2009

REIT IPOs and the Cost of Going Public

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Introduction

There is a considerable body of literature documenting the significant first-day returns of Initial Public Offerings (IPOs). These returns have been economically and statistically large, particularly during the "bubble" period of 1999–2000, during which the average first-day return was approximately 65%. Further, Loughran and Ritter (2002) find that firms, on average, leave approximately $9.1 million on the table, which is roughly twice the amount of direct fees paid. The question this raises is: Why do issuers accept such a large amount of money left on the table (MLOT)?

Many potential explanations exist for this large opportunity cost; however, one that forms the basis for multiple theoretical models is asymmetric information between buyers and sellers (e.g., Rock 1986; Benveniste and Spindt 1989). We examine this particular explanation in the context of Real Estate Investment Trust (REIT) IPOs, hypothesizing this type of IPO is inherently more transparent (i.e., less information asymmetry) and should therefore experience a lower cost of issuance.

In general, there are several reasons REIT IPOs should be less difficult to value than traditional issues. For example, equity REITs report the portfolio of buildings and other tangible assets they hold, which can then be used to estimate occupancy, rent payments, and cash flow. In contrast, traditional issues may not have as extensive a set of information on underlying asset holdings. Therefore, the future cash flows of REITs may be less uncertain than those associated with a traditional issue, where the assets are largely unknown (particularly to investors) or, at the least, difficult to value since they are typically less tangible.

Several studies have examined the level of information asymmetry and the corresponding level of underpricing for REIT IPOs. For example, Wang et al. (1992) document a 2.82% price *decline* on the first day of trading for a sample of REIT IPOs issued during the period of 1971–1988. However, Ling and Ryngaert (1997) examine the 1991–1994 period and find average first-day returns of 3.60%. They attribute this turnaround (at least partially) to an increased difficulty associated with valuing more recent REIT IPOs, although the level of underpricing is still lower compared to traditional IPO firms.

Most of these prior studies measure the costs associated with information asymmetry using first-day return (i.e., initial underpricing). However, an alternative branch of research (e.g., Barry 1984; Dolvin and Jordan 2007) suggests another method for measuring issue costs that accounts for the share retention (i.e., overhang) decisions of preexisting owners. Specifically, initial underpricing is defined as money left on the table relative to offering proceeds, which implicitly assumes all preexisting shares are sold in the offering; however, this is rarely the case. Therefore, a more reasonable measure, particularly from the perspective of preexisting owners, may be money left on the table relative to preexisting equity value, which effectively controls for the level of share retention by preexisting owners. Following Dolvin and Jordan (2007), we refer to this measure as the opportunity cost of issuance (OCI).

REITs, as a whole, are less likely to have preexisting shares, simply based on the structure of the industry; therefore, a comparison of underpricing to more traditional issues may be less meaningful than previously thought. Thus, results of existing studies may or may not reflect the true cost of going public in these relatively unique

investment assets. Similarly, the use of "umbrella partnerships," which began in 1992, may also impact the issue cost comparison. In this form of REIT, one or more individuals contribute real estate holdings to the partnership in exchange for operating units. Although these units are not technically shares of stock (and thus would not show up in preexisting equity), the operating units are convertible to shares of stock, effectively making them "share-like" securities. Thus, in calculating the opportunity cost of issuance, it is also necessary to control for this structure.

This paper contributes to the existing literature on REIT IPOs in a number of ways. First, many prior studies examine REIT IPOs in isolation. We examine both traditional IPOs and REIT IPOs in an effort to focus on the specific differences in the two types of issues and the variables that influence those differences. Second, rather than examining only underpricing, we also focus on the OCI, which controls for the level of share retention by preexisting owners. Third, we examine whether the type of REIT IPO (i.e., equity vs. mortgage) is influential in predicting issue cost. For each segment of the analysis, we further control for the use of umbrella partnerships (UPREITs), which may impact the level of share retention and therefore the *OCI*.

We find, consistent with previous studies, that REIT IPOs have lower initial-day returns relative to traditional IPOs, most likely due to the reduced complexity of valuing the assets that comprise the REIT IPOs. We find further evidence of this in smaller offer price revisions, which is also consistent with reduced information asymmetry. However, when controlling for the level of share retention, which is lower for REITs, the reduction in risk associated with less uncertainty in valuation does not result in lower issuance costs for existing owners. This result is robust to controlling for the UPREIT structure. Thus, although REIT underpricing is lower, the difference in preissuance share structure results in an OCI that is statistically the same. Continuing to control for the UPREIT structure, we also find that the type of REIT (i.e., mortgage or equity) is immaterial to the level of OCI, as both types exhibit approximately the same level relative to traditional IPOs.

The remainder of the paper is organized as follows: "Information Asymmetry and the Cost of Going Public" discusses informational asymmetries and the resulting issuance costs in IPOs. "REIT IPOs" briefly discusses the structure of REIT issuances. "Data and Methods" presents data and methods. "Results" presents results, and Section "Conclusions" concludes.

Information Asymmetry and the Cost of Going Public

Theoretical models of information asymmetry have provided a framework for explaining IPO "mispricing" (see Rock 1986). The existence of asymmetric information forces issuers to offer shares at a discount (relative to the true market value of the issuing firm), which implies a positive relation between the degree of asymmetric information and issuance costs. Previous studies generally address this relation by examining underpricing, or the initial-day return, which is defined as money left on the table (MLOT) divided by the proceeds of the offering.[1]

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[1] Underpricing is often defined as the percentage change from the offer price to the closing market price on the first day of trading; however, these are equivalent definitions.

It is important to note that underpricing fails to control for the number of shares retained by preexisting owners. In fact, as mentioned earlier, underpricing implicitly assumes that all preexisting shares are sold in the offering, which is generally not the case. As an extreme example, consider a firm that goes public by issuing a single share. Any level of underpricing is essentially irrelevant since its dilutive effect on the value of the firm would be so small, and the money left on the table would be minor in comparison to the overall stake of preexisting owners.

Put differently, the wealth effect on preexisting owners (i.e., MLOT) is determined by the risk of the offering, including the amount of asymmetric information, not by the share issuance decision. Thus, studies focusing on underpricing may or may not reach accurate conclusions regarding the underlying relations between characteristics of the offer and the cost of going public, particularly in situations where industry ownership structure is systematically different, such as the case with REITs. Specifically, firms that have high underpricing may actually have a relatively low issuance cost if owners retain a large portion of shares. Alternatively, preexisting owners of firms with lower underpricing may not benefit from this relation if very few shares are retained, which is generally the case for REITs and, in particular, for non-UPREIT firms. We examine whether this latter scenario is significant to the cost of issuance for REIT IPOs.

Following Barry (1984), Dolvin and Jordan (2007) formally address the relation between underpricing and the true wealth effect of an IPO, finding that underpricing is the product of two underlying components: the wealth effect and the share retention (i.e., overhang) decision. Dolvin and Jordan define the wealth effect in percentage terms, which they refer to as the opportunity cost of issuance (OCI):

$$OCI = \frac{MLOT}{E} = \frac{N_o(P_1 - OP)}{P_1 N_A - N_{o,p} OP} \tag{1}$$

where E represents the preexisting equity value and is equal to the market value of the firm after the offering, less any new proceeds raised from newly created (i.e., primary) shares. (Note, any secondary shares sold create proceeds for selling shareholders, not for the firm itself.) In addition, N_o is the number of shares offered in the IPO; P_1 is the market price at the end of the first trading day; OP is the offer price; N_A is the total number of shares after the offering; and $N_{o,p}$ is the number of primary (i.e., newly created) shares offered. Their derivation and results suggest that failing to control for the share retention decision introduces potential bias; therefore, in examining the relation between information asymmetry and the cost of going public, we study both initial-day underpricing and OCI.

REIT IPOs

REITs were originally designed as a conservative investment device through which individual investors could invest in real estate assets on a long-term basis. Thus, REITs have historically served the role of financial intermediaries that

enable individuals to invest in real estate assets, yet avoid the double taxation associated with traditional corporate structures by complying with strict operating requirements.[2] There are two basic types of REITs. Equity REITs are involved in the investment and operation of real physical assets, while mortgage REITs purchase mortgage obligations.[3]

Prior to the Tax Reform Act of 1986, REITs were precluded from actively managing their own portfolio. Ling and Ryngaert (1997) provide an in-depth discussion of the different environments before and after the Tax Reform Act. Most notably, the post Act period is associated with a substantially higher level of managerial equity ownership. With increased preexisting ownership, share overhang becomes a more relevant variable and influences the applicability, or lack thereof, of initial-day underpricing as a measure of issuance costs. An additional result of this more active management style is more uncertainty about the market value of the firm.

Wang et al. (1992) suggest two additional reasons REIT IPOs may behave differently than traditional industry issues. First, REIT issues prior to 1990 had more uninformed investors. However, the significantly lower levels of underpricing persisted throughout the 1990s even though the level of institutional ownership in REITs was as high as industrial issues (see Chan et al. 1998). Therefore, it appears this conjecture does not well explain the differing levels of underpricing.

Another possible reason for the different levels of IPO underpricing suggested by Wang et al. (1992) is that REITs hold tangible assets (real properties and mortgages), whereas the asset base for industrial IPOs can be much more undefined. Chan et al. (2001) examine this last explanation using Hong Kong IPOs and find evidence suggesting the difference in underlying assets cannot completely explain the difference in underpricing between the two types of issues. Therefore, they conclude there is a need to re-evaluate current explanations for the abnormal performances of REIT IPOs relative to traditional issues.

As identified earlier, an additional REIT structure may influence the level of issue costs faced by preexisting owners. Umbrella partnerships, which comprise over half of the largest REITs, allow partners that contribute property to the REIT to receive operating units rather than shares. The structure, due to the convertibility of units to shares, allows partners to retain an effective ownership interest, while also reducing the initial tax burden associated with the formation of the partnership. If we were to calculate OCI (money left on the table relative to preexisting equity value) without controlling for these units, we would effectively underestimate preexisting equity and overestimate issuance costs. So, we necessarily adjust for this type of REIT.

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[2] See Fass et al. (1996) and Jarchow (1988) for an explanation of REIT operating procedures.

[3] Hybrid REITs, which could be considered a third type, invest in both physical and financial assets. These, however, make up a small fraction of the REIT population.

Data and Methods

We examine a sample of issues that went public between 1986 and 2004. Prior to 1986, many of the explanatory variables of interest are unreported or unreliable. Following traditional studies, we omit issues involving closed-end funds, unit issues, American depositary shares, mutual-to-stock conversions, reverse leveraged buy-outs, and spin-offs. Unlike most studies, we also eliminate from our analyses firms with multiple share classes.[4] The reason these issues are eliminated is that the determination of overhang, and therefore OCI, can be problematic for such firms, particularly when, for example, one Class A share can be converted into multiple Class B shares.

We gather information on IPOs from the SNL Financial and SDC New Issues databases. In addition to company and issue information provided by SNL and SDC, we rely on the University of Chicago's Center for Research in Security Prices (CRSP) database to provide closing market prices and information on shares outstanding on the date of issuance. We also use Loughran and Ritter's (2004) underwriter reputation variables and firm founding dates. Our final sample consists of 5,606 issues, 5,397 of which are traditional issues and 209 that are REIT issues.

SNL also identifies REITs by type (mortgage, equity, or hybrid) and additionally identifies issues as UPREITs. Of the 209 REITS, 112 are UPREITs, which is approximately 54% of our sample. However, UPREITs did not exist prior to 1992, and after this time approximately 65% of our sample has the UPREIT structure. To determine the number of operating units that existed in each UPREIT at the issuance date, we consult prospectus and filing documents on the SEC's website. Table 1 presents summary statistics for the entire sample.

Panel A of Table 1 presents the variables designed to measure information asymmetry and issue costs. Initial is the initial-day return, defined as the percentage change from the offer price to the price at close of the first day of trading. This variable is equivalent to that used in the majority of IPO studies to capture the relative level of MLOT. OCI is the opportunity cost of issuance, as defined in Eq. 1. AdjOCI is also calculated using Eq. 1; however, preexisting equity is adjusted to reflect umbrella partnership operating units that are equivalent to common shares. Unfortunately, for 21 issues we are unable to obtain the number of partnership units; therefore, we eliminate these from our comparison for AdjOCI. ShareOver is share overhang, defined as the number of shares retained (by existing shareholders) relative to the total number of shares issued. AdjShareOver is share overhang adjusted for UPREIT operating units. Finally, Revision is a measure of offer price revisions, defined as the offer price less the initial low filing price, divided by the difference between the initial high and low filing prices.

These variables measure the extent of information asymmetries in various ways. Initial and OCI (and AdjOCI) measure the extent of direct issuance costs, reflecting the difference between the offering price and the resulting market price. In other

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[4] There are 410 non-REITs with dual class shares. This structure is non-existent in REITs, which may be attributable to the use of umbrella partnerships.

words, they reflect the difference between the pre-issue valuation and the market-driven response to the issuance. Revision is designed to measure the pre-issue uncertainty surrounding the issue. When there is considerable asymmetry surrounding an issue, the pre-issue filing prices may be substantially adjusted to respond to new information that may reduce those informational deficiencies.

Examining Panel A, we find each of the issue cost variables is significantly different for REIT IPOs relative to traditional issues. Consistent with prior studies (e.g. Wang et al. 1992 and Ling and Ryngaert 1997), we find a lower level of underpricing for REIT IPOs, possibly attributable to the lower degree of valuation uncertainty. We also find REITs to be associated with smaller pre-offer revisions. Interestingly, however, we find that REIT IPOs have higher OCI than traditional issues. Although not as large, this relation is robust to controlling for umbrella partnerships.

Thus, we have conflicting univariate evidence in that Initial appears to indicate a lower cost of issuance for REIT IPOs, while OCI (and AdjOCI) indicates a higher cost of issuance. This may be explained by ShareOver, which indicates a much lower level of share retention associated with REIT issues. Thus, our preliminary results suggest that although prior studies conclude REITs have a lower cost of issuance, our evidence suggests, in contrast, this relationship is of limited benefit to preexisting owners and may simply be a function of industry structure.

The results to this point fail to account for underlying issue characteristics that may also be influencing the relations. Thus, to explore potential causes of the above differences, we report descriptive statistics on selected firm and offer characteristics in Panel B of Table 1. The variables in the panel are representative of those commonly examined in IPO research, but the list is not intended to be exhaustive. Specifically, we report means and t statistics from difference tests for the following:

Proceeds	Gross proceeds of the issue in millions of dollars
Integer	Dummy variable equal to one if the IPO offer price is an integer
Rank	Carter-Manaster (1990) rank of the lead underwriter, as updated by Loughran and Ritter (2004)
Primary	Dummy variable equal to one if the offering has 100 percent primary shares
CrspVW15	The CRSP value weighted index return for the 15 trading days prior to the issue
PartialU	The percentage change (from the original midfile) in the final offer price if the change is positive (and zero otherwise)
PartialD	The percentage change (from the original midfile) in the final offer price if the change is negative (and zero otherwise)
Nineties	Dummy variable equal to one if the issue takes place in the 1990 to 1998 period; and
2000s	Dummy variable equal to one if the issue takes place in the 2000 to 2004 period

Proceeds is a common conditioning variable in the IPO literature. For example, a larger offering may be indicative of less risk, as larger firms generally have more publicly available information. If so, then the risk of going public may be lower, resulting in a lower issuance cost. Previous studies, however, generally find an inconsistent relation between size and issuance cost across time periods. Nonetheless, controlling for size is particularly important for REITs given their large average size relative to traditional issues.

Bradley et al. (2004) show that IPOs with integer offer prices tend to be more underpriced. They argue that integer prices are, in part, a sign of valuation uncertainty, which leads to a greater reward to new shareholders. We again hypothesize that this payment, in the form of MLOT, will come at the expense of existing shareholders.

Third-party agents such as underwriters may serve in a certification role, thereby reducing the risk of the offering (e.g., Dolvin 2005). However, previous studies find these agents are often associated with higher MLOT. This may be attributable to "grandstanding" (Gompers 1996), which is designed to attract future business. Thus, the predicted relation of Rank to OCI is undetermined.

From our previous discussion, it is apparent that an increased level of overhang should serve to reduce the wealth lost by preexisting shareholders. It is possible, however, that in certain circumstances issuers may be constrained in their decisions on the optimal level of share retention. One such case involves issues where owners are retaining 100% of their shares. At this level, any additional increase in underpricing may directly result in a higher OCI. Thus, we examine Primary, hypothesizing that pure primary offerings (i.e., full retention of secondary shares) will be associated with a higher Initial and OCI.

We also examine the overall market's return (value weighted) for the 15 trading days prior to the issue (CRSPVW15). This variable proxies for "hot" issuance markets and is generally positively associated with underpricing, although not necessarily OCI, as owners typically retain more shares in such times. Dolvin and Jordan (2007) find that offer price adjustments, particularly upward, result in a higher OCI, a result that is consistent with similar findings related to Initial. Thus, we examine PartialU and PartialD.

Lastly, we code each issue by time period. Particularly during the internet "bubble," IPOs as a whole experienced higher issuance costs. However, Hartzell et al. (2005) find that such "hot" time periods are not significantly related to post-IPO REIT operating performance. Thus, this particular variable may be less relevant for REITs.

Examining Panel B of Table 1, it appears that REIT IPOs tend be significantly larger and have higher quality underwriters relative to traditional issues. Also, REIT IPOs have lower levels of upward and downward price revision, which is consistent with results for Revision. Moreover, REIT issues are less likely to be priced on an integer. We also find that REITs are more likely to be 100% primary issues. Generally, this indicates higher share retention (overhang); however, as noted above this is not the case. Thus, there must be some underlying difference in structure. Specifically, the relations suggest that there are very few preexisting shares, at least relative to traditional issues. So, even if all shares are retained, the number of new shares created is so large in comparison that overhang, as a whole, is extremely low. This is simply a function of industry structure and the configuration of REIT securities in that REITs are primarily formed using the new proceeds generated from the issue. This relation is robust, however, to controlling for UPREITs. So, even in this structure where a greater number of preexisting "shares" exists, they are small relative to new proceeds gathered.

It appears there may be significant differences between the two types of investments in relation to issuance costs. However, various issue characteristics are also significantly different, and this could be driving those results. Therefore, we implement more robust statistical analyses using a matched sample. More specifically, we match each REIT issue to a traditional issue by size and issue date. We present summary statistics for this matched sample in Table 2. The primary

difference we find is that *AdjOCI* is no longer significantly larger for REIT issues. We attribute this change to the greater consistency in size, which is the only other result that changes; however, we further explore this, and other possibilities, in the multivariate analysis contained in the subsequent section.

Results

Information Asymmetry and Issue Cost

To control for underlying relations, we continue our analysis by estimating the following OLS regression model:

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\begin{aligned}
Dep_i = {}& \alpha + \beta_1 \text{REIT} + \beta_2 \text{ShareOver} + \beta_3 \text{LnProceeds} + \beta_4 \text{Rank} + \beta_5 \text{Primary} \\
& + \beta_6 \text{Integer} + \beta_7 \text{PartialU} + \beta_8 \text{PartialD} + \beta_9 \text{CrspVW15} + \beta_{10} \text{Nineties} \\
& + \beta_{11} 2000s + \varepsilon_i
\end{aligned}
$$

$$(2)$$

where the Dep_i is either Initial, OCI, AdjOCI, or Revision.[5] REIT is a dummy variable that equals one for the 209 REIT IPO issues, zero otherwise. If REIT issues are associated with a lower level of pricing uncertainty, this should result in lower levels of information asymmetry. This will then result in a negative relation between REIT and the issue cost variables. We also include the variable ShareOver in the regression to control for the level of share retention, since the univariate analysis suggests this variable is important in determining the cost of issuance to preexisting owners. Based on the rationale presented earlier, we also include each independent variable identified in Panel B of Table 1. The results are presented in Table 3.

We find the predicted negative relation in regards to Initial, indicating that REIT issues have significantly lower levels of underpricing. Specifically, a REIT IPO experiences, on average, 4.61% (absolute) lower underpricing than a comparable traditional issue. This is consistent with the belief that REIT issues are easier to value and therefore are associated with less information asymmetry and lower values of MLOT. We find supporting evidence in the specification where the dependent variable is Revision, although the significance is marginal (p value=0.10).

However, as previously discussed, an alternative measure of issuance cost is the cost to existing shareholders, as some issues have a significant percentage of the shares retained within the preexisting ownership structure while other issues have no preexisting shares. Therefore, OCI may be a more appropriate measure of issuance costs, particularly given the preexisting ownership structure of the REIT industry. We find the relation between REIT and OCI to be insignificant, indicating that any reduced cost of issuance is not necessarily to the benefit of the existing owners.

Examining AdjOCI, we find that the estimated coefficient switches to the predicted negative sign, which would indicate lower issuance costs. However, the coefficient is only significant at a relatively low level, indicating our results are robust to controlling for ownership units in UPREITs. Therefore, models such as Wang et al. (1992) and Ling and Ryngaert (1997) that find REIT IPOs to be associated with a relatively lower cost of issuance may be capturing a different

phenomenon than true opportunity costs, which may simply be a bias of the different ownership structure within the REIT industry.

Types of REITs

To extend previous work, we also examine the type of REIT issue. As mentioned in a earlier section, there are two distinct types of REITs: (1) Equity and (2) Mortgage. There is a natural difference between the two types in terms of investment securities. For example, mortgage REITs may be different in that the underlying securities are easier to value than those of equity REITs. Specifically, it is likely easier to sum the amount of monthly mortgage notes due than to appraise the value of properties. On the other hand, there is likely a higher risk of default with mortgage REITs than equity REITs, as they are not directly associated with a physical asset base. Beyond underlying asset holdings, a significant additional difference exists between mortgage and equity REIT—i.e., the UPREIT structure is typically confined to equity REITs. These differences provide the incentive needed in segmenting the sample. We identify 39 mortgage and 156 equity issues. The remaining issues are identified as hybrids, which are excluded to allow for a clearer analysis of the relative risks of each issue. Summary statistics are presented in Table 4.

We find no significant differences between the two samples in the univariate analysis in any of the issue cost measures (Initial, OCI, and AdjOCI) or price revisions. We do find, though, that mortgage issues are more likely to be priced on an integer and are associated with lower quality underwriters. We also find more equity issues in the 1990s and a higher prevalence of mortgage issues in the 2000s.

To further examine the distinction between the two types of REIT issues, we estimate the coefficients of the following model using a matched sample of REIT IPOs (excluding Hybrids) and traditional (non-REIT) IPOs:

$$Dep_i = \alpha + \beta_1 Mortgage + \beta_2 Equity + \beta_3 ShareOver + \beta_4 LnProceeds$$
$$+ \beta_5 Rank + \beta_6 Primary + \beta_7 Integer + \beta_8 PartialU + \beta_9 PartialD \quad (3)$$
$$+ \beta_{10} CrspVW15 + \beta_{11} Nineties + \beta_{12} 2000s + \varepsilon_i$$

where Mortgage (Equity) is a dummy variable equal to one if the REIT issue is a mortgage (equity), zero otherwise. Results are presented in Table 5, including an F test between the coefficients on Mortgage and Equity. We find both REIT types are negatively related to Initial, which is similar to our earlier findings, and there appears to be no significant difference between the two *REIT* types. A similar relation exists for offer price revisions, although the coefficient on Mortgage is not significant.

In contrast, the insignificant relation between REIT and OCI in Table 3 appears to be driven by differing relations between mortgage and equity REITs. An F test indicates the difference between the coefficients on equity and mortgage REITs is significant, which suggests mortgage REITs have lower costs to existing owners than equity REITs. However, since adjusted share overhang is higher for equity REITs, we hypothesize the difference is attributable to the use of umbrella partnerships, which is a structure unique to equity REITS. This conjecture is

consistent with the results related to adjusted OCI, which indicate an insignificant relation between both types of REITs and AdjOCI. Further, the F test indicates no statistical difference between the two coefficients. Thus, once we control for umbrella partnerships, the type of REIT appears to be unimportant in determining the level of indirect issue cost.

Conclusions

We compare REIT IPOs that went public between 1986 and 2004 to traditional issues during that same time period. We find that REIT issues are associated with lower levels of issue cost, at least as typically defined by initial-day underpricing. Further, we find that REIT issues are associated with lower offer price revisions, which is consistent with reduced information asymmetries. However, when using an alternative method for estimating issue costs, we find no significant difference between the two groups of IPOs. This alternative measure proxies for the cost to *preexisting* owners. Therefore, our findings suggest that although underpricing appears to be lower, the total cost of REIT IPOs to preexisting owners is about the same as traditional issues. We attribute the difference to the inherent nature of share ownership in the REIT industry.

We further segment our sample into mortgage and equity REITs, the latter of which is more likely to employ umbrella partnerships. Once we control for the additional preexisting ownership base for this specific ownership structure, we find no significant relation between either type of REIT and the opportunity cost of issuance. Thus, we find no evidence of existing owners of either REIT type having an incremental advantage (i.e., lower costs of issuance) over the other.

References

Barry, C. B. (1984). Initial public offering underpricing: The issuer's view—A comment. *Journal of Finance, 44*(4), 1099–1103.

Benveniste, L. M., & Spindt, P. A. (1989). How investment bankers determine the offer price and allocation of new issues. *Journal of Financial Economics, 24*(1), 213–232.

Bradley, D. J., Cooney, J., Jordan, B. D., & Singh, A. (2004). Negotiation and the IPO offer price: A comparison of integer versus non-integer IPO's. *Journal of Financial and Quantitative Analysis, 39* (3), 517–540.

Bradley, D. J., & Jordan, B. D. (2002). Partial adjustment to public information. *Journal of Financial and Quantitative Analysis, 37*(4), 595–616.

Carter, R. B., & Manaster, S. (1990). Initial public offerings and underwriter reputation. *Journal of Finance, 45*(4), 1045–1067.

Chan, S. H., Leung, W. K., & Wang, K. (1998). Institutional Investment in REITs: Evidence and Implications. *Journal of Real Estate Research, 16*(3), 357–374.

Chan, S. H., Stohs, M. H., & Wang, K. (2001). Are real estate IPOs a different species? Evidence from Hong Kong IPO's. *Journal of Real Estate Research, 21*(3), 201–220.

Dolvin, S. D. (2005). Market structure, changing incentives and underwriter certification. *Journal of Financial Research, 28*(3), 403–419.

Dolvin, S. D., & Jordan, B. D. (2007). Underpricing, overhang, and the cost of going public to preexisting shareholders. Working Paper Series.

Fass, P. M., Shaff, M. E., & Zief, D. B. (1996). *Real estate investment trust handbook*. New York, NY: Clark, Boardman, and Callaghan.

Gompers, P. A. (1996). Grandstanding in the venture capital industry. *Journal of Financial Economics, 42*(1), 133–156.

Hartzell, J. C., Kallberg, J. G., & Liu, C. H. (2005). The Role of the Underlying Real Asset Market in REIT IPOs. *Real Estate Economics, 33*(1), 27–50.

Jarchow, S. P. (1988). *Real estate investment trusts.* New York: Wiley.

Ling, D. C., & Ryngaert, M. D. (1997). Valuation uncertainty, institutional involvement, and the case of underpricing of IPOs: The case of REITs. *Journal of Financial Economics, 43*(3), 433–456.

Loughran, T., & Ritter, J. R. (2002). Why don't issuers get upset about leaving money on the table in IPOs? *Review of Financial Studies, 15*(2), 413–443.

Loughran, T., & Ritter, J. R. (2004). Why has underpricing increased over time? *Financial Management, 33*(3), 5–37.

Rock, K. (1986). Why new issues are underpriced. *Journal of Financial Economics, 15*(2), 187–212.

Wang, K., Chan, S. H., & Gau, G. W. (1992). Initial public offerings of equity offerings: Anomalous evidence using REITs. *Journal of Financial Economics, 31*(3), 381–410.