-scale, income-producing real estate accessible to all investors in the same way they typically invest otherwise—through the purchase and sale of liquid securities.”

Academic research has confirmed and quantified the value added from issuing liquid claims on relatively illiquid real estate assets. Of greatest pertinence is Benveniste, Capozza, and Seguin (2001), who estimate numerous models of the form:

\[
\text{Wall Street Value} = \beta \text{Main Street Value} + \gamma Z + \varepsilon,
\]

where Wall Street Value is the aggregate value of the liquid (listed) equity, Main Street Value is the aggregate value of the relatively illiquid real estate assets less the book value of debt, and Z is a matrix of control variables. Benveniste, Capozza, and Seguin (2001) provide estimates of \( \beta \) that are reliably greater than unity and tend to vary between 110% and 117%. From this, they conclude that public trading enhances value by 10%–17%.

Perhaps most telling was Benveniste, Capozza, and Seguin’s (2001, p. 652) analysis, written before the recent growth of the PNLR industry, that: “The interpretation of these [\( \beta \)] coefficients is aided if one assumes the existence of a (albeit bizarre) corporate organization where a collection of real estate assets are pooled into a Trust, but equity claims on this Trust are forever untradeable.” Their seemingly “bizarre” point of comparison was already in existence and would subsequently gain prominence as the PNLR.

Recent Data

I also analyze more recent data employing a test that is equivalent in spirit yet different in form from those described above. Beginning with the truism that:
Exhibit 7 | Summary Statistics for Listed REITs

<table>
<thead>
<tr>
<th>Price/E[FFO(2012)]</th>
<th>Ave $Volume</th>
<th>Market Cap</th>
<th>Annual Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>14.29</td>
<td>$25,163</td>
<td>$3,677</td>
</tr>
<tr>
<td>Median</td>
<td>14.37</td>
<td>$13,185</td>
<td>$1,667</td>
</tr>
<tr>
<td>Min.</td>
<td>4.02</td>
<td>$21</td>
<td>$22</td>
</tr>
<tr>
<td>Max.</td>
<td>32.44</td>
<td>$204,802</td>
<td>$52,893</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>4.81</td>
<td>$33,671</td>
<td>$6,284</td>
</tr>
</tbody>
</table>

Notes: For a sample of 124 public, exchange-listed real estate investment trusts, I extract data from nareit.org. Price/E[FFO] Multiple is the December 2011 closing price deflated by the NAREIT estimate of 2012 FFO. Ave $Volume is the daily average dollar volume of trading in $thousands and Market Cap is the Wall Street value of equity in $millions. Turnover is calculated by correcting daily volume for unit differences and the 252 trading days in a typical year.

\[
\text{Price} = \frac{\text{Price}}{E[\text{FFO}]} \times E[\text{FFO}],
\]

where \(E[\text{FFO}]\) are expectations as of December 31, 2011 for funds from operations for 2012, relative values can be inferred from relative Price/E[FFO] multiples. Consistent with this, I collected a sample of 99 listed REITs and extracted data on Price/E[FFO] ratios, annual dollar volume of trading, and the market value of outstanding equity or “market cap” (source: REITWatch, May 2011, NAREIT.org). Exhibit 7 provides the summary statistics for these variables and an additional calculated variable, turnover, which I define as the annual dollar volume of trading divided by market cap.

To determine the impact of liquidity on the price-to-expected-FFO multiple and thus on value, I estimate the following regression:

\[
\text{Multiple} = a + b \times \text{Turnover} + e.
\]

The estimation of the parameters of this specification yields the estimated model:

\[
\text{Multiple} = 12.71 + 0.93 \times \text{Turnover} + e.
\]
The slope coefficient is econometrically \((t = 3.16, p < .002)\) and economically significant. Specifically, the model indicates that listed REIT stock prices approximate 12.7 times expected FFO when trading volume or turnover is zero, rising to 13.6 times when turnover equals 1, and to 14.3 times when turnover equals the sample mean (or 14.2 times for the median). That is, if two REITs are expected to generate identical FFOs for a coming year, a PNLR will tend to be valued at 12.7 times the predicted FFO while a listed REIT will tend to be valued at 14.3 times that same number. Noting that \(14.3/12.7 = 112.6\%\), I confirm that the predicted liquidity gains from listing claims on real estate remain at 13\% , a figure that is consistent with estimates using a different methodology and data that is roughly 15 years old.

The results are economically unchanged if I instead contrast the multiple evaluated at the mean turnover level to the multiple evaluated at any reasonable level of fund redemption. For example, a generous 5\% redemption policy yields an annual turnover of 0.05\%. At these levels, the relative multiple is calculated as:

\[
\frac{12.7 + (0.93 \times 1.77)}{12.7 + (0.93 \times 0.05)} = 112.5\% ,
\]

yielding a 12.5\% relative liquidity premium.

For 2011, Jeffries (2012) reports an industry-wide 457 transactions, with an aggregate dollar volume of $8.4 billion. This figure represents 1.26\% of the book equity of the 62 PNLRs in the sample. Using these admittedly inexact figures leads to the ratio:

\[
\frac{12.7 + (0.93 \times 1.77)}{12.7 + (0.93 \times 0.0126)} = 112.1\% ,
\]

or a 12.1\% premium. These relative multiples and their resulting relative valuation metrics can be interpreted as measures of the liquidity gains foregone by organizing real estate pools into unlisted, low-redemption companies. Specifically, holding cash flows from underlying assets (i.e., FFOs) constant across two asset pools, between 12\% and 13\% more wealth could have been created by instead organizing the pool into a listed REIT.

**Capital Structure**

Capoza and Seguin (2000) find debt-to-asset ratios of 32.3\% for internally-managed REITs and 42.9\% for those that are externally-managed \((t\text{-statistic} >\)
They posit that compensation based on property-level cash flows/FFO or asset base tempts external managers to issue “excessive” debt to purchase assets in order to generate additional compensation. In their Table 6, they demonstrate that interest expense as a percentage of debt is 285 basis points higher for externally-managed REITs.

However, using data from the “new REIT” era, Rottke, Striewe, and Zietz (2013) show that market (book) leverage is 10.6%–17.1% (12.7%–18.3%) lower for externally-managed REITs. They credit an increased sophistication in the REIT market and an attendant reduction in potential agency costs.

Here, I determine whether PNLRs, which are predominantly externally-managed, exhibit more highly levered capital structures. For the sample with capital structure data, I estimate the ratio of mean debt to mean equity as 102.6%. Using the sample of 124 public exchange-traded REITs as of December 31, 2011, I find an average debt-to-equity ratio of only 45.11%. Associated debt-to-asset ratios are 49.7% for PNLRs and 30.8% for exchange-listed REITs. Harrison, Panasian, and Seiler (2011) robustly demonstrate that “profitability and market-to-book ratios are negatively related” to leverage. Under this paradigm, my finding of higher debt levels for the PNLRs is at least consistent with their hypotheses that PNLRs offer lower profitability and would have lower market-to-book ratios. Under the paradigm of Rottke, Striewe, and Zietz (2013, p. 115), the higher debt levels for externally-managed funds reported here is evidence of “…opportunistic behavior on the part of managers…”

To determine the valuation effect of a potentially sub-optimal capital structure for the sample of PNLRs, I estimate a linear model linking the valuation multiple as defined above and in Exhibit 7 to leverage for the sample of listed REITs.

To estimate a value loss associated with sub-optimal capital structure, I evaluate the model at \( \frac{\text{Average Debt}}{\text{Average Equity}} \) = 45.1%, and find that the multiple, evaluated at \( \frac{\text{Debt}}{\text{Equity}} = 99.8\% \) is 9.24 times lower. If I make the heroic assumption that the calculus of mapping capital structure to valuation for PNLRs is identical to that for listed REITs, the sub-optimal capital structure of PNLRs alone generates a \( \frac{-9.24}{14.33} \) = 66% discount.

**Transactions Costs**

Finally, in comparing the relative benefits of listed REITs to those of PNLRs, I examine those costs incurred by investors to acquire an equity interest in PNLRs. I then contrast these costs to two potential investment scenarios for a listed REIT: investment in an existing REIT currently trading on a secondary market (an exchange) and investment in a REIT during its pre-IPO process.

**PNLR Transactions Costs**

A typical prospectus for a PNLR discloses four costs that condense the fraction of each invested dollar that is eventually spent on real assets: a sales fee (7%), a
dealer fee (3%), an offering fee (2%), and acquisition costs. The first of the three fees is an up-front sales charge. The 7% is a dealer commission (often referred to as a “return-to-broker”) that compensates a (retail) financial advisor. The 3% is another fee levied by the (wholesale) sponsoring broker/dealer of the REIT. This fee is sometimes shared with the retail broker to compensate for marketing expenses. The 2% offering expense flows to the REIT itself to offset the printing of marketing materials and prospectuses, and for legal fees. Thus, on average, a $1 retail investment generates a gross investment into the REIT of $0.88, which appears in the Statement of Cash Flows/CFFF as a $0.88 increase in equity capital. Finally, these funds are invested in real assets. However, some highly variable fraction is designated as “acquisition” costs (disclosed in the Income Statement) resulting in a net yield below 88%.

**Listed REITs**

An alternative to an investment in a PNLR is the purchase of shares of an existing listed REIT on a secondary market. Costs to this alternative depend on brokerage commission and market transactions costs that are, in turn, a function of bid-ask spreads and/or price pressure. I am unaware of a peer-reviewed study that provides schedules for aggregate transaction costs by order size, but a casual analysis of 12 randomly selected listed REIT quotes shows a mean and median bid-ask spread of 1¢. Regardless of the share price, this represents a small fractional cost.

**IPO REITs**

One potential criticism may stem from the above contrast of secondary market investment costs associated with listed REITs to those of a primary market investment in a PNLR. Note, however, that the listed REIT IPO market is dominated by UPREITs. Such REITs start with an extant portfolio of a developer’s properties, thus avoiding acquisition costs. Consistent with this, Chan, Chen, and Wang (2013, Table 1, Panel A) summarize nine recent U.S. REIT IPO studies and find that, in contrast to non-REIT IPOs, first day returns are either small and positive or insignificant.

To conclude, absent an argument that the investment opportunity provided by a PNLR cannot be spanned by an investment in an existing listed REIT, immediate and permanent losses to a PNLR investor is, at a minimum, 12%.

**Organizational Choice Variables**

In this section, I provide coarse, historical estimates of the marginal impact of two organizational choice variables on relative value; finite versus infinite life and external versus internal management. This analysis is limited by two factors. First, as mentioned throughout, the lack of secondary market prices makes direct
measurement of relative market-to-book (or “Wall-Street vs. Main-Street”) values unfeasible.

Secular changes in the listed sphere, however, create an additional challenge to the analyses presented here. REITs included in the Capozza and Lee (1995) dataset reflected a cross-section of listed organizational forms. Subsequent empirical studies employed the dispersion in these choice variables to construct econometrically powerful tests. Ideally, I would replicate these past tests using current data. However, as prescribed by these studies, listed REITs have evolved such that finite-life and externally-managed companies are now rare, thus reducing or even eliminating any empirical test power. Thus, I must maintain the assumption that the specific valuation economics remain relevant.

Since these two estimates of relative loss due to organizational choices that follow are based on historical data, I am reluctant to include these estimates in the aggregate loss calculations below. Although it is difficult to estimate quantities for these value reductions for a current sample of PNLRs, I nonetheless believe it necessary to list these two sources.

**Finite Life**

Each of the PNLRs in the sample has elected to organize as a finite-life company with a stated life of between 10 and 15 years. As mentioned above, exit strategies include merging or being subsumed by a listed REIT and liquidation. Popovec (2012) reports that PNLR “…boards start their options for liquidity events around year five.” Above I note the potential inconsistency of a suggested investment horizon of five to seven years and a liquidity-enhancing event planned for at least 10 years out.

Capozza and Seguin (1998, 2001) demonstrate that finite life REITs issue a non-optimal amount of debt, increasing financing costs and, thus, decreasing operating profits and cash flows. Although their studies do not provide a direct measure of the impact of finite life on (relative) valuation, I employ their dataset to estimate this quantity. Using their sample, I estimate the following specification:

\[
\frac{\text{Market Value of Equity}}{\text{Book Value of Equity}} = 102.6\% - 13.1\% \times (1 \text{ if finite life}) + \epsilon,
\]

and find that the finite-life coefficient is both economically and statistically \((t = -2.36)\) significant. In short, for their sample, choosing a finite-life structure reduces the inherent equity claim value by 13.1% relative to a claim on the same underlying bundle of real estate assets organized as an infinite-lived REIT.
External Management

The academic literature is replete with evidence that externally-managed REITs underperform their internally-managed counterparts. Capozza and Seguin (2000) show that corporate level cash flows as a percentage of corporate assets are 1.4% lower for externally-managed REITs. Regardless of whether external management is compensated as a function of assets or of FFO, such REITs are worth 7% less than their internally-managed counterparts.

Conclusion

In this study, I examined the universe of PNLRs active as of December 31, 2011. The first analysis involved examining the sustainability of promised returns to capital. Despite a reduction in average yields from their offering levels, I found that even these lower current yields are unsustainable: Although (using the ratios of cross-section means) I find an average return to shareholders of 7.0%, on average. For more than 80% of the individual PNLRs in the sample, these returns exceed earnings or CFFOs. Further scrutiny indicates that, at least for the fiscal year 2011, such returns could only be financed by issuing new capital claims in general, and equity claims in particular. Whether these facts warrant labeling this investment class as a “Ponzi scheme” is left to the reader.

The contrast to listed REITs is pronounced for new PNLRs. A comparison of both classes of REITs that were formed within two years shows a marked contrast in dividend policy: 87.5% of such exchange-listed REITs demonstrating sustainability while only Cole Corporate could do so. It is impossible to definitively state why dividend policies vary between the two classes. However, a policy of high “promised” dividend yields is consistent with an argument that such yields are necessary for sales and marketing purposes.

Further, not listing on an exchange, and hence providing equity claims with only limited or no redemption liquidity, lowers the value of these claims by between 12% and 13% versus those on a listed REIT. Further, transaction costs, which are trivial for listed REITs in both the primary (pre-IPO) and secondary (traded) markets, are substantial for PNLRs and result in an effective front-end load that is typically 12% or more.

Simple aggregation indicates that the inefficiencies due to the front-end “load” and the lack of liquidity create a relative wealth loss of approximately:

\[
100\% - \{(1 - 12\%) \times (1 - 12\%)\} = -22.6\%.
\]

If I heroically include losses due to organizational choice variables—finite versus infinite life and internal versus external management—implied wealth loss is:
Finally I provide evidence that PNLRs have roughly twice the ratio of debt in their capital structure compared to listed REITs. The approximation shows that value is decreased by 66% yielding:

$$100\% - \{(1 - 12\%) \times (1 - 12\%) \times (1 - 13\%) \times (1 - 7\%)
\times (1 - 66\%)\} = -79.3\%.$$ 

Ideally, this number would be multiplied by the aggregate equity capital raised. Absent access to this figure, I multiply instead by the aggregate book value of equity ($41.4 billion) of the sample yielding an approximated wealth destruction of between $9 billion and $33 billion. I interpret these numbers as estimates of the difference in the value of aggregate equity claims of the PNLRs relative to what the aggregate value of these claims would have been had the same assets been instead organized as infinite life, internally managed, listed REITs.

This estimate does not include PNLRs that were, as of December 31, 2011, still in registration or escrow, nor the wealth destruction associated with any additional equity capital that will be raised by the PNLRs in the sample. Although these estimates are approximate, this research provides empirical support for a FINRA report that any investment in these vehicles deserves careful scrutiny.

Analyzing holding period return means and variances for their sample ending in 2001, Pagliari, Scherer, and Monopoli (2008) present evidence consistent with a “seamless real estate market in which public- and private-market vehicles display a long-run synchronicity” where “private market vehicles ought to be viewed as offering investors a risk/return continuum of real estate investment opportunities’ since ‘the platform’ did not matter.” I accept their conclusions that are based on observations gleaned before the rise of PNLRs. However, my analyses suggest that the PNLRs examined here fall well outside the aforementioned continuum.

I am generally an advocate of the efficient market hypothesis, and tend to look skeptically upon claims of mispricing of even a few percent. My claims of wealth losses and mispricing that straddle 50% in the paragraphs above surprises even me. Nonetheless, claims such as those listed above have occurred continually since my research began. Further, anecdotal evidence from unofficial ad hoc secondary markets including Central Trade and Transfer LLC and Lapis Investment Business Trust successfully repurchase shares at discounts around 60%. Fund raising continues at an increased rate and is expected to top $20 billion in 2016.
It is implausible to place these conflicting set of facts simultaneously in the context of efficient markets. It is unfortunate that the only plausible explanation is that the high front-end commissions or returns-to-dealer are sufficient for broker-dealers to sell or “push” these investments on the investing public.”

Endnotes

1 For summaries of listed REIT performance, see Smith and Shulman (1976), Titman and Warga (1986), Han and Liang (1995), and Hartzell, Muhlhofer, and Titman (2010).

2 For alternative analyses of traded versus non-traded real estate claims, see Mueller and Mueller (2003) and Pagliari, Scherer, and Monopoli (2005).

3 Chen and Lu (2006) show that rounding of offers around $10 was common in the 1980s for REIT IPOs. Dolvin and Pyles (2008) show that 94% of all REIT IPOs were offered at an “integer price” of either $10 or $20 in the 1980s. This percentage dropped to 64% in the 1990s. They do not break down that percentage into those offered at $10 versus $20. My casual analysis of recent IPOs of listed REITs shows a proclivity for offerings at $25. Hanley, Lee, and Seguin (1996) and Seguin and Smoller (1997) argue that lower offering prices signal lower quality.


5 At the time of writing, this Rule is currently undergoing revision. FINRA has pushed for a 12 month recalculation but is currently offering a “grace period” to PNLRs. Indeed, some PNLRs are providing daily NAVs.

6 Although institutional details and industry claims cited throughout this section are drawn from many sources, one source that summarizes most of this is nreionline.com/webinars/public_non_traded_reits/, Public Non-Traded REITs: Issues and Answers for Investors and Advisors, National Real Estate Investor, 2011. Unless otherwise noted, quotations are drawn from this source.

7 An admittedly inexact review of marketing materials was insufficient to determine whether the claimed advantages are relative to traded REITs or to the universe of investments.

8 For a discussion of the information content of dividends for listed REITs, see Chiang (2015).


10 Consistent with the prediction of lower volatility, Hartzell, Kim, Kimbrell, and Sprow (2012) find for their sample of 17 “full cycle” PNLRs that “realized IRRs of non-traded REITs exhibited less variation (across firms) than their benchmarks.”

11 Inland American, Cole Credit Property Trust II, Cole Credit Property Trust III, Cole Credit Property 1031 Exchange, Wells REIT II, W.P. Carey Corporate Property Associates 17, and Dividend Capital Total Realty.

12 American Realty Capital Daily NAV, American Realty Capital-Retail Centers of America, Clarion Partners Property Trust, Green Realty Trust, O’Donnell Strategic Industrial REIT, and Plymouth Opportunity REIT.
Bradley, Capozza, and Seguin (1998) predict such asymmetries in dividend changes. Using panel data for exchange-listed REITs, Downs, Guner, and Patterson (2000) demonstrate that dividend levels are negatively related to their measures of informational asymmetry.

See Wiley (2014) for a discussion of redemption suspensions for PNLRs.

Among the approximations made, I valued listed stock beyond five years at zero and chose the set amount when the option was DRIP (SPELL OUT) proceeds or the set amount. In the empirical tests, I demonstrate the robustness of the conclusions to the estimation of this number.


See Ben-Shahar, Sulganik, and Tsang (2011) for a discussion on net income versus FFO as a predictor of dividend policy.

Thorough analysis of dividend policy management for exchange-listed REITs can be found in Bradley, Capozza, and Seguin (1998), Ghosh and Sirmans (2006), Edelstein, Liu, and Tsang (2008), and Harden and Hill (2008).

Ibid at 1.

Shares outstanding will potentially increase due to two factors: the issuance of shares in return for cash, which is captured in the $\Delta E$ term, and the issuance of shares via the DRIP. Note that the latter is a non-cash (supplemental) item and affects cash only through its reduction of cash dividends.

It is the difference in calculation methodology that accounts for differences in estimates between tables. For example, return-to-equity measured if calculated as the average of the ratio would be 4.4% (Exhibit 3). The same metric measured as the ratio of the averages is 7.0% (Exhibit 4). This reflects the strong correlation between return-to-equity and AUM.

Under the paradigm of Hardin, Hill, and Hopper (2009), the higher levels of cash held by PNLRs reflects both less access to capital and the potential for greater agency costs.

Under the paradigm of Feng, Ghosh, and Sirmans (2007), my finding that equity raised is roughly 83% greater than debt raised signals that PNLRs have lower growth opportunities.


Source: www.reit.com/AboutREITs/AllAboutREITs.aspx.


These estimates are also provided independently and subsequently in Hartzell, Kim, Kimbrell, and Sprow (2012). For a detailed breakdown of these costs for Wells Capital’s Private REIT, see Swensen (2005, pp. 70–72), who describes this fee structure as varying from “obscene to despicable.”

A new fee structure has recently appeared for investors who employ a non-commission, fee-only advisor. In some of these cases, the 7% dealer commission is waived. Instead, the PNLR pays the advisor a 0.7% fee annually.

Sample as of 2:40 pm, EDT, May 31, 2011. Quoted spreads for 11 listed REITS were 1¢ while one was 2¢.

Ritter’s (2012) estimate across 7,617 IPOs issued in the U.S. during the 1980–2011 period is a significant 17.9%, a number roughly four times greater than any estimate.
provided in the Chan, Chen, and Wang (2013) review. For a theoretic explanation for
this difference, see Chan, Wang, and Yang (2009).

31 Including Benveniste, Capozza, and Seguin (2001) and Capozza and Seguin (1998, 2000,
2001).

32 Generally, the power of a test is proportional to the standard deviation of the independent
or choice variable. In the case of an indicator \{0, 1\} variable, variance is given by
\((p - p^2)\), where \(p\) is the proportion of the indicator variable that equals one. This
variance is maximized when \(p\) equals .5 and approaches zero as \(p\) approaches either
zero or one. In Capozza and Seguin (2000), \(p = 99/298\), so \((p - p^2) = .2218\) with a
standard deviation of 0.47.

33 Sagalyn (1996), argues that a misalignment of incentives exists for externally-managed
REITs and Wiley (2014) examines “maligned” incentives in PNLRs. In contrast, in
their study of board composition and compensation structure, Anglin, Anglin, Gao, and
Tsang (2011) suggest that the uniqueness of REITs may “vitiate” any difference
between external versus internal management. Empirically, Howe and Schilling (1990),
Hsieh and Sirman (1991), and Cannon and Vogt (1995) provide evidence that externally
managed REITs experience negative abnormal returns relative to internally managed or
“non-captured” REITs.

34 The SEC’s definition of a Ponzi scheme is “an investment fraud that involves the
payment of purported returns to existing investors from funds contributed by new
investors. Ponzi scheme organizers often solicit new investors by promising to invest
funds in opportunities claimed to generate high returns with little or no risk.” (Source:
www.sec.gov/answers/ponzi.htm.)

35 “Public Non-Traded REITs—Perform a Careful Review Before Investing.” Source:
www.finra.org/Investors/ProtectYourself/InvestorAlerts/REITS/P124232.

36 See http://www.investmentnews.com/article/20140626/FREE/140629926/nontraded-
reits-headed-for-another-boffo-year.

37 http://www.thereformedbroker.com/2014/02/12/why-brokers-pitch-non-traded-reits/,
seekingalpha.com/article/1955411-dumb-investment-of-the-week-public-non-traded-
reits.

References

Anglin, P., R. Anglin, Y. Gao, and D. Tsang. How Does Corporate Governance Affect the
Quality of Investor Information? The Curious Case of REITs. Journal of Real Estate


Ben-Shahar, D., E. Sulganik, and D. Tsang. Funds from Operations versus Net Income:
Examining the Dividend-Relevance of REIT Performance Measures. Journal of Real Estate

Benveniste, L.D., D.R. Capozza, and P.J. Seguin. The Value of Liquidity. Real Estate

Bodamer, D. Nonlisted REITs Fight to Shake Misconceptions. NREI Online, October 10,
2012.


The author thanks Kyle Boggemes for expert research assistance, and seminar participants at Georgia State University and the 2012 mid-year NAREIT conference, Craig Depkin II, Ko Wang, and anonymous reviewers for comments. All intellectual property contained herein is covered by United States Copyright Registration # TXu 1-766-774 with an effective date of July 25, 2011.