Public vs. Private Market Arbitrage – Can Growth REITs Benefit from their High Valuation?

David H. Downs

Virginia Commonwealth University

Steffen Sebastian

University of Regensburg

René-Ojas Woltering

University of Regensburg

This version: January 31, 2017

The current version is preliminary and incomplete. Please contact the authors to obtain the latest version prior to citing.

Public vs. Private Market Arbitrage – Can Growth REITs Benefit from their High Valuation?

Abstract

This paper examines the impact of the ratio of price-to-fundamental value on the stock market performance of real estate securities following seasoned equity offerings and senior debt issuances. Using a global sample of real estate securities, we distinguish between growth stocks, i.e. those with the highest stock prices relative to the private market value of their properties, and value stocks, which tend to trade at substantial discounts to their net asset value (NAV). Consistent with the notion that newly issued equity is ultimately priced similar to pre-SEO levels, we find that growth stocks perform significantly better than value stocks in the 36 months following the SOE. We also examine the long run performance following senior debt issuances and document a substantial outperformance (underperformance) for growth (value) real estate securities in the 36 months following the offering. Overall, our findings are consistent with the hypothesis that growth REITs can benefit from "public vs. private market arbitrage".

Key words: public vs. private market arbitrage, cost of capital, net asset value, value vs. growth, seasoned equity offerings, debt offerings

Public vs. Private Market Arbitrage – Can Growth REITs Benefit from their High Valuation?

1. Introduction

Valuations of public and private market real estate can diverge substantially from each other when considering Net Asset Value (NAV) estimates. This observation holds for the evolution of average NAV-spreads over time and for cross-sectional comparisons. Figure 1 shows that value stocks tend to trade at significant discounts to their NAV, while growth stocks trade at a premium relative to the private market values of their properties.

When the price of an undervalued stock reverts to its fundamental value, investors may be rewarded with superior returns without being exposed to higher risk, as suggested by Ooi et al. (2007). On the other hand, the same authors find no evidence that growth REITs – i.e. those trading at a high ratio of price relative to fundamental value – are overpriced. This suggests that some real estate stocks may trade at a premium relative to fundamental value over extended periods of time. In other words, their public market stock prices are constantly higher than the private market value of their underlying properties.

This leads to our research question of whether real estate securities that trade at a premium relative to their fundamental value can capitalize on their public market valuations. In particular, can these firms raise capital in order to acquire private market real estate and ultimately enjoy the same premium valuation on the new capital? We refer to this value creation strategy as "public vs. private market arbitrage". In this paper, we define public vs. private market arbitrage as an attempt to increase the value of a company without any actual operational improvements. In the case of real estate securities, it means arbitraging the multiples at which private market real estate is traded relative to public market stock prices. In essence, multiple arbitrage hinges on asset valuations varying widely for different investors (i.e., public versus private).[1]

[1] In general, the academic literature on "multiple arbitrage" is relatively sparse, although the term has been associated as a type of value creation strategy of private equity firms. See for example the citation of a McKinsey Study by Matthews et al. (2009).

For example, if a REIT which trades at a significant premium to NAV raises new capital in order to acquire properties of the same type compared to the existing property portfolio, it seems reasonable to expect that, after transaction costs and completed integration, the REIT ultimately trades at its pre-SEO multiple.

A numerical example is as follows: assume the market capitalization of a REIT is 150 and its NAV is 100, which results in an NAV premium of 50% or a price-to-book ratio of 1. If that REIT raises equity of 10 (and a proportional amount of debt to keep it's leverage constant) and employs the whole amount to acquire private-market property, the NAV would increase to 110. Assuming a constant multiple of 1.5, the market capitalization would (eventually) increase to 165. This implies a market capitalization gain of 15, although only 10 has been raised in equity. The abnormal return of that REIT compared to all other REITs, which either did not or could not apply this strategy over the same period, would be 3.33% (5/150).

Such an extension of the premium valuation to new capital would result in shareholder value gains or outperformance compared to the REIT's peers. In contrast, capital raised by a REIT trading at a discount to NAV would be value-destroying for shareholders in case the new equity is ultimately priced at the pre-SEO discount to NAV. This leads us to our first hypothesis.

H1: Growth REITs outperform value REITs following capital issuances (SEOs + debt offerings).

When REITs raise new capital via debt offerings, a similar effect may occur, though through a different mechanism. Consider the example of two REITs, which are assumed to have the same amount of earnings and the same financial leverage. All else being equal, the growth REIT, i.e. the one with the higher price-to-book ratio, also trades at a higher price-to-earnings ratio. In case both REITs issue new debt to acquire private market real estate, the earnings of both REITs will increase by the same amount as long as the unlevered property return exceeds the cost of debt. However, under the assumption of constant PE multiples, the market capitalization of the growth REIT will increase more due to its higher PE-ratio, which would ultimately result in a outperformance of the growth REIT relative to the value REIT.

In addition to the PE-multiple effect, growth REITs may also benefit from a cost of capital advantage. According to Fama and French (1995), value stocks tend to obtain a higher probability of suffering from financial distress. In contrast, a premium to NAV may be interpreted as a signal that the capital market considers a growth REIT to be of superior quality compared to its peers. For this reason, it seems reasonable to assume that growth REITs also benefit from lower interest rates compared to value REITs when they issue new debt. Compared to value stocks, which issue debt at higher interest rates, this cost of capital advantage would also result in an outperformance of growth stocks in the periods following the debt offering compared to value stocks. The PE-multiple effect and the cost of capital advantage combined lead us to our second hypothesis.

H2: Growth REITs outperform value REITs following debt offerings.

The impact different cost of capital on the relative returns of value and growth stocks can also be explained by the formula for the leverage effect:

$$R_E = R_U + \frac{D}{E}(R_U - R_D) \qquad (1)$$

When the unlevered return on the property R_U exceeds the cost of debt R_D, the company benefits from a higher levered return on equity R_E. Lower cost of debt do not only increase the probability that the leverage effect is positive, but the magnitude of a (positive) leverage effect also increases with falling cost of debt. Even with a negative leverage effect (i.e., cost of debt is higher than the unlevered return on capital), low-cost-of-debt firms would outperform high-cost-of-debt firms, because the leverage effect is less negative.

For the purpose of our empirical tests, we follow the literature on the long-run performance of SEOs and debt issuances. Interestingly, our hypotheses regarding the outperformance of growth stocks are in contrast to prior studies on the long run performance following capital offerings. Spiess and Affleck-Graves (1995) document a substantial long-run underperformance of stocks following an SEO, and Spiess and Affleck-Graves (1999) document an underperformance following debt offerings.

Our empirical analysis is divided in two parts. First, we examine the long run performance of value and growth stocks by calculating buy-and-hold abnormal returns (BHARs) over the 36 months following the capital offerings. Next, we build value and growth portfolios consisting of stocks which had an SEO or debt issuance over the previous 36 months and

use time series regressions to benchmark the portfolio returns against the four-factor model of Carhart (1997). Here, we distinguish between portfolio combinations of issuers and non-issuers, as well as value and growth stocks. Finally, we run panel regressions using of all types of portfolio combinations simultaneously in order to estimate the marginal impact of SEOs and debt issuances on the performance of growth stocks.

We empirically test our hypotheses using the historical constituents of the FTSE/EPRA NAREIT Global Real Estate Index. Our sample includes 502 REITs and REOCs from 11 countries over the 2000 to 2014 period. In total, we observe 249 SEOs and 90 senior debt issuances with the stated use of proceeds "investment" or "acquisition".

Our analysis of BHARs provides support in favor of the public vs. private market arbitrage hypothesis (H1). On average, growth REITs outperform their benchmark, defined as the listed real estate index of their home country, by 9.45% (t-Statistic: 2.04) over the 36 months following the SEO. In contrast, value REITs on average underperform their peers. These results suggest that growth REITs benefit from public vs. private market arbitrage, as their premium valuation, at least in parts, extends to the newly raised capital. Further support for H1 is provided by our panel regression results, where we document a positive and significant marginal impact of SEOs on the abnormal performance of growth stocks.

Our results for debt issuances are similar to our findings for SEOs. The average BHAR of growth REITs over the 36 months following the debt issuance is 24.09% (t-Statistic: 2.33), while value REITs with debt issuances underperform their benchmark by 20.77% (t-Statistic: -1.52). Our portfolio regression results reveal that the risk-adjusted abnormal performance of growth REITs following debt issuances is positive as well (0,7% per month). Furthermore, our panel regression results document that the marginal effect of debt issuances on abnormal returns is positive in the case of growth stocks. Together, the results provide strong evidence in favor of H2.

To the best of our knowledge, ours is the first study which explicitly distinguishes between the long-run performances of value and growth stocks following capital offerings. Our results suggest this differentiation is an important factor, which has been neglected thus far.

The remainder of this paper is organized as follows. Section 2 discusses the related literature and hypotheses. Section 3 describes the data. Section 4 contains the empirical results, and Section 5 concludes.

2. Related Literature and Hypotheses

SEOs

The long-run underperformance following SEOs is a well-established result. Spiess and Affleck-Graves (1995) find that firms with SEOs underperform their benchmark by 22.84% for the three-year post-offering period. Howton et al. (2000) find that REITs, too, tend to underperform following SEOs.

The negative long-run performance following SEOs is often attributed to firms issuing equity when their shares are overvalued (Myers and Majluf, 1984), or to deteriorating firm operational performance following the issuance (Loughran and Ritter, 1995). Ghosh et al. (2011) document that REITs, too, tend to suffer from deteriorating operational performance following SEOs.

A recent strand of the SEO literature differentiates by the stated use of proceeds. Walker and Yost (2008) find that the market reacts more favorably to SEOs if the firm provides specific plans for the use of the soon-to-be-raised capital. Autore et al. (2009) categorize the stated use of proceeds into investment, recapitalization, and general corporate purposes. The authors find that issuers stating investment display little or no subsequent underperformance, whereas recapitalization or general corporate purposes experience abnormally poor performance in the subsequent three years. Silva and Bilinski (2015) find that firms citing investment needs show no abnormal performance after the offering. The authors attribute the lack of underperformance to issuers disclosing investment needs signaling positive NPV projects that require financing.

A strand of the REIT literature focuses on the announcement effects of acquisitions. Allen and Sirmans (1987), examine the gains to shareholders of acquiring REITs and detect a significant increase in stock price. The authors state that the primary source of the value gain seems to be improved management of the acquired trust's assets. Ooi et al. (2007) study the wealth effects of property acquisitions, for Japanese and Singaporean REITs, and find a positive announcement effect. The authors state that economies of scale and better management by acquiring firms are the likely sources of acquisition-related economic

gains. Ooi et al. (2011) study seasoned equity issuances by Japan and Singapore REITs. Here, too, the authors find a positive announcement effect.

In summary, the extant literature suggests that the long run performance following SEOs is negative in general. However, there tends to be less underperformance or even no abnormal performance if the stated use of proceeds is acquisitions or investments. In the case of REITs, this has even been associated with positive (short-term) announcement effects.

Since we are interested in potential arbitrage opportunities between public and private real estate markets, we focus on SEOs with the stated use of proceeds acquisitions or investments. We contribute to the literature by distinguishing between the ratio of price-to-fundamental value of issuing firms at time of the SEO. Assuming the pre-SEO multiple extends to the new capital as well, we predict that growth stocks will outperform value stocks. Here, it is important to note that the public vs. private market arbitrage strategies we attempt to examine would produce abnormal returns even without any efficiency gains, though transaction or integration costs may reduce potential excess returns of growth stocks and increase abnormal negative returns of value stocks.

Debt Issuances

The literature on the long-run performance following debt offerings is not as extensive as the SEO literature, and the findings are mixed. Spiess and Affleck-Graves (1999) document an underperformance following debt offerings. The REIT literature, however, finds no evidence for negative abnormal returns following debt offerings (Huerta-Sanchez, et al, 2012). In contrast, the authors find that during periods of increased debt issuance activity, even issuing REITs tends to earn positive abnormal returns.

Again, we aim to contribute to the literature by differentiating between the predicted long run performance effects for value and growth stocks. As in the case of SEOs, we focus on debt issuances with the stated use of proceeds “acquisitions” or “investments”. It seems reasonable to expect that the financed property acquisition leads to an increase in earnings. All else being equal, growth stocks do not only have a higher price-to-book ratio than value stocks, but also a higher price-to-earnings ratio (or ratios of price to cash flow,

or FFO). Assuming a constant post-debt offering multiple, the share price of growth stocks should increase more than the share price of value stocks.

Another argument why growth stocks may perform better following debt issuances is provided by Fama and French (1995) and Chen and Zhang (1998). The authors show that firms with a high price-to-book ratio have higher financial leverage, more earnings uncertainty, and are more likely to cut dividends compared to their low price-to-book counterparts. Given these characteristics, it seems reasonable to assume that growth stocks also benefit from lower cost of debt at the time of the issuance. From the equation (2) it can easily be seen that lower cost of debt results in superior operational performance.

Asset Growth in General

Our paper is also related to Ling, Ooi and Xu (2016), which considers a different question with another methodology and a focus on US-only REITs. Specifically, the authors examine the impact of asset growth on future returns. The authors find that fast-growing REITs tend to underperform slow-growing REITs. However, the authors also find that the (negative) asset growth effect is less pronounced for firms selling at a premium to NAV. The second finding is similar to our results, although we observe a *positive* effect for the tercile of REITs and REOCs that trade at the highest price-to-book ratios (or equivalently the highest NAV-premiums). Apart from the implications, our paper also differs from Ling, et al., (2016) with regard to the methodology. Our dataset enables us to identify the month of the capital offering, as well as the stated use of proceeds. Thus, we can identify the price-to-book tercile of a REIT or REOC at the time of issuance and more precisely measure the returns over the following 36 months. In contrast, Ling, et al. (2016), sort all REITs in June based on balance sheet asset growth over the previous year, which can be argued is a less precise approach, since by June the effect may already have occurred. Furthermore, our data enables us to disentangle whether asset growth was financed using equity (SEOs) or debt (debt issuances). Importantly, our results suggest asset growth can be beneficial for relative performance whether it is financed through SEOs or debt offerings, as long as the REIT or REOC enjoys a relatively high stock market valuation.

3. Data

Our sample is based on the historical constituents of the FTSE EPRA/NAREIT Global Real Estate Index over the 2000:01 to 2014:05 period. The index is comprised of listed equities with "relevant real estate activities." Relevant real estate activities are defined as the ownership, trading and development of income-producing real estate."

In our empirical analysis we benchmark the performance of real estate stocks against country-specific returns indices. To ensure the number of real estate stocks per country is sufficiently high, we exclude observations from countries with less than five real estate companies. Our final sample consists of 502 stocks from 11. [2]

Returns and balance sheet data are obtained from Datastream. Information on SEOs and debt issuances are collected from SNL. Overall, our sample period spans 249 SEOs and 90 debt issuances with the stated use of proceeds "acquisitions", or "investments". Table 1 contains some descriptive statistics on key variables.

Since our key differentiation by the time of the capital offering is the firm's price-to-book ratio, we place a special emphasis on separating value and growth stocks in an accurate manner.

The majority of asset pricing studies separates value and growth stocks only once per year based on end of June data for the book-to-market ratio of equity (e.g. Fama and French, 1993). The rationale behind this procedure is to ensure that financial reporting data for the previous year are actually published and available to all investors. We use a monthly sorting procedure, based on Datastream's "Earnings per share report date (EPS)." We can thus ensure that financial reporting data are actually published as new portfolios are formed. For example, if the annual report for calendar year 2014 is published in April 2015, Datastream will report a new book value of equity from December 2014 onward, but we can shift this information by four months using the "Earnings per share report date."

[2] For a large part of our sample, the book equity per share may even be a good proxy for the firm's fundamental value, or net asset value (NAV). This definition is sufficient if the home countries accounting regime requires fair value reporting. Then, the book value of equity can be understood as a sum of the valuation components of the company, assuming that cash and other assets, and liabilities are also reported at their market values. This condition is fulfilled for companies that report according to the International Financial Reporting Standards (IFRS), which was introduced in Europe and many other countries in 2005. In fact, only US stocks do not fulfill this condition, because historical cost-based US-GAAP accounting system. Hence, for all non US stocks from 2005 on, the price-to-book ratio can also be interpreted as a ratio of price-to-fundamental value.

Financial reporting frequency is generally semiannual and may even be quarterly. Thus, NAVs may only change semiannually, but we observe monthly changes in the book-to-market ratios due to share price fluctuations.

Finally, it is important to note that we classify value and growth stocks based on the price-to-book ratio of a stock relative to the average price to book ratio that stock's country. Value stocks are defined as those within the lowest tercile of the price-to-book ratio in their county, while growth stocks are defined as those within the highest tercile of the price to book ratio in a country.

4. Empirical Analysis

Buy-and-hold Abnormal Returns

We measure SEO post-issue performance as the stock's buy-and-hold return (BHR):

$$BHR_i = \prod_{t=1}^{T}(1 + R_{i,t}) - 1 \qquad (3)$$

where $R_{i,t}$ is the return of firm i in month t, and T is the earlier of the 3-year issue anniversary or the delisting date.

SEO abnormal returns after the offering are calculated as the buy-and-hold abnormal return (BHAR). Specifically, *BHAR* for issuing firm i is calculated as the difference between the *BHR* of the issuing firm and the *BHR* of the benchmark firm:

$$BHAR_i = \prod_{t=1}^{T}(1 + R_{i,t}) - \prod_{t=1}^{T}(1 + R_{benchmark,t}) \qquad (4)$$

where $R_{benchmark,t}$ is the EPRA/NAREIT index of the home country of firm i.

We use BHARs rather than cumulative abnormal returns (CARs) since this method more closely reflects investor experience when buying SEO stocks and holding them for 3 years after the issue. BHARs also avoid the unrealistic rebalancing assumption implicit in CARs that leads to high transaction costs (Barber and Lyon, 1997). Kothari and Warner (1997) do not recommend using CARs since the method leads to positively biased abnormal returns.

Figure 2 shows the cumulative BHARs of value (blue line) and growth (red line) stocks over the 36 months following an SEO with the stated use of proceeds "investments" or "acquisitions". While growth stocks continuously outperform their national EPRA index benchmark, value stocks substantially underperform.

Table 2 contains the average 36 month BHARs and their respective t-statistics. Panel A of Table 2 reveals that growth stocks on average outperform their benchmark by 9.45% (t-statistic: 2.04), whereas value stocks underperform their benchmark with -10.52% (t-statistic: -1.01). These results are consistent with H1, though the underperformance of value stocks is not statistically different from zero.

Figure 3 shows the BHARs following debt issuances where the stated use of proceeds is to finance investments or acquisitions. The long run performance following the debt issuance is similar to debt offerings. Panel B of Table 2 reveals that the average 36 months BHAR for growth stocks following debt offerings is 24.09% (t-statistic: 2.33). Again, the underperformance of value stocks is substantial (-20.77%), though not statistically different from zero (t-statistic: -1.52). These results are also consistent with H2.

Portfolio Regressions

Fama (1998) and Mitchell and Stafford (2000) advocate the use of the calendar-time approach since the method is less susceptible to the "bad model" problem and it does not compound spurious abnormal returns. The disadvantage of using the calendar-time method is that the approach has lower power to detect abnormal performance compared to event-time analysis. Loughran and Ritter (2000) show that using the Fama and French (1993) model captures only 50% of true abnormal returns, compared with 80% captured by BHARs with size and-book-to-market matched firms as benchmarks.

To test for abnormal performance after the issue, we use the Carhart (1997) four factor model, which controls for the market premium (MKT), the size effect (SMB), the book-to-market effect (HML), and the momentum factor (WML):[3]

$$R_{p,t} - r_{f,t} = \propto_p + \beta_1\left(R_{M,t} - r_{f,t}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_3 WML_t \qquad (5)$$

[3] The monthly SMB, HML and WML factors are obtained from Kenneth French's website (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/datalibrary.html). French's data library provides regional factors in USD for Asia Pacific ex Japan, Europe, Japan, and North America, so we convert the regional USD returns into local currency returns for the respective countries.

We apply the four-factor model to non-overlapping portfolios of growth stocks and value stocks, as well as issuing firms and non-issuing firms. Furthermore, we differentiate between SEOs and debt issuances. As our baseline model, we also apply the four factor model to value stocks and growth stocks. In total, we thus estimate 10 portfolio regressions.

We use equally-weighted portfolio returns as opposed to value-weighted returns to avoid our results are driven by outliers. Consequently, we also use the equally-weighted return of all real estate stocks of a country as the benchmark portfolio. Note that in the preceding analysis of BHARs, we had the (value-weighted) national Epra indices as a benchmark, which was consistent as BHAR imply no rebalancing, and so does the EPRA index. In the portfolio analysis however, we must take care of outliers, consequently, the benchmark should also be equally weighted.

Table 3 contains the four factor regression results for 10 portfolios. Models (1) and (2) contain the base case results for value and growth stocks, respectively. The coefficients on the Alpha represent the portfolio's monthly abnormal risk-adjusted return. Consistent with Woltering et al. (2015), value stocks in general outperform the benchmark, whereas growth stocks underperform. The annualized risk-adjusted outperformance of value stocks is about 3,6%, whereas the annualized underperformance of growth stocks is about 4,8%. These base case suggests that portfolios consisting of value stocks start with an advantage, whereas portfolios of growth stocks start with a disadvantage, i.e. it is harder for the portfolio consisting of growth stocks with SEOs to outperform given that growth stocks in general tend to underperform.

Models (3) to (7) contain the portfolio regression results for SEOs. Neither the coefficient on the risk-adjusted performance of value stocks with SEOs in the previous 36 months (Model 3), nor the portfolio of growth stocks with SEOs (Model 4) is statistically different from zero. Thus, the results provide no evidence in favor of H1. However, keeping the baseline results from Models 1 and 2 in mind, it is remarkable that any outperformance of value stocks disappears, while the underperformance of growth stocks also disappears.

Models (5) and (6) contain the regression results of value and growth stocks without SEOs in the previous 36 months. The results are very similar to Models (1) and (2).

Models (7) to (10) contain the regression results for debt issuances. The portfolio of value stocks with debt issuances in the previous 36 months does no longer outperform the benchmark (Model 7).

Model (8) provides evidence in favor of H2, since the risk-adjusted performance of value stocks with debt issuances in the previous 36 months is positive and statistically different from zero.

The results for non-issuers in models (9) and (10) are similar to the base case results.

In summary, the base case results, in particular the hurdle for growth stocks to outperform their benchmark, limit the statistical power of our tests in this section.

Panel Regressions

In order to overcome to hurdle that value stocks tend to outperform the benchmark, whereas growth stocks tend to underperform, we estimate a panel regression model which includes six portfolios – the portfolios of the three terciles based on the price-to-book ratio, each split up into firms with and without capital issuances in the previous 36 months. We then introduce indicator variables for value and growth, as well as issuing and non-issuing firms. In order to directly test our hypotheses 1 and 2, we then use interaction terms between these variables:

$$R_{p,t} - r_{f,t} = \propto_p + \beta_1\left(R_{M,t} - r_{f,t}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_3 WML_t + Value + Growth + Issuer + Value * Issuer + Growth * Issuer \quad (5)$$

Table 4 contains the panel regressions results for the analysis of SEOs. Each of the three models contains a dummy variable, indicating whether the portfolio is a value portfolio, a growth portfolio, or a portfolio consisting of stocks which had an SEO in the previous 36 months. Model (1) also includes an interaction term between Value*Issuer to test whether the portfolio of value stocks with issuances significantly underperforms. Model (2) includes an interaction term between Growth*Issuer to test whether the portfolio of growth stocks with issuances significantly outperforms, and model (3) includes both interaction terms simultaneously.

In all three models, the coefficients on value are positive (but not significant), while the coefficients on growth are negative (and significant). That way we control for the general outperformance (underperformance) of value (growth) stocks. The coefficient on Issuer is negative in all models, though only significant in model (2). This indicates that portfolios with SEOs in the previous 36 months tend to underperform.

Our primary interest is on the interaction terms. The interaction term between Value*Issuer in model (1) is negative, but not statistically different from zero. Hence we find no evidence that value stocks with SEOs underperform their benchmark. In contrast, the coefficient on Growth*Issuer in model (2) is positive and significant, which is consistent with H1. However, the effect is no longer significant in model (3), which may include too many variables given the small number of cross-sectional units.

Table 5 contains the same approach as in Table 4, but focuses on debt issuances instead of SEOs. While there is no evidence in favor of underperformance for value stocks with debt issuances, the coefficients on the interaction term between Growth*Issuer in models (2) and (3) are both positive and statistically significant. This finding provides evidence in favor of H2.

Conclusion

This study examines the impact of the price-to-book ratio at the time of capital issuances on the long run performance following the event. Using different methods, we find strong evidence in favor of the public vs. private market arbitrage hypothesis. Real estate stocks with high price-to-book ratios tend to outperform their benchmark following both, SEOs and debt issuances. This suggests that their premium valuation extends to the newly raised capital, as well. While our evidence regarding the underperformance of value stocks is considerably weaker, value stocks tend to have negative returns following capital issuances. The spread between both groups is particularly large, which is consistent with H1 and H2.

References

Allen, P.R. and Sirmans, C.F.: An analysis of gains to acquiring firm's shareholders: The special case of REITs. *Journal of Financial Economics, 1987, vol. 18, issue 1, pages 175-184*

Beracha, E. and D.H. Downs, 2015, Value and Momentum in Commercial Real Estate: A Market-Level Analysis, *Journal of Portfolio Management*, Volume 41, Number 6, pp. 48-61

Korwar, A. N. and Masulis, R.W., Seasoned Equity Offerings: An Empirical Investigation. *Journal of Financial Economics, Vol. 15, No. 1/2, pp. 91-118, 1986.*

Matthews, G., Bye, M. and Howland, J, Operational Improvement: The Key to Value Creation in Private Equity. *Journal of Applied Corporate Finance, Vol. 21, Issue 3, pp. 21-27, Summer 2009.*

Lazonick, W. and O'Sullivan, M.: Maximizing shareholder value: a new ideology for corporate governance, *Economy and Society, 2000, 29:1, 13-35*

Ling, D.C., J.T.L. Ooi and R. Xu. Asset Growth and Stock Performance: Evidence from REITs. Working Paper, June 9, 2016.

Ong, S.E., Ooi, J., and Kawaguichi, Y.: Seasoned Equity Issuance by Japan and Singapore REITs. *The Journal of Real Estate Finance and Economics, 2010.*

Ooi, J. T. L., Webb, James R. and Zhou, Dingding: Extrapolation Theory and the Pricing of REIT Stocks. *Journal of Real Estate Research, Vol. 29, No. 1, 2007.*

Ooi, J., Ong, S.E. and Neo, N.E.: The Wealth Effects of Property Acquisitions: Evidence from Japanese and Singaporean REITs. *Real Estate Economics, 2011 V39 3: pp. 487–505.*

Spiess, K. and Affleck-Graves, J.: Underperformance in long-run stock returns following seasoned equity offerings*. Journal of Financial Economics, 1995, vol. 38, issue 3, pages 243-267.*

Figures

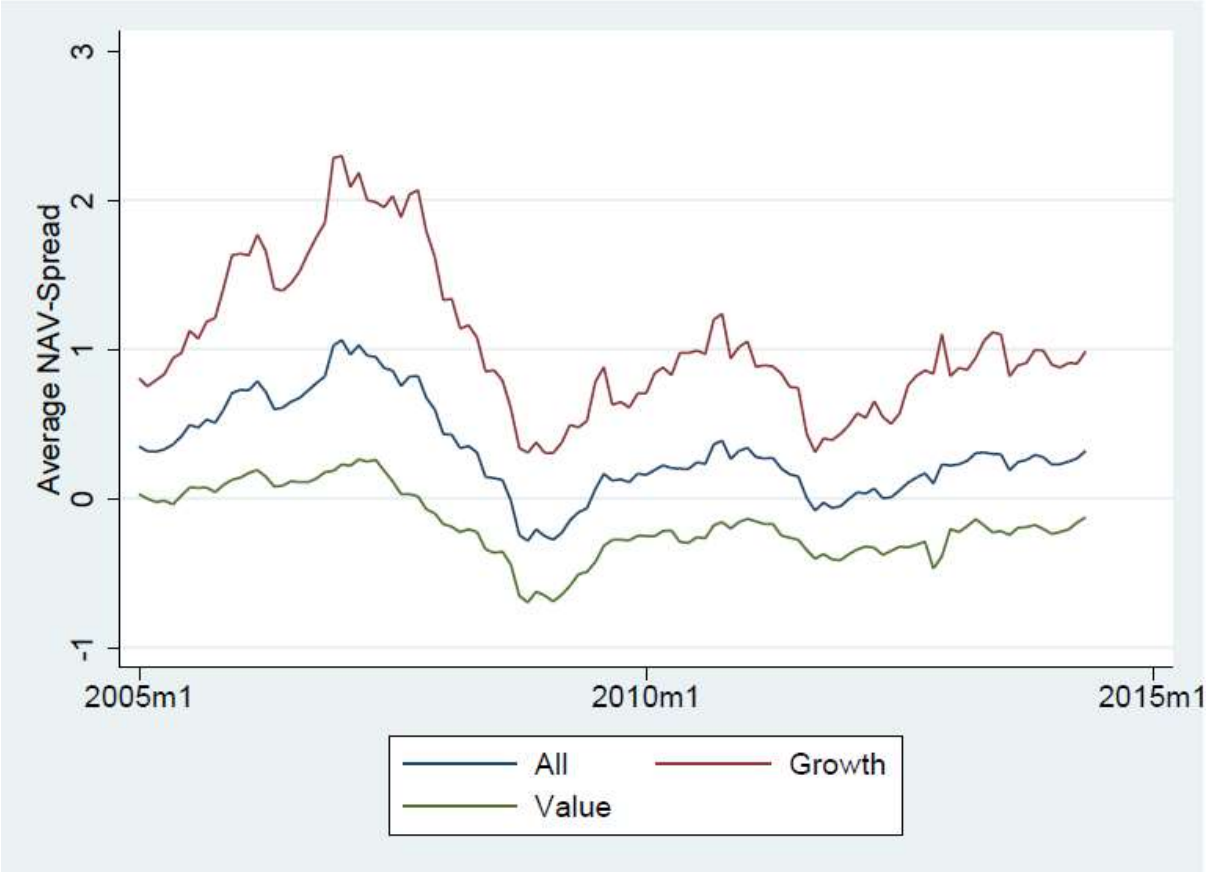

Figure 1: Average Premiums/Discounts to NAV from 2005-2014. This figure shows average NAV-Spreads for a global sample of REITs and real estate operating companies (REOCs). The calculations are based on REITs and REOCs from IFRS-countries, which require fair value accounting of properties and thus allow for a parsimonious definition of NAV. In each month, we rank a given country real estate firms by their price-to-book ratio. The red (blue) line represents the average NAV-spread for the tercile of REITs and REOCs with the highest (lowest) price-to-book ratio in a given country.

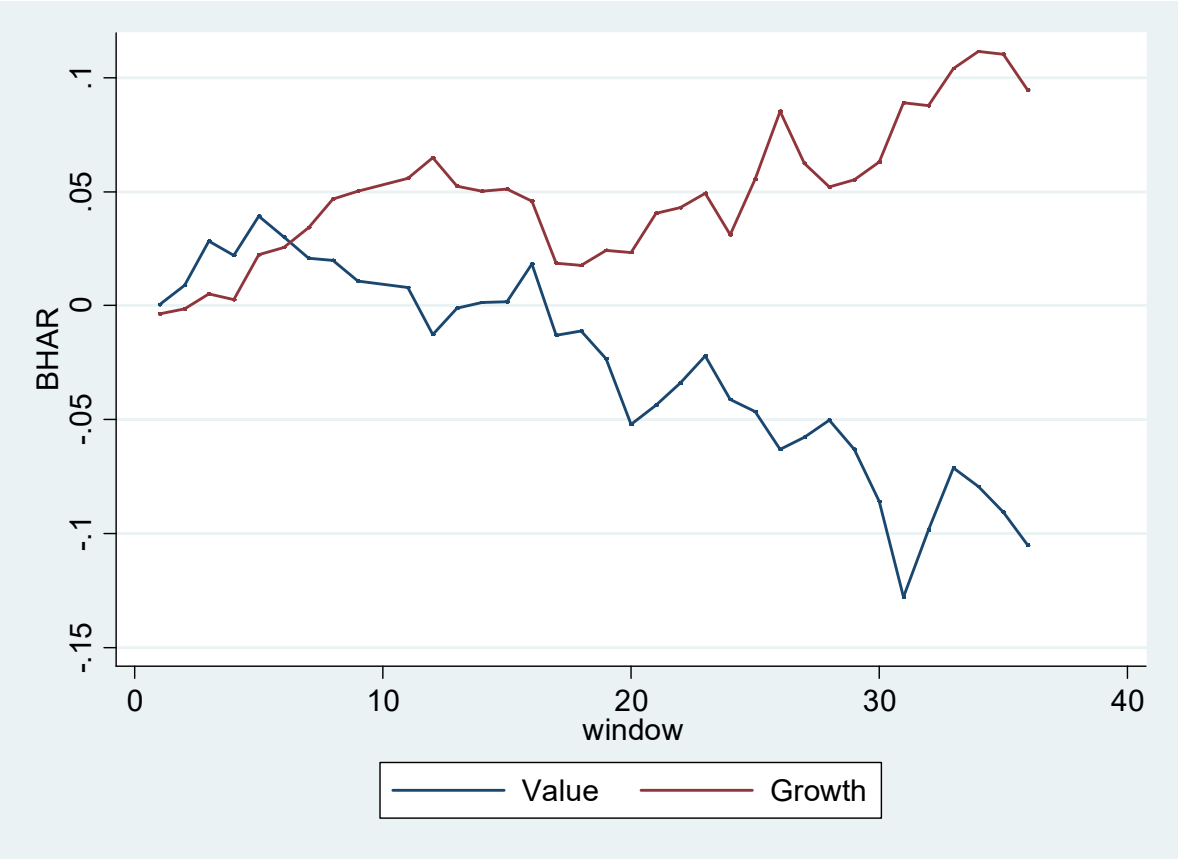

Figure 2: BHAR Returns following SEO with the intended use of proceeds "acquisitions". This figure show the cumulative BHAR returns of value (blue line) and growth (red line) stocks over the 36 months following an SEO with the stated use of proceeds "investments" or "acquisitions".

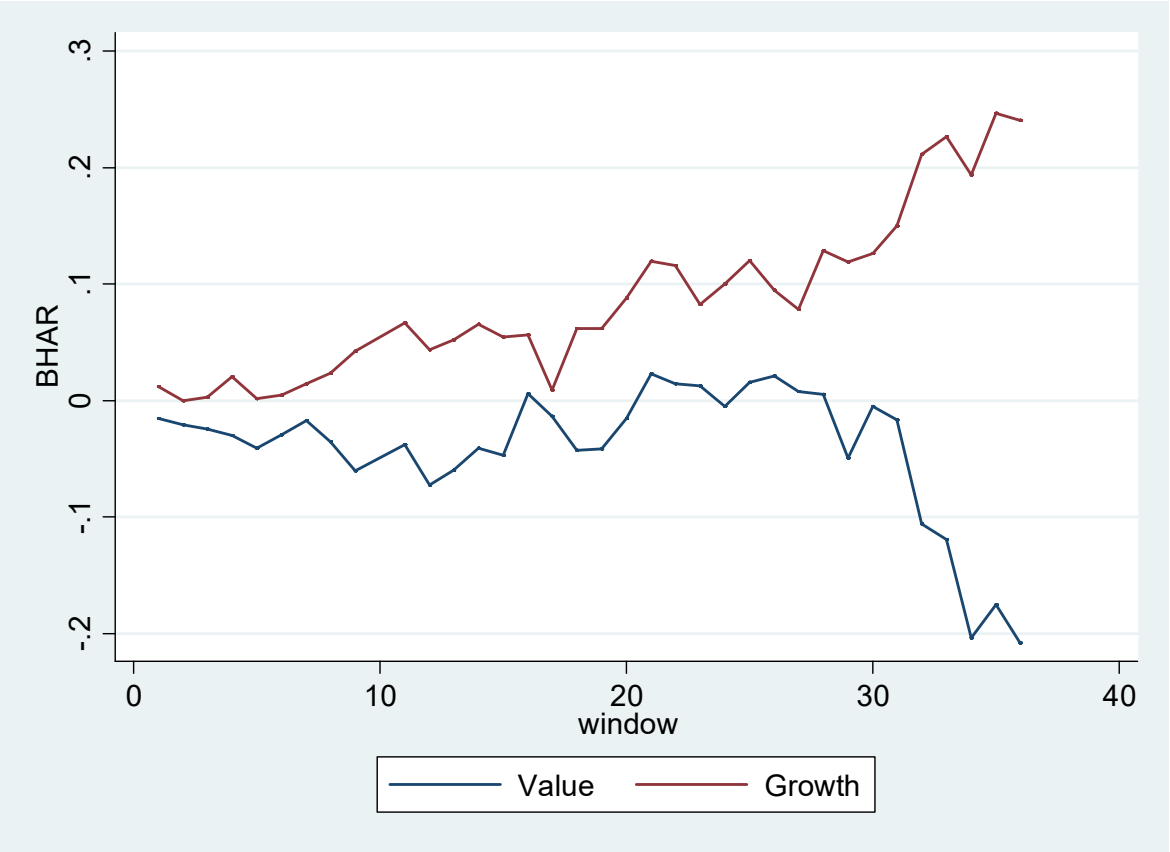

Figure 3: BHAR Returns following debt offerings with the stated use of proceeds: acquisitions This figure show the cumulative BHAR returns of value (blue line) and growth (red line) stocks over the 36 months following a debt issuance with the stated use of proceeds "investments" or "acquisitions".

Tables

Table 1: Descriptive Statistics

	SEOs	Debt Offerings	Price-to-Book	N (Total)	N(Average)
Australia	22	2	1.17	43	17.08
Belgium	1	0	1.08	7	5.39
Canada	39	7	1.88	35	17.33
France	0	0	1.45	14	8.24
Germany	11	4	1.23	18	8.06
Hong Kong	12	13	1.18	34	18.52
Japan	21	16	1.67	41	22.05
Netherlands	6	0	0.94	12	7.44
Singapore	13	7	1.13	21	12.31
Sweden	2	2	1.19	13	6.37
USA	110	35	2.38	195	103.38
Total	249	90	1.72	502	240.16

Table 2: BHAR returns following SEOs and debt offerings.

	N	Mean BHAR	t-statistic
Panel A: SEOs (acquisitions)			
All issuers	227	0.0655	1.40
Value	59	-0.1052	-1.01
Growth	69	0.0945	2.04
Panel B: Senior Debt Issuances (acquisitions)			
All issuers	76	0.0572	0.93
Value	21	-0.2077	-1.52
Growth	30	0.2409	2.33

This table reports buy-and-hold abnormal returns (mean BHAR) and t-Statistics of firms with capital issuances over the 36 months following the event. The benchmark is the EPRA/NAREIT index of the firm's country of origin. Panel A reports BHARs following SEOs with the stated use of proceeds "acquisitions". Panel B reports BHARs following debt issuances with the stated use of proceeds "acquisitions". The second (third) row reports the BHARs for the subsample of value (growth) stocks. Value and Growth stocks are identified by ranking all stocks in a given period according to their price-to-book ratio of equity. Following a capital offering, the categorization as a value or growth stock is held constant for the following 36 months.

Table 3: Portfolio Regression Results

	General		SEOs (acquisitions only)				Debt Issuances (acquisitions only)			
			Issuer		Non-Issuer		Issuer		Non-Issuer	
	Value	Growth	Value	Growth	Value	Growth	Value	Growth	Value	Growth
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
MKT	1.136***	0.960***	1.064***	1.268***	1.151***	0.923***	1.100***	1.209***	1.181***	0.893***
	(40.14)	(44.94)	(20.20)	(25.18)	(37.47)	(39.03)	(12.56)	(14.08)	(36.41)	(38.34)
SMB	0.111**	-0.046	0.214*	0.113	0.122**	-0.072	0.186	-0.386**	0.138**	-0.048
	(2.17)	(-1.11)	(1.93)	(1.05)	(2.18)	(-1.58)	(1.01)	(-2.06)	(2.36)	(-1.06)
HML	0.026	-0.052	0.006	-0.465***	0.043	-0.035	-0.393*	-0.780***	0.056	-0.062
	(0.49)	(-1.31)	(0.04)	(-3.54)	(0.75)	(-0.80)	(-1.77)	(-3.16)	(0.94)	(-1.43)
WML	-0.167***	0.170***	0.135**	0.071	-0.197***	0.185***	-0.112	-0.087	-0.186***	0.176***
	(-5.02)	(6.81)	(2.05)	(1.11)	(-5.48)	(6.66)	(-1.01)	(-0.78)	(-4.89)	(6.45)
Alpha	0.003**	-0.004***	-0.003	-0.002	0.003**	-0.004***	0.002	0.007*	0.002	-0.003***
	(2.02)	(-3.74)	(-1.11)	(-0.66)	(2.01)	(-3.29)	(0.44)	(1.70)	(1.38)	(-2.83)
Observations	173	172	151	148	173	172	150	142	173	172
R^2	0.943	0.939	0.803	0.864	0.937	0.920	0.642	0.688	0.933	0.917

This table reports the portfolio-level regression results. In Model 1 (Model 2), the dependent variable is the equally-weighted return on the portfolio of value (growth) stocks, identified as the tercile of stocks with the lowest (highest) price-to-book ratio relative to the average price-to-book ratio in the stocks home country at the end of the previous month. In Models 3-6, value and growth portfolios are separated into portfolios which had an SEO in the previous 36 months and those who didn´t. Likewise, Models 7-10 separates value and growth portfolios into debt issuing and non-issuing firms. Control Variables include the market return (MKT), the size factor (SMB), the value factor (HML), and the momentum factor (WML). T-statistics are in parentheses, and parameters marked ***,**, and * are significant at the 1%, 5%, and 10% levels, respectively.

Table 4: Panel Regression Results: SEOs

	(1)	(2)	(3)
MKT	0.996***	0.996***	0.996***
	(65.23)	(65.29)	(65.26)
SMB	0.041	0.040	0.040
	(1.41)	(1.38)	(1.38)
HML	-0.002	-0.001	-0.001
	(-0.06)	(-0.03)	(-0.03)
WML	0.008	0.008	0.008
	(0.43)	(0.44)	(0.44)
Value	0.003	0.002	0.002
	(1.37)	(1.06)	(0.96)
Growth	-0.003*	-0.006**	-0.006**
	(-1.75)	(-2.52)	(-2.39)
Issuer	-0.001	-0.003*	-0.003
	(-0.54)	(-1.86)	(-1.37)
Value*Issuer	-0.003		-0.001
	(-0.85)		(-0.27)
Growth*Issuer		0.006*	0.006
		(1.82)	(1.63)
Constant	0.001	0.002*	0.002
	(0.96)	(1.77)	(1.52)
Observations	1325	1325	1325
R^2	0.826	0.826	0.826

This table reports the panel regression results for 6 portfolios which are formed based on the three of the price-to-book ratio, each split up into firms with and without SEOs in the previous 36 months. Control variables are the same as in Table 3, but additionally include indicators for value and growth portfolios, as well a dummy which indicates the portfolio consists of firms with an SEO in the previous 36 months, and interaction terms between these variables. T-statistics are in parentheses, and parameters marked ***,**, and * are significant at the 1%, 5%, and 10% levels, respectively.

Table 5: Panel Regression Results: Debt Issuances

	(1)	(2)	(3)
MKT	0.949***	0.948***	0.948***
	(52.75)	(52.94)	(52.90)
SMB	0.012	0.008	0.008
	(0.32)	(0.23)	(0.21)
HML	0.034	0.036	0.036
	(0.87)	(0.92)	(0.92)
WML	-0.018	-0.017	-0.017
	(-0.77)	(-0.77)	(-0.77)
Value	0.005	0.003	0.002
	(1.57)	(1.56)	(0.79)
Growth	0.001	-0.005*	-0.006*
	(0.52)	(-1.78)	(-1.85)
Issuer	-0.001	-0.006***	-0.007**
	(-0.69)	(-2.73)	(-2.52)
Value*Issuer	-0.003		0.002
	(-0.66)		(0.54)
Growth*Issuer		0.014***	0.015***
		(3.37)	(3.35)
Constant	-0.001	0.001	0.002
	(-0.40)	(0.74)	(0.89)
Observations	1248	1248	1248
R^2	0.754	0.756	0.756

This table reports the panel regression results for 6 portfolios which are formed based on the three of the price-to-book ratio, each split up into firms with and without debt issuances in the previous 36 months. Control variables are the same as in Table 3, but additionally include indicators for value and growth portfolios, as well a dummy which indicates the portfolio consists of firms with an SEO in the previous 36 months, and interaction terms between these variables. T-statistics are in parentheses, and parameters marked ***,**, and * are significant at the 1%, 5%, and 10% levels, respectively.