The Underwriting Syndicate Structure and the Indirect Costs of U.S. REIT SEOs

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Abstract

This study investigates the underwriting syndicate structure in explaining the indirect costs[1] of raising seasoned equity capital for U.S. Real Estate Investment Trusts (REITs) [2] with a sample of 800 Seasoned Equity Offerings (SEOs) issued during the period 1996-2010. The study reports offer discount (an offer price lower than the prior day closing price with respective to the offer price) average 1.99% and underpricing (an offer price lower than the offer day closing price with respective to the offer price) average 1.18%. Consistent with industrial SEOs, this study documents a rising trend in indirect costs during the sample period. The rising indirect costs over time supports the notion that issuers are less worried of leaving money on the table when they could hire industry dominating underwriting syndicate. This study reports significantly higher underpricing for SEOs issued during the post global financial crisis (GFC). The results also document that the direct costs may well negatively explain the indirect costs and that the number of representative underwriters inversely affects the underpricing. Overall, the study suggests that the characteristics or structure of underwriting syndicate might explain the indirect costs of raising seasoned equity capital.

Key words: underpricing, offer discounts, dominating underwriting syndicate, SEOs, GFC.

[1] The money left on the table for subscribing investors through underpricing i.e. pricing the offer below the closing market price on the offer day with respect to the offer price or through offer price discounting i.e. setting the offer price at a discount from the closing market price on the day before the offer with respect to the offer price (Parsons and Raviv, 1985; Smith, 1977).

[2] REITs (also known as "reets") are originated in 1960 as tax exempt trust entities to own and sometimes develop commercial properties.

1.0 Introduction

As investors subscribing in SEOs do not need to pay any brokerage commission, Loderer, Sheehan and Kadlec (1991) demonstrate that, under market efficiency, the SEO offer price should be lower than the offer day closing market price but higher than the pre-offer closing market price. The SEO literature indicates the existence of substantial indirect costs through underpricing with an increasing trend over time which might be attributed to the changes in economic conditions, preference of issuers, SEO environment, regulatory laws, and SEOs themselves. As changes in economic environment might affect the rising trend of indirect costs of raising seasoned equity (Kim and Shin, 2004), the recent global financial crisis (GFC) bursting in August 2007 (Gordon and Valentine, 2009) might be an structural event of determining the indirect costs for SEOs issued during and even the immediate the post GFC period. This GFC is believed to be caused by the sharp downturn in real estate prices triggered by the subprime mortgage lending (Laopodis, 2009). Ling and Ryngaert (Ling and Ryngaert, 1997) argue that the financial recession might cause many financial institutions bankrupt which might lead to evaporate traditional sources of capital for real estate industry. Hence, the already heavy reliance of real estate industry on equity capital is reinforced during a financial recession. This strengthening of dependence on equity capital might motivate REITs, trust entities entirely engaged in investment in real estate assets with exemption from corporate tax, raising seasoned equity to leave more money on the table during this GFC period. REITs usually rely on seasoned equity to fund the growth of their capital intensive assets because they can hardly accumulate retained earnings after statutorily distribute a large portion of their taxable income as dividends to keep their tax exempt status. This reliance is much more prevalent after 1994 (Chan, Erickson and Wang, 2003). Furthermore, to enjoy the tax exempt status, they also need to satisfy several organizational, investment and operational

tests on a year-by-year basis. As this industry appears within a highly regulated financial sector and issues SEOs more frequently than industrial taxpaying firms, the determinants of indirect costs might be different from industrial firms (Masulis and Korwar, 1986; Mola and Loughran, 2004). For example, the literature shows that the efforts of managing (Huang and Zhang, 2011) and co-managing underwriters (Jeon and Ligon, 2011) in the underwriting syndicate significantly determine the indirect costs SEOs. Corwin and Schultz (2005) document the information production by co-managing syndicate members who provide more analyst coverage along with market making. All this evidence is, however, with industrial firms.

This study investigates the underwriting syndicate structure to explain the cross-sectional variations in indirect costs of money left on the table through pricing the offer below the closing market price on the day of the offer (undrpricing) or on the day before the offer (offer discount) of REIT SEOs. The study identifies the key characteristics of underwriting syndicate and indicates that the role of an underwriter in a syndicate is the key determinant of an underwriting syndicate. The role of an underwriter in the syndicate can be of book managing, co-managing, and non-managing position. An underwriting syndicate originates with the appointment of a book-managing underwriter who manages and co-ordinates the syndicate and is responsible for the successful floatation of the issue. The underwriter who leads the syndicate is known as lead underwriter(s). If there are more than one lead or book-managing underwriter, whose position is displayed as parallel at the offer prospectus, these underwriters perform the parallel role and regarded as joint lead or multiple book-managing underwriters in the syndicate.

The reputation of the underwriting syndicate is usually calculated by averaging the reputation of lead underwriters, where there appears multiple lead underwriters (Jeon and Ligon, 2011).

Consistent with the empirical evidence, this study expects, due to the certification effect, lower underpricing for SEOs hiring reputed lead underwriters (Ghosh, Nag and Sirmans, 2000; Jeon and Ligon, 2011). Consistent with Jeon and Ligon (2011) and Butler et al. (2005), this study incorporates a dummy variable, multbookmngrs, which equals one if the syndicate contains multiple book-managers and zero otherwise. This variable is controlled as structure of an underwriting syndicate because the literature argues for efficient placement of an SEO with multiple book-managers (Butler, Grullon and Weston, 2005).

Inspection of final offer prospectuses reveals that the number of underwriters in the syndicate, from book-managing or even from non-managing position, represents the syndicate in dealing with issuers and dealers. This study assumes that the number of representative underwriters in the syndicate performs a key role in both marketing the SEO and coordinating the syndicate. Inspection of syndicate also reveals that all managing underwriters are not always included in the portfolio of representative underwriters. Non-managing underwriters are, however, included in the portfolio of representative underwriters. Hence, this study predicts a negative relation between the number of representative underwriters and the indirect cost of leaving money on the table through underpricing or offer discount.

Furthermore, the inspection of the syndicate indicates that Merrill Lynch or Merrill Lynch led underwriting syndicate dominates the REIT SEO underwriting market during the sample period.[3] This finding implies that REIT SEO issuers prefer Merrill Lynch or Merrill Lynch led syndicate in raising seasoned equity. Consistent with Mola and Loughran (2004) and Liu and Ritter (2011), managers of the issuing firms might ignore maximization of net proceeds when they prefer specialized and dominating underwriter. This implies that there might appear an underwriter or an underwriter led syndicate which dominates an industry. Using the

[3] Dollar adjusted proceeds indicates that Merrill Lynch or Merrill led underwriting syndicates underwrite the largest market share of REIT SEOs during the sample period.

power of this dominance, this underwriter can be capable of indirectly maximizing its remuneration through leaving more money on the table for its favored clients. This study, thus, considers Merrill Lynch or Merrill Lynch led syndicate as a dominating underwriting syndicate and expects higher indirect costs for SEOs hiring industry dominant underwriting syndicate. Hence, the study incorporates a dummy variable which equals one if the SEO is underwritten by Merrill Lynch or Merrill Lynch led syndicate and zero otherwise.

The study argues that an underwriting syndicate structure can be characterized by the role of the underwriter in the syndicate, particularly; book-managing, representative, and non-managing position; reputation of the lead underwriters based on prior market share; and dominance in the underwriting market. After controlling the other effects, this study expects underwriting syndicate structure to explain the indirect costs of REIT SEOs. The literature so far documents the effects of the number of managing and co-managing underwriters with industrial SEOs till 2007 (Huang and Zhang, 2011; Jeon and Ligon, 2011). REIT SEO literature reports cross sectional determinants of both underpricing and offer discount by Ghosh, Nag and Sirmans (2000) and the doctoral dissertation of Goodwin (2008). However, none of these comprehensively controls the effects of underwriting syndicate which plays a key role in raising equity capital. This study on cross-sectional variations in SEO indirect costs incorporating the characteristics of underwriting syndicate structure best suits to the REIT industry which frequently visits seasoned equity market.

The findings of the study report that the indirect costs of REIT SEOs are influenced negatively by the number of representative underwriters but positively by the REIT SEO dominating underwriter or underwriting syndicate. The findings will contribute to the REIT SEO issuers in selecting underwriter or underwriting syndicate because selection of underwriting syndicate can minimize the indirect costs of money left on the table or maximize

the non-price dimensions of the SEO (Liu and Ritter, 2011). Consistent with industrial SEOs, this study also reports a rising trend of indirect costs over time. However, this trend might not be attributed to the short-sales (Kim and Shin, 2004) because the efficient pricing of REIT assets reduces investors' predictability on negative returns of REIT stock which makes them less short on REIT stocks (Cannon and Cole, 2011).

Overall, the structure of the underwriting syndicate, particularly the reputation, dominance and role of the underwriters in the syndicate significantly determines the indirect costs. After controlling for the time fixed effect, the study finds significantly higher indirect costs of raising seasoned equity capital for REITs issued during the real estate led recent post global financial crisis.

The findings of the study suggests that the indirect costs of raising seasoned equity capital for REITs are still a significant costs despite the higher transparency in valuation of tangible assets and frequent visiting of seasoned equity market for funding their capital intensive assets. The study also suggests that the indirect costs can be minimized by controlling the size of the proceeds to be raised and by more carefully selecting the underwriting syndicate. The results are thus expected to contribute for the issuers and also for the subscribing investors in making decisions regarding raising equity and investing respectively.

The rest of the paper is structured to provide a brief overview on the indirect costs of SEOs in section 2 followed by sources of data and methods in section 3. Section 4 presents a preliminary analysis with descriptive statistics and graphical presentation. Section 5 analyses and compares the OLS and Tobit multiple regression results with empirical evidence of factors determining the indirect costs. Section 6 summarizes the findings and finally section 7 concludes the study with some policy implications.

2.0 Overview of Indirect Costs of SEOs

As the shares of the SEO issuing firms are already priced in the secondary market and the final offer price is set at the eleventh hour of the offer, the effect of valuation uncertainty for seasoned equity offerings might be significantly less than the unseasoned offerings. Investors participate in SEOs to buy the shares at a lower price and without any commission. Any magnitude of indirect costs of raising seasoned equity capital, however, is borne by the existing owners of the issuing firm (Smith, 1977) and is influenced by a number of factors including the valuation uncertainty, placement costs and information acquisition costs of underwriters (Altinnkiliç and Hansen, 2003). The literature suggests that the underwriters deliberately underprice an issue by setting the offer price below the expected closing market price on the offer day because once they set the offer price[4], they cannot sell the shares at higher price and because setting the offer price above the expected closing market price results in excess supply (Smith, 1977).

The indirect costs through underpricing are necessarily used to mitigate the winner's curse problems by attracting uninformed investors to participate in the offers (Rock, 1986), to reduce the legal liability of the underwriters (Aggarwal, Prabhala and Puri, 2002), to absorb the temporary price pressure generated by the supply of additional shares through secondary offering (Corwin, 2003), to signal quality of the issue (Allen and Faulhaber, 1989; Grinblatt and Hwang, 1989; Welch, 1989), to expect production of more information (Baron, 1982; Benveniste and Spindt, 1989; Chemmanur, 1993) and to indirectly pay underwriters who are not adequately compensated through direct remuneration (Chen and Lu, 2006; Duarte-Silva 2006; Mola and Loughran, 2004; Yeoman, 2001). Thus, the literature supports the existence of indirect costs contrary to the costs savings hypothesis of Loderer, Sheehan and Kadlec (1991). These indirect costs of SEO offerings, however, can be reduced by the marketing

[4] The offer price is determined by the underwriters at the eleventh hour of the offer and usually not until within 24 hours of the offer (Altinnkiliç and Hansen, 2003; Smith, 1977).

efforts of underwriters (Huang and Zhang, 2011; Smith, 1977). The literature, thus, suggests that the indirect costs cannot be eliminated but can be reduced by choosing the underwriting syndicate which provides better research coverage along with aggressively marketing the SEO (Mola and Loughran, 2004).

Smith (1977) was the pioneer to examine SEO offers and documented an average discount 0.54% and underpricing 0.82% with a sample of 328 firm-commitment SEO offers during 1971-1975. Subsequent studies by Bhagat and Frost (1986) and Eckbo and Masulis (1992) support Smith's (1977) findings with some cross sectional variation[5]. The model of Giammarino and Lewis (1989) shows, in some settings, that underpricing can be used in signaling positive information while Parsons and Raviv (1985) focus on the reaction of the market to the anticipated offer price and potential rationing and Gerard and Nanda (1993) show the manipulative trading prior to the SEO to worsen the winner's curse problem and hence result in higher offer discounts.

Corwin (2003) shows an average 2.2% offer discount with a sample of 4,454 SEOs during 1980-1998 while Mola and Loughrann (2004) focus on clustering of offer price at integers with a sample of 4,814 SEOs during 1986-1999 and find a 3% offer discount. Corwin (2003) document temporary price pressure analyzing the ratio of shares offered to shares outstanding prior to the offer as significant determinant of offer discount. Mola and Loughran (2004) attribute the increasing discount to the increasing clustering of offer price to integer dollars, rising uncertainty among issuing firms and the increasing focus of managers to select an underwriter who will aggressively talk up their stock. Their findings document some support for the hypotheses of changing issuer composition and investment banker power.

[5] Bhagat and Frost (1986) report an offer price premium between 0.25 percent to 0.65 percent by public utilities firms and Eckbo and Masulis (1992) report 0.44% underpricing for industrial firms and 0.31% overpricing for public utilities firms.

Altinkilic and Hansen (2003), with a sample of 1,703 SEOs during 1990-1997, report an average 2.47% discount with annual means hovering around 3.2% and argue value uncertainty, placement costs and information acquisition costs to explain discounting. They also suggest that rational investors incorporate the expected discounting in equity prices at the announcement of the offer. Kim and Shin (2004) investigate the effect of the short-selling restriction of Rule 10b-21 with 3,304 SEOs during 1983-1998. They report a mean 2.99% discount with a rising trend over their sample period and attribute the trend to the enactment of short-selling restriction (Rule 10b-21). Kim and Park (2005), with a sample of 1,040 SEOs during 1989-2000, examine the effect of earnings management on SEO pricing and report 3.45% underpricing. Their findings strongly support the information asymmetry to positively drive the underpricing because the effect of discretionary accounting is strongly pronounced in a higher bid-ask spread which they use as a proxy for information asymmetry.

The REIT literature so far depicts the two studies, Ghosh, Nag and Sirmans (2000) and the doctoral dissertation of Goodwin (2008), to provide evidence on cross-sectional determinants of REIT SEO indirect costs. Both of the studies document underpricing with respect to both the closing price on the day before the offer and on the offer day.[6] Ghosh, Nag and Sirmans (2000) document institutional ownership as a determinant of underpricing. Furthermore, they report that theories of IPO underpricing may also apply to the SEO underpricing and, in particular, offer size and underwriters' reputation explain REIT SEO underpricing. Goodwin (2008) documents a number of factors determining offer discount and underpricing differently. Particularly, her findings report placement costs and valuation uncertainty as determinants of indirect costs of underpricing. Her study also reports that the umbrella

[6] Ghosh, Nag and Sirmans (2000) report offer price discount as a percentage change of the closing price on the day before offer from offer price with respect to closing price on the day before offer, and underpricing as the percentage change of offer price from the offer day closing price with respect to the offer price average 1.14% and 0.74%, respectively. Similarly, Goodwin's (2008) PhD dissertation reports offer discount and underpricing average 1.77% and 1.21%, respectively.

partnership (UPREIT) organizational structure leaves more money on the table due to its inherently higher information asymmetry. Moreover, her evidence shows that property type-specific factors also determine REIT SEO indirect costs.

All the existing evidence thus supports the existence of indirect costs of SEOs which are determined by a number of factors.

3. Data and Methods

The sample includes 800 SEOs out of 1340 SEOs issued by 196 different REITs issued during 1996-2010.[7] Due to the inherent differences in costs and issuing mechanisms, SEOs facilitated by placement agents, sold by underwriters and selling shareholders, and issued to the institutional investors are precluded from this sample. The dataset used in this analysis is hand collected and compiled from the corresponding REIT SEO prospectus as sourced from EDGAR.[8] Reputation rank for lead underwriters have been compiled as per Carter and Manaster (1990) as updated in Ritter's homepage http// bear.cba.ufl.edu/ritter/Rank.xcl. Following Carter and Dark (1990), lead underwriters' reputation rank has been averaged where there exist multiple lead underwriters. The value weighted offer proceeds are estimated, using the U.S. GDP price deflator 2010, in determining industry differentiated auditor and dominating underwriter.

The study uses both ordinary least squares (OLS) and Tobit regression specifications with offer price discount and underpricing as the dependent variables. The variables used in the analyses are defined in Table 1. To show further consistency of the results, the study divides

[7] The widespread subprime real estate mortgage lending which starts in mid 1990s motivates our sampling to start since 1996 (Sanders 2008).

[8] EDGAR (Electronic Data Gathering, Analysis and Retrieval) has been keeping the SEC filings of all U.S. based publicly listed and traded companies since 1996 and is widely used as a source in a number of studies including, among them, Horng and Wei (1999) for financial footnotes, Howe and Jain (2004) for annual reports, Loughran and Ritter (2004) for final IPO prospectuses (form 424B4) after 1996, Chung, Li, and Yu (2005) for selecting their sample period from 1996 due to availability of some required data in EDGAR since 1996 and Brau, Li and Shi (2007) for number of primary and secondary shares.

the sample into various sub-samples. This sub-sampling is important because the REIT Modernization Act 1999, reducing the mandatory payout ratio from 95% to 90%, became effective from January 1, 2001 (Howe and Jain, 2004), and the S&P500 stock index incorporated some REITs in its index in 2001(Laopodis, 2009). The indirect cost of offer price discount is the percentage change of the offer price from the previous day's closing transaction price with respective to the offer price (Altinnkiliç and Hansen, 2003; Corwin, 2003; Ghosh, Nag and Sirmans, 2000; Goodwin, 2008; Huang and Zhang, 2011; Mola and Loughran, 2004). The indirect cost of underpricing is the percentage change between offer price and the offer day closing price with respect to the offer price. Altinkilic and Hansen (2003) posit that offer price discount and underpricing are the same if the offer day return, percent change in offer day closing price to prior day's closing price, is assumed to be zero. The offer day return in the literature, however, is reported not equal to zero. The literature generally shows this return as negative. The OLS regressions are based on the following specifications:

$$\text{undprice} = \beta_0 + \beta_1\text{directcosts} + \beta_2\text{lnseoproceeds} + \beta_3\text{lnpriormkrprice} + \beta_4\text{reloff} + \beta_5\text{retvol} + \beta_6\text{multbookmngrs} + \beta_7\text{numrepund} + \beta_8\text{undrank} + \beta_9\text{topauditor} + \beta_{10}\text{upreit} + \beta_{11}\text{preseo} + \beta_{12}\text{nyse} + \beta_{13}\text{merrill} + \beta_{14}\text{selfmgt} + \beta_{15}\text{ptoffind} + \beta_{16}\text{maryland} + \beta_{17}\text{postgfc}$$

$$\text{offdisc} = \beta_0 + \beta_1\text{directcosts} + \beta_2\text{lnseoproceeds} + \beta_3\text{lnpriormkrprice} + \beta_4\text{reloff} + \beta_5\text{retvol} + \beta_6\text{multbookmngrs} + \beta_7\text{numrepund} + \beta_8\text{undrank} + \beta_9\text{topauditor} + \beta_{10}\text{upreit} + \beta_{11}\text{preseo} + \beta_{12}\text{nyse} + \beta_{13}\text{merrill} + \beta_{14}\text{selfmgt} + \beta_{15}\text{ptoffind} + \beta_{16}\text{maryland} + \beta_{17}\text{postgfc}$$

Where ***undprice*** and ***offdisc*** denotes underpricing is the offer discount as a percentage difference from closing price on the day before the offer and the offer price, with respect to the offer price. Other variables are as defined in Table 1.

4.0 Preliminary Analysis

This section presents and briefly discusses the preliminary findings of the study with descriptive statistics, univariate relationship between the indirect costs and their key determinants along with graphical presentations.

4.1 Descriptive Statistics

Table 2, presenting descriptive statistics, reports that the indirect costs of offer discount, underpricing and offer day return average 1.99%, 1.18% and -0.75%, respectively. The investigation of the data reveals that the closing market price on the offer day is on average 2.72% (underpriced) higher for 57% of the SEOs, equal (exactly) for 13% of the SEOs and 1.20% (overpriced) lower for 30% of the SEOs. Similarly, the offer price is on average 2.99% (offer price discount) lower than the prior day closing market price for 67% of the SEOs, equal (exactly) for 31% of the SEOs and 1.55% (offer premium) higher than prior closing market price for 2% of the SEOs. Further investigation of the data shows that the underpricing is 0.81% lower than offer price discounting and this difference is statistically significant with |t| of 6.79. It indicates that the market price on the day before offer possesses information and there exists significant information asymmetry in REIT SEOs.

The SEO offer proceeds in dollars 2010 (seoproceeds), closing market price on the day prior to the offer (priormktprice), offer price (offprice), closing market price on the day of offer (clmktprice), offer size relative to the outstanding shares prior to the offer (reloff), volatility of returns for 30 trading days ending 11 days prior to the offer (retvol), the number of representative underwriters in the underwriting syndicate (numrepund) and the average reputation rank of lead underwriters (undrank) average $157 million, $24.96, $24.53, $24.74, 80.49%, 20.77%, 2%, 6.14 and 7.91, respectively.

The table also shows that 39.62% of SEOs on average have more than one book-managing underwriters (multbookmngrs), 31.62% of SEOs have REIT SEO dominating auditor (Ernst &Young) (topauditor), 45% of SEOs have raised the seasoned equity at least once during the year prior to the current offer (preseo), 62.62% of SEOs are of UPREIT structure (upreit), 89.25% of SEOs are listed on the New York Stock Exchange (NYSE) for trading (nyse),

19.88% have Merrill Lynch led underwriting syndicate (merrill), 51% use internal management (selfmgt), 19.75% of SEOs have investment in property of industrial/office (ptoffind), 80% of SEOs are incorporated under Maryland incorporation law (maryland), 23.62% are issued during post global financial crisis (postgfc).

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Insert Table 2 here

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4.2 Univariate Analysis

Table 3 presents the univariate relationship between major explanatory variables and the two levels of indirect costs. The table consists of 2 panels presenting the offer price discount and underpricing in panels A and B, respectively. Each panel reports the average indirect costs based on 7 explanatory variables from their lowest to the highest quartile. The table shows that the average offer price discount, underpricing and offer day returns constantly increase as SEO offer proceeds (seoproceeds), relative offer size (reloff) and return volatility (retvol) increase in their quartiles. Both panels report that the average indirect costs increase steadily until the third quartile of the number of representative underwriters (numrepund) thereafter decrease in its fourth quartile. The average indirect costs of offer price discount and underpricing decrease in the 2^{nd} and 4^{th} quartiles from the corresponding prior quartiles of lead underwriter's average reputation.

Similarly, the average indirect costs of offer price discount, underpricing and offer day returns increase in the 2^{nd} and 4^{th} quartiles from the corresponding prior quartiles of total direct costs but these costs are relatively lower in next two quartiles than corresponding previous two quartiles. The table reports the indirect costs of offer discount and underpricing consistently decrease until the third quartile and thereafter these costs slightly increase in the 4^{th} quartile of the closing market price on the day prior to the offer but on average these costs decrease with

increasing offer price. However, the offer day negative returns increase across all 4 quartiles of the closing market price prior to the offer. It indicates that offer day closing price is lower than the pre offer closing price.

Overall, the table indicates that the larger offer size relative to the firm and more price volatility prior to the offer create more price pressure and price uncertainty (Altinnkiliç and Hansen, 2003; Corwin, 2003; Huang and Zhang, 2011).

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Insert Table 3 here

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4.3 Graphical Presentation of Indirect Costs of Underpricing

The scatter diagrams between the indirect costs of underpricing and the logarithm of SEO gross proceeds in dollars 2010 (lnseoproceeds), the logarithm of closing market price prior to the offer (lnpriormktprice), the offer size relative to the outstanding shares on the day prior to the offer (reloff), and the prior stock return volatility (retvol) are depicted in figures from 1 to 4, respectively to complement the univariate relationship between underpricing and increasing quartiles of these determinants. The fitted values of the scatter diagrams consistently support the univariate relationship between the indirect costs and the reported explanatory variables.

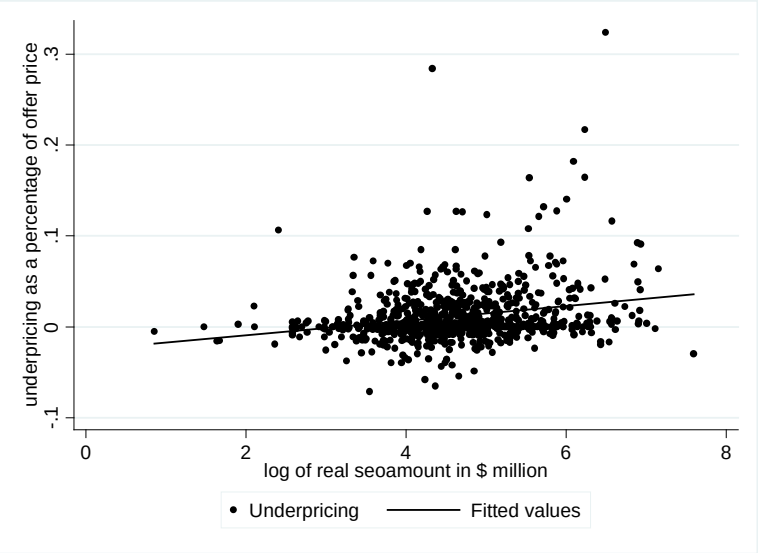

Figure 1: Scatter diagram between the indirect costs of underpricing (undprice) and the logarithm of SEO proceeds in dollars 2010 (lnseoproceeds) for 800 REIT SEOs during 1996-2010.

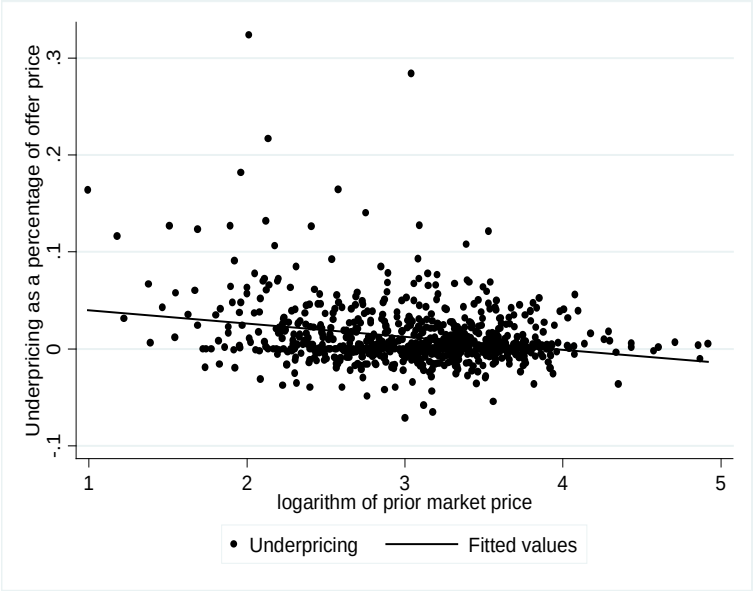

Figure 2: Scatter diagram between the indirect costs of underpricing (undprice) and the logarithm of prior market price (lnpriormktprice) for 800 REIT SEOs during 1996-2010.

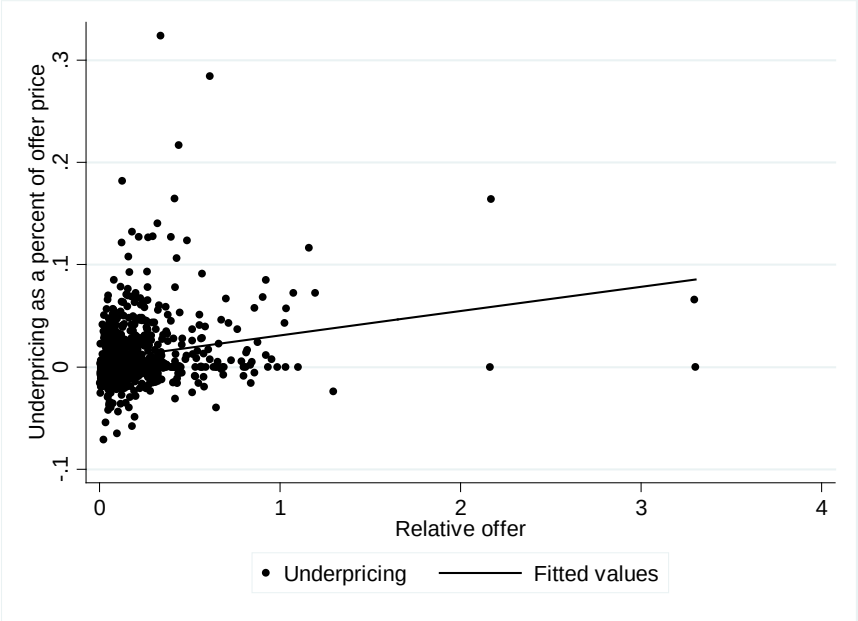

Figure 3: Scatter diagram between the indirect costs of underpricing (undprice) and the relative offer size (reloff) for 800 REIT SEOs during 1996-2010.

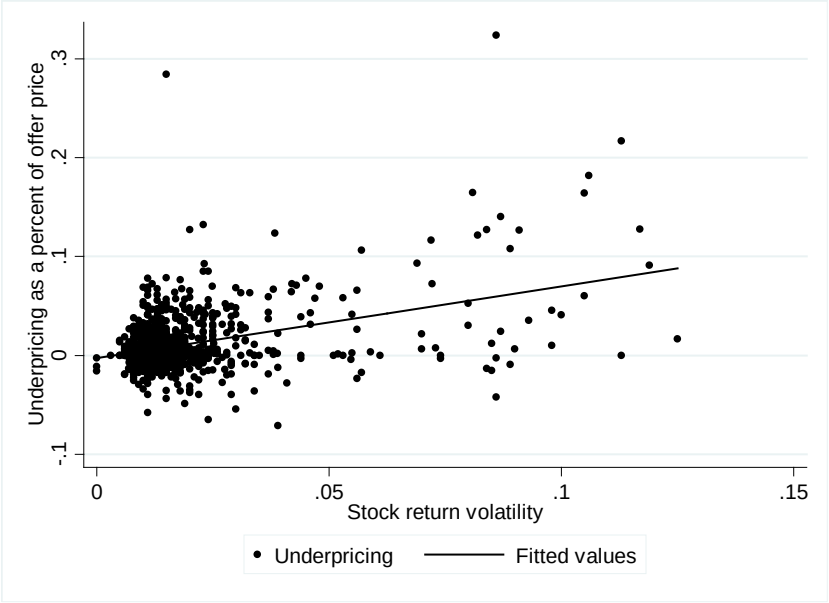

Figure 4: Scatter diagram between the indirect costs of underpricing (undprice) and the logarithm of relative offer size (reloff) for 800 REIT SEOs during 1996-2010.

Moreover, the figure 5 following depicts the trend of indirect costs over time for 800 REIT SEOs during 1996-2010. Consistent with industrial SEO indirect costs, the figure depicts that the indirect costs of REIT SEOs have also increased over time during this sample period. The figure also depicts two peaks in year 2001 and year 2009 which might be attributed to the

dot.com bubble (Ljungqvist and Wilhelm Jr, 2003; Loughran and Ritter, 2004) and global financial crisis (Gordon and Valentine, 2009), respectively.

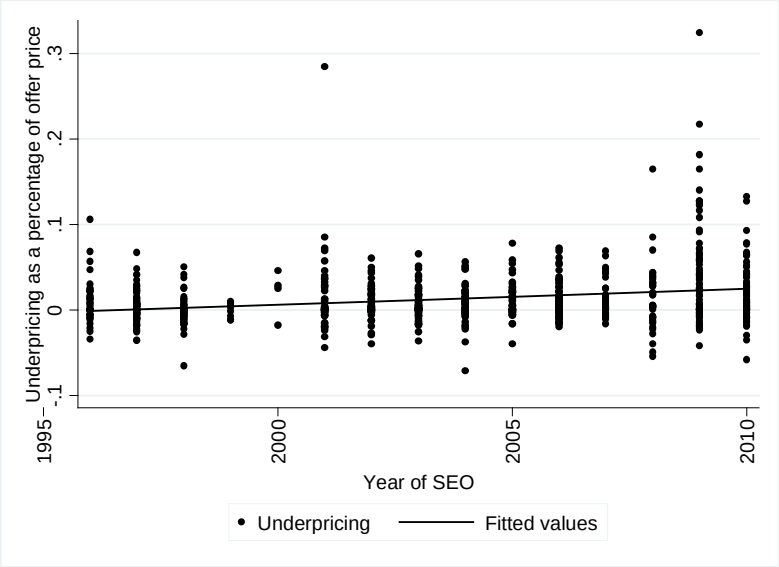

Figure 5: Scatter diagram of the indirect costs of underpricing (undprice) over time for 800 REIT SEOs during 1996-2010.

5.0 Regression Analysis

This section contains four tables consisting of 2 OLS and 2 Tobit multiple regression results with a brief discussion on the structure of the analysis followed by a brief analysis of the results found in the regressions. The OLS multiple regression results are used to predict the individual effect of each variable in explaining the variation in indirect costs. Tobit regressions are presented to confirm that the results are not driven by the outliers.

Tables 4 and 5 present the OLS multiple regression results on the indirect costs of underpricing and offer price discount, respectively. Similarly, Tables 6 and 7 present the Tobit regression results winsorizing both underpricing and offer discount at 1st and 99th percentiles to confirm the consistency of the estimates (Altinnkiliç and Hansen, 2003; Hansen, 2001). Table 4 consists of five specifications with the indirect costs of underpricing as the dependent variable.

After adjusting for the missing data of some control variables in the SEO prospectuses, the complete adjusted maximum observations in specifications 1 become 799 in all the tables. The specifications 2 and 3 in each of these four tables are with SEOs raising proceeds less than or equal to the third quartile and greater than the third quartile, respectively of proceeds scaled in dollars 2010 based on U.S. GDP deflator. Similarly, specifications 4 and 5 are with SEOs issued before 2001 and after 2000, respectively. The regression results are separately reported for two sub-periods to confirm that the regression estimates are not driven by the sample period (Mola and Loughran, 2004).

To control for any time fixed effect on dependent variables, each of the regression specifications in all the tables incorporate year dummies, however, their coefficients and heteroskedasticity consistent robust t-statistics are not specifically reported. Each OLS regression specification reports heteroskedasticity consistent robust t-statistics in the parenthesis beneath corresponding coefficient. Bottom three rows of each specification consecutively report the number of included observations, R-square and Adjusted R-square in Tables 4 and 5. However, the last two rows of Tables 6 and 7 report Log Pseudo Likelihood and Pseudo R-squared, respectively. The variables used in all four regression tables are defined with references in Table 1.

The OLS and Tobit regression results, as reported in Tables 4 and 6, show that the direct costs (directcosts), the logarithm of the closing market price on the day prior to the offer (lnpriormktprice), the number of representative underwriters (numrepund) and the reputation rank of lead underwriter (undrank) significantly negatively determine the indirect costs of underpricing. The logarithm of offer proceeds (lnseoproceeds), offer size relative to the prior outstanding shares (reloff), stock return volatility prior to the offer (retvol) significantly positively determine the indirect costs of underpricing. The tables also report that SEOs with

umbrella partnership structure (upreit), underwritten by Merrill Lynch led underwriting syndicate (merrill), managed by internal management (selfmgt) and issued during the post global financial crisis period (postgfc) leave more money on the table. The OLS and Tobit regressions of offer price discount report that offer price discount is significantly lower for SEOs incorporated in Maryland.

The results report direct costs significantly negatively determine the indirect cost of both offer price discount and underpricing and confirm the indirect costs as substitute to direct costs. The subsample and sub-period results of both OLS and Tobit regressions further confirm substitute relation because both economic and statistical significance with smaller offer size are consistent with economies of scale in direct costs and because underwriting discount has experienced a declining trend over time (Bairagi and Dimovski, 2012; Kim, Palia and Saunders, 2010). This result is consistent with Chen and Lu (2006) that underpricing substitutes to underwriting spreads for REIT IPOs. The evidence of REIT SEOs inconclusively report the effect of the offer size on indirect costs (Ghosh, Nag and Sirmans, 2000; Ghosh, Nag and Sirmans, 1998; Goodwin, 2008). The negative (insignificant) coefficient of offer size on offer discount is consistent with Goodwin's (2008). The significant positive coefficient of offer size on underpricing is consistent with positive coefficient of offer size on REIT IPO underpricing and can be attributed to more difficulty in placing larger offers which require greater distribution efforts (Baron, 1982). The study also attributes this relationship to the temporary liquidity pressure and dilution effect. It is well supported by the higher economic and statistical significance of offer size in specification with SEOs issued after 2000.

To control for the valuation uncertainty along with difficulty in placing low priced SEOs, this study has used the closing market price prior to the offer instead of nominal offer price

because nominal offer price is endogenous and prior closing price has no spillover effect (Altinnkiliç and Hansen, 2003; Huang and Zhang, 2011). The study reports significant negative effect of offer price and confirms that higher priced SEOs are easy to place in the market (Butler, Grullon and Weston, 2005). The significant positive coefficient of the relative offer size in both OLS and Tobit regressions (Kim and Shin, 2004) is consistent with the liquidity uncertainty (Mola and Loughran, 2004) and the temporary downward price pressure (Corwin, 2003) created by the relatively larger offers. Moreover, the coefficient is statistically well pronounced in specifications of offer price discount. It indicates that the larger offer size relative to the firm's capacity influences the offer price to fix at significantly lower than pre-offer market price. The higher economic and statistical significance in specification 2 in both OLS and Tobit regressions also indicate that the effect of relatively larger offerings is higher in SEOs with smaller offer size.

The empirical evidence documents that stock return volatility prior the offer, defined as the standard deviation of stock returns for 30 trading days ending 11 days prior to the offer, significantly positively influences the both underpricing and offer price discount of SEOs (Altinnkiliç and Hansen, 2003; Corwin, 2003; Huang and Zhang, 2011; Jeon and Ligon, 2011; Kim and Park, 2005). However, the findings of Kim, Palia and Saunders (2010) report insignificant positive effect whereas Goodwin's (2008) reports insignificant negative effect on indirect costs. The findings of this study report this volatility significantly positively determine the indirect costs of raising seasoned equity capital. The effect is strongly pronounced in explaining the cross-sectional variation in offer price discount.

This study uses the number of underwriters who represent the underwriting syndicate as proxy for marketing efforts (Huang and Zhang, 2011; Smith, 1977) and argue that the more number of representative underwriters in the syndicate can better provide analyst coverage,

efficiently promote the offering and also can reduce the downside risk of investors. They can do these because they underwrite usually a substantial portion of the total offering and they comprise both lead and managing underwriters. The significant negative coefficient of the number of representative underwriters (numrepund) in OLS specifications of underpricing supports that the more number of representative underwriters are effective in promoting the SEO thereby reduce the unexpected underpricing but not expected underpricing (offer price discount). Consistent with the prior REIT SEO evidence, this study reports significant negative effect of underwriter reputation on underpricing (Ghosh, Nag and Sirmans, 2000; Goodwin, 2008), however, implies that this may not significantly determine the cross-sectional variation in offer price discount. The significantly more money left on the table for SEOs with umbrella partnership organizational structure (UPREIT) supports the adverse effect of an UPREIT structure on financial transparency and valuation uncertainties (Ghosh, Nag and Sirmans, 2000; Harrison, Panasian and Seiler, 2011; Ling and Ryngaert, 1997).

To control for the ability of industry dominating underwriting syndicate, this study incorporate a dummy variable with 1 for SEOs underwritten by Merrill Lynch led syndicate and report significant positive coefficient on indirect costs of underpricing. The study thus suggests that the underwriting syndicate with dominating power can extract compensation through indirectly leaving money for its favored clients (Liu and Ritter, 2011; Mola and Loughran, 2004). The significant positive coefficient of the dummy variable, postgfc, representing 1 for SEOs issued after bursting of GFC and zero otherwise suggests that REITs raising seasoned equity need to leave more money for subscribing investors through unexpected underpricing during post global financial crisis. The economic significance of specifications with larger SEOs indicates that the effect of GFC is more pronounced for larger SEOs. This suggests that larger firms are more vulnerable and dependent on equity market during financial crisis.

The significantly lower expected underpricing (offer discount) but insignificant unexpected underpricing for Maryland incorporated SEOs in both OLS and Tobit regressions is contrary to the strong antitakeover protection and management entrenchments provided by the Maryland incorporation law (Hartzell, Kallberg and Liu, 2008). This anomaly might be attributed to the announcement effect already incorporated in the valuation and commission free purchasing of seasoned shares from underwriters (Loderer, Sheehan and Kadlec, 1991). The study also attributes this anomaly to the existing valuation of SEOs in the market. It is worth mentioning that REITs were precluded from self-management until the private letter rulings in the Internal Revenue Service (IRS) 1986. The regression results of this study report that the underpricing for SEOs managed by internally hired employees is significantly higher. This might be consistent with the prediction of Brockman et al. (2008) that investors might still prefer professional external management.

This study has also used a number of other control variables used in the SEO literature but their effects are reported as insignificant in explaining variations in REIT SEO indirect costs. For example, this study has controlled the dummy variable of multiple book-managing underwriters, multbookmngrs, to detect its coordination effect on indirect costs (Jeon and Ligon, 2011). Consistent with lower uncertainty reflected in issues audited by top ranked auditor (Balvers, McDonald and Miller, 1988; Beatty, 1989; Michaely and Shaw, 1995), this study has used Ernst & Young as the REIT SEO dominating auditor based on its market share of auditing (Mayhew and Wilkins, 2003; Wang and Wilkins, 2007) because specialization in an industry raises auditing expertise to detect financial fraud (Carcello and Nagy, 2004). To control for effect of reduced information asymmetry of SEOs raising seasoned equity more frequently (Ghosh, Nag and Sirmans, 2000; Mola and Loughran, 2004), this study has controlled a dummy variable, preseo, if the REIT has issued at least one SEO during the year prior to the current SEO. The dummy variable of New York Stock Exchange, NYSE, has

been controlled to capture the effect of its broader investor base and higher liquidity (Corwin and Harris 2001; Grammatikos and Papaioannou, 1986; Kadlec and McConnell, 1994; Sanger and McConnell, 1986). The inclusion of the trading exchange is supported by the evidence of lower underpricing for SEOs traded on the NYSE (Altinnkiliç and Hansen, 2003; Corwin, 2003; Kim and Park, 2005). Another dummy variable controlled in this study is the property type of industrial/office because literature shows that REIT stock performance is related with the underlying property sector (Chen and Peiser, 1999; Mueller and Laposa, 1996). Ling and Ryngaert (1997) report significant underpricing for IPOs across property sectors and argue that risk varies across property types. Goodwin (2008) controlled the property sector in her specifications of indirect costs but reports insignificant effect. Chen and Lu (2006) report significantly higher initial returns for industrial/office property IPOs. The descriptive statistics of this study report health care property leaves less money on the table (Brau and Heywood, 2008), however, industrial/office property SEOs have raised significantly more seasoned equity. Hence, the regression specifications of this study use property type of industrial/office to detect its effect on indirect costs.

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Insert Table 4-7 here

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6. Findings

The major findings of the study can be summarized as follows:

a) Consistent with the industrial firms, the indirect costs of raising seasoned equity capital for REIT SEOs experienced an increasing trend over the sample period and particularly rise with the size of SEO proceeds.

b) The direct costs consisting of underwriting discount (spreads) and non-underwriting other direct expenses are found as substitute to indirect costs that is SEOs with higher direct costs leave less money on the table.

c) The certainty effect of the closing market price on the day before SEO exogenously negatively determines the indirect costs of both expected (offer price discount) and unexpected underpricing.

d) The offer size relative to the firm size and the stock return volatility prior to the offer are the two major significant positive determinants of the indirect costs due to the temporary price pressure and the liquidity uncertainty of the offer, respectively.

e) The number of representative underwriters in the underwriting syndicate significantly negatively determines the indirect costs.

f) Furthermore, the indirect costs are significantly lower for SEOs with higher ranked lead underwriters and those incorporated under Maryland incorporation law but significantly higher for those issued during the post global financial crisis (GFC), underwritten by Merrill Lynch led dominant underwriting syndicate and with an UPREIT structure.

7. Conclusion

This study documents the rising trend of the indirect costs of both expected and unexpected underpricing of raising seasoned equity capital with a sample of 800 Real Estate Investment Trusts (REIT) Seasoned Equity Offerings (SEOs) issued during 1996-2010. The study reports the equally weighted indirect costs of expected and unexpected underpricing average 1.99% and 1.18%, respectively. In contrast to the complimentary evidence documented with industrial SEOs, this study documents a substitute relation between direct and indirect costs and indicates that the underwriters are able to indirectly manage their remuneration through

allocating underpriced SEOs to their preferred clients. This is most likely when their direct remuneration cannot adequately compensate for their efforts and reputation. This documented relation of REIT SEOs might be attributed to the highly regulated financial sector and higher transparency in asset valuation.

Consistent with prior evidence of REIT IPOs, the study documents the amount of proceeds as a key determinant of SEO indirect costs (Chen and Lu, 2006; Dolvin and Pyles, 2009). The significantly positive effect of the offer size might be attributed to the temporary price pressure created by the relatively larger offer because the relatively larger offer reflects the market's capacity to absorb the firm's offer. The prior stock return volatility of the SEO issuing firm significantly positively raise the indirect costs of seasoned equity due to the higher ex-ante liquidity uncertainty.

Beyond the SEO offer size, REIT characteristics and underwriting syndicate structure are documented to explain the indirect costs. The indirect costs are less for SEOs underwritten by reputed lead underwriters. This is consistent with the certification role of reputed underwriters. The size and the role of underwriters particularly the representative underwriters in the syndicate have significant negative influence on indirect costs. The study also reports that the prior closing market price does not reflect significant information. However, the certainty effect of higher priced stock significantly negatively determines the indirect costs due to its inherent ability to attract institutional investors.

The study is particularly important because REITs need to more frequently raise the seasoned equity capital to fund their capital intensive growth investment. This frequent visiting of release of more information through frequently raising of seasoned equity capital is expected to reduce the information asymmetry and hence may contribute to reduce the level of underpricing (Ghosh, Nag and Sirmans, 2000). However, the literature indicates that despite

the more frequently raising of seasoned equity and higher transparency in asset valuation, REIT SEO underpricing substantially exists with a rising trend over time and constitutes nearly 50% of the industrial SEO underpricing (Altinnkiliç and Hansen, 2003; Corwin, 2003; Ghosh, Nag and Sirmans, 2000; Goodwin, 2008; Huang and Zhang, 2011; Jeon and Ligon, 2011; Kim and Shin, 2004; Kim and Park, 2005). Hence, the indirect costs are still one of the key factors influencing any capital budgeting decision for REITs.

The literature so far reports two studies on cross-sectional determinants of REIT SEO indirect costs (Ghosh, Nag and Sirmans, 2000; Goodwin, 2008). This study extends the prior evidence by explaining the cross-sectional variation in indirect costs with a number of new determinants and extending the sample period until the post global financial crisis to extract its effect on indirect costs of seasoned equity capital for REITs. It complements some of the prior findings of both industrial and REIT SEOs. After controlling for time fixed effect, the findings report that the indirect costs are significantly higher for SEOs issued after bursting of GFC. The study on the indirect costs of REIT SEOs, particularly, with recent data along with more cross-sectional determinants thus warrants research significance.

Overall, the findings suggest that the indirect costs of raising seasoned equity capital cannot be eliminated but can be minimized by optimally determining offer size and by choosing the underwriting syndicate. The study will benefit the managers of the REIT, particularly, those intending to raise seasoned equity capital. It will contribute to them in making their capital budgeting decisions to undertake any new investment project and more particularly to make decisions on issue size and hiring the underwriting syndicate. It will also benefit the subscribing investors who want to indirectly invest in real estate equity market because the study confirms that the offer price is significantly less than both the pre offer and the post offer closing price.

APPENDIX

Table 1: Definition of variables used in the regression specifications

Variable	*Exp Sign*	*Definition and references*
DIRECTCOSTS	+/-	total direct costs consisting of underwriting discount and non-underwriting other direct expenses as a percent of gross SEO proceeds (Chen and Lu, 2006; Duarte-Silva, 2006; Kim, Palia and Saunders, 2010; Mola and Loughran, 2004);
LNSEOPROCEEDS	+/-	natural logarithm of gross SEO proceeds in dollar 2010 (Altinnkiliç and Hansen, 2003; Ghosh, Nag and Sirmans, 2000; Ghosh, Nag and Sirmans, 1998; Goodwin, 2008; Jeon and Ligon, 2011; Kim, Palia and Saunders, 2010);
LNPRIORMKTPRICE	-	natural of logarithm of market price prior to the offer (Altinnkiliç and Hansen, 2003; Corwin, 2003; Goodwin, 2008; Huang and Zhang, 2011; Kim and Park, 2005; Mola and Loughran, 2004);
RELOFF	+	proportion of shares offered in SEO relative to the number of shares outstanding prior to the offer (Altinnkiliç and Hansen, 2003; Corwin, 2003; Huang and Zhang, 2011; Kim and Shin, 2004; Mola and Loughran, 2004);
RETVOL	+	percentage of stock return volatility in terms of standard deviation of returns for 30 trading days ending 11 days prior to the offer (Altinnkiliç and Hansen, 2003; Corwin, 2003; Goodwin, 2008; Huang and Zhang, 2011; Kim, Palia and Saunders, 2010; Kim and Park, 2005);
UNDRANK	-	average reputation rank of lead underwriters as per Carter and Manaster (1990) and is sourced from Ritter's homepage (Ghosh, Nag and Sirmans, 2000; Goodwin, 2008; Huang and Zhang, 2011; Jeon and Ligon, 2011; Mola and Loughran, 2004);
MULTBOOKMNGRS	+/-	dummy variable representing unity for SEOs with more than one book-managing underwriter and zero otherwise (Butler, Grullon and Weston, 2005; Gao and Ritter, 2010; Jeon and Ligon, 2011);
NUMREPUND	-	number of representative underwriters in the underwriting syndicate (Huang and Zhang, 2011; Jeon and Ligon, 2011);
TOPAUDITOR	-	dummy variable representing unity for SEOs audited by REIT dominant auditor in terms of the highest market share in the industry during the sample period and zero otherwise (Beatty and Welch, 1996; Carcello and Nagy, 2004; Mayhew and Wilkins, 2003; Wang and Wilkins, 2007);
PRESEO	+/-	dummy variable representing unity for SEOs with at least one SEO during the year immediately prior to the offer (Ghosh, Nag and Sirmans, 2000; Goodwin, 2008; Mola and Loughran, 2004);
NYSE	-	dummy variable representing unity for SEO issuing REIT listed on NYSE and zero otherwise (Altinnkiliç and Hansen, 2003; Corwin, 2003; Kim and Park, 2005);
UPREIT	+/-	dummy variable representing unity for SEOs with umbrella partnership structure and zero otherwise (Dolvin and Pyles, 2009; Ghosh, Nag and Sirmans, 2000; Goodwin, 2008);
MERRILL	+/-	dummy variable representing unity for SEOs with underwriting syndicate led by Merrill Lynch and zero otherwise (Chemmanur and Fulghieri, 1994; Dunbar, 2000; Liu and Ritter, 2011; Mola and Loughran, 2004; Puri, 1999);
SELFMGT	+/-	dummy variable representing unity for SEOs with internal management and zero otherwise (Ambrose and Linneman, 2001; Brockman, French and Tamm, 2008; Capozza and Seguin, 2000);
PTINDOFF	+/-	dummy variable representing unity for SEOs with property type of industrial/office and zero otherwise (Chen and Lu, 2006; Ghosh, Nag and Sirmans, 2000; Goodwin, 2008; Ling and Ryngaert, 1997);
MARYLAND	+/-	dummy variable representing unity for SEO issuing REIT incorporated in Maryland and zero otherwise (Daines, 2001; Hartzell, Kallberg and Liu, 2008; Kahan and Kamar, 2000);
POSTGFC	+/-	dummy variable representing unity for SEOs issued during post global financial crisis bursting in August 2007 and zero otherwise (Gordon and Valentine, 2009; Ling and Ryngaert, 1997).

Table 2: Descriptive statistics of major explanatory and indicator (dummy) variables used in the analysis of factors determining the indirect costs of underpricing of raising equity capital for 800 U.S. REIT SEOs from 1996 to 2010.

Variable	*Q1*	*Mean*	*Q2*	*Q3*	*min*	*max*	*sd*	*sk*	*kurt*
offdisc %	0.00	1.99	1.16	2.62	-4.76	30.88	2.98	3.37	23.63
undprice %	-0.31	1.18	0.27	2.13	-7.14	32.39	3.24	3.36	24.38
offerret %	-2.06	-0.75	-0.58	0.53	-19.50	25.50	3.18	0.21	11.44
directcosts %	4.15	4.63	5.10	5.75	0.13	11.06	1.76	-0.59	3.57
seoproceeds $in ml	58.88	157	97.84	179.18	2.35	1991	185	3.64	22.89
priormktprice $	14.25	24.96	22.78	31.88	2.70	136.81	15.24	2.33	14.13
offprice $	14.00	24.53	22.50	31.42	2.25	134.50	14.95	2.29	13.98
clmktprice $	14.00	24.74	22.64	31.54	2.62	135.24	14.98	2.28	13.84
reloff%	6.21	20.77	12.84	25.16	0.17	330.24	27.36	5.36	49.98
retvol%	1.10	2.00	1.40	2.10	0.00	12.50	1.81	3.14	13.67
numrepund	1.00	2.14	2.00	3.00	1.00	9.00	1.50	1.50	4.96
undrank	7.00	7.91	8.00	9.00	0.00	9.00	1.37	-2.05	9.49
multbookmngrs%	0.00	39.62	0.00	100.00	0.00	100.00	48.94	0.42	1.18
topauditor %	0.00	31.62	0.00	100.00	0.00	100.00	46.53	0.79	1.62
preseo %	0.00	45.00	0.00	100.00	0.00	100.00	49.78	0.20	1.04
upreit %	0.00	62.62	100.00	100.00	0.00	100.00	48.41	-0.52	1.27
nyse %	100.00	89.25	100.00	100.00	0.00	100.00	30.99	-2.53	7.42
merrill %	0.00	19.88	0.00	0.00	0.00	100.00	39.93	1.51	3.28
selfmgt %	0.00	51.00	100.00	100.00	0.00	100.00	50.02	-0.04	1.00
ptoffind %	0.00	19.75	0.00	0.00	0.00	100.00	39.84	1.52	3.31
maryland %	100.00	80.00	100.00	100.00	0.00	100.00	40.03	-1.50	3.25
postgfc %	0.00	23.62	0.00	0.00	0.00	100.00	42.50	1.24	2.54

Where Q1, Q2, min, max, sd, sk and kurt denote first quartile, second quartile, third quartile, minimum, maximum, standard deviation, skewness and kurtosis, respectively. offdisc, undprice and offerret denote the percentage of offer price below the closing market price the day before offer with respect to offer price, the percentage of offer price below the closing market price on the day of offer with respect to offer price and the percentage change of the closing market price on the day of offer with respect to the closing market price on the day before offer respectively; The variables are as defined in Table 1.

Table 3: Univariate relationship between indirect costs of and some of their determinants of raising external equity capital for 800 U.S. REIT SEOs from 1996 to 2010

Panel A	*Indirect Costs of offer price discount with respect to SEO offer price*			
	Lowest	**Q2**	**Q3**	**Highest**
directcosts	1.54	1.66	0.49	1.15
seoproceeds	1.25	1.79	2.29	2.63
priormktprice	2.88	1.79	1.40	1.88
reloff	1.15	1.96	2.36	2.49
retvol	1.04	1.22	1.65	4.14
numrepund	1.60	2.72	3.37	1.04
undrank	1.73	1.71	2.28	2.18
Panel B	*Indirect Costs of underpricing with respect to SEO offer price*			
	Lowest	Q2	Q3	Highest
directcosts	2.98	2.91	0.76	1.43
seoproceeds	0.38	0.84	1.19	2.30
priormktprice	2.34	1.04	0.60	0.73
reloff	0.20	0.92	1.36	2.22
retvol	0.52	0.78	0.83	2.73
numrepund	0.75	1.83	2.26	0.69
undrank	1.18	0.90	1.33	1.32

The variables are as defined in Table 1.

Table 4: OLS regression results of factors influencing the indirect costs of underpricing of raising equity capital for U.S. REIT SEOs from 1996 to 2010.

VARIABLES	(1) undprice	(2) undprice	(3) undprice	(4) undprice	(5) undprice
directcosts	-0.1613**	-0.1726**	-0.0158	-0.1421	-0.1639*
	(-2.118)	(-2.022)	(-0.074)	(-1.000)	(-1.877)
lnseoproceeds	0.0064***	0.0051***	0.0056	0.0033**	0.0088***
	(3.964)	(2.892)	(0.869)	(2.388)	(3.800)
lnpriormktprice	-0.0003***	-0.0003***	-0.0003**	-0.0002	-0.0002***
	(-4.004)	(-3.462)	(-2.086)	(-1.123)	(-3.187)
reloff	0.0138**	0.0125**	0.0195	-0.0004	0.0194***
	(2.233)	(2.132)	(1.368)	(-0.123)	(2.918)
retvol	0.4701***	0.1152	0.6608***	0.2719	0.5029***
	(3.098)	(0.654)	(2.739)	(1.199)	(2.825)
multbookmngrs	0.0008	-0.0030	0.0092*	-0.0035	-0.0008
	(0.370)	(-1.144)	(1.655)	(-1.136)	(-0.255)
numrepund	-0.0018***	-0.0016**	-0.0001	-0.0017**	0.0004
	(-2.592)	(-2.063)	(-0.061)	(-2.315)	(0.282)
undrank	-0.0036***	-0.0038***	-0.0005	-0.0022	-0.0037***
	(-4.297)	(-4.309)	(-0.154)	(-1.590)	(-3.743)
topauditor	-0.0028	-0.0027	-0.0030	0.0006	-0.0040
	(-1.389)	(-1.146)	(-0.619)	(0.203)	(-1.523)
upreit	0.0037	0.0021	0.0119**	0.0059*	0.0040
	(1.511)	(0.713)	(2.062)	(1.896)	(1.282)
preseo	-0.0019	-0.0014	-0.0038	-0.0020	-0.0039
	(-0.882)	(-0.698)	(-0.628)	(-0.878)	(-1.355)
nyse	0.0038	0.0016	0.0077	-0.0020	0.0043
	(1.328)	(0.572)	(0.715)	(-0.529)	(1.174)
merrill	0.0100***	0.0118**	0.0067	0.0019	0.0125***
	(2.947)	(2.556)	(1.082)	(0.774)	(2.669)
selfmgt	0.0055**	0.0055*	0.0058	0.0025	0.0055*
	(2.154)	(1.944)	(0.960)	(0.919)	(1.688)
ptoffind	0.0006	0.0007	0.0009	0.0073***	-0.0042
	(0.236)	(0.260)	(0.141)	(2.690)	(-1.056)
maryland	0.0018	0.0030	0.0028	-0.0003	0.0045
	(0.715)	(1.287)	(0.324)	(-0.117)	(1.162)
postgfc	0.0138*	0.0164*	0.0233***		0.0151**
	(1.895)	(1.853)	(2.631)		(1.983)
Constant	0.0111	0.0079	-0.0673*	0.0193	-0.0097
	(0.677)	(0.497)	(-1.678)	(1.470)	(-0.762)
Observations	799	600	199	240	555
R-squared	0.274	0.180	0.412	0.182	0.285
Adj. R-squared	0.244	0.135	0.302	0.111	0.249

The table consists of 5 OLS multiple regression specifications with a sample of 800 REIT Seasoned Equity Offerings for 1996-2010. The dependent variable is the indirect costs of underpricing which averages 1.18%. The specification one is with full sample observations, the specification two is for SEOs with less than or equal to the third quartile of SEO proceeds scaled in dollars of 2010 ($179 million), the specification three is for SEOs with

greater than the third quartile of SEO proceeds scaled in dollars of 2010 ($179 million), the specifications four and five are for SEOs issued before and after REIT Modernization Act 1999 which became effective from January 2001. Heteroskedasticity consistent robust t-statistics are in parentheses. ***, **, * denote level of significance at $p<0.01$, $p<0.05$, and $p<0.1$ respectively. The variables are as defined in Table 1. The results in the table are based on the following OLS specification.

$$\begin{aligned}\text{undprice} = {} & \beta_0 + \beta_1 \text{directcosts} + \beta_2 \text{lnseoproceeds} + \beta_3 \text{lnpriormkrprice} + \beta_4 \text{reloff} + \beta_5 \text{retvol} + \beta_6 \text{multbookmngrs} \\ & + \beta_7 \text{numrepund} + \beta_8 \text{undrank} + \beta_9 \text{topauditor} + \beta_{10} \text{upreit} + \beta_{11} \text{preseo} + \beta_{12} \text{nyse} + \beta_{13} \text{merrill} \\ & + \beta_{14} \text{selfmgt} + \beta_{15} \text{ptoffind} + \beta_{16} \text{maryland} + \beta_{17} \text{postgfc}\end{aligned}$$

Table 5: OLS regression results of factors influencing the indirect costs of offer discount of raising external equity capital for U.S. REIT SEOs from 1996 to 2010.

	(1)	(2)	(3)	(4)	(5)
VARIABLES	offdisc	offdisc	offdisc	offdisc	offdisc
directcosts	-0.2835***	-0.2559***	-0.3368*	-0.2191	-0.2779***
	(-4.054)	(-3.445)	(-1.718)	(-1.528)	(-3.268)
lnseoproceeds	-0.0009	-0.0002	0.0024	0.0003	-0.0017
	(-0.743)	(-0.122)	(0.600)	(0.206)	(-0.960)
lnpriormktprice	-0.0000	-0.0001	0.0001	-0.0000	-0.0000
	(-0.551)	(-1.247)	(1.343)	(-0.151)	(-0.125)
reloff	0.0213***	0.0143**	0.0418*	0.0166***	0.0226*
	(2.616)	(2.098)	(1.958)	(4.827)	(1.868)
retvol	0.3360***	0.3817**	0.2135	0.4575**	0.3304**
	(2.774)	(2.193)	(1.025)	(2.137)	(2.213)
multbookmngrs	-0.0022	-0.0027	0.0010	0.0040	-0.0051**
	(-1.139)	(-1.241)	(0.282)	(1.292)	(-2.024)
numrepund	-0.0008	-0.0004	-0.0019*	-0.0016**	0.0004
	(-1.440)	(-0.684)	(-1.683)	(-2.540)	(0.354)
undrank	0.0000	0.0002	-0.0020	-0.0002	0.0002
	(0.050)	(0.199)	(-0.619)	(-0.162)	(0.176)
topauditor	0.0008	0.0022	-0.0006	0.0017	0.0005
	(0.452)	(0.941)	(-0.188)	(0.949)	(0.199)
upreit	0.0007	-0.0012	0.0093*	0.0001	0.0015
	(0.304)	(-0.403)	(1.906)	(0.065)	(0.468)
preseo	-0.0003	-0.0023	0.0074*	-0.0016	0.0004
	(-0.146)	(-1.161)	(1.764)	(-0.908)	(0.169)
nyse	0.0022	0.0002	0.0111	0.0017	0.0030
	(0.871)	(0.095)	(1.370)	(0.449)	(0.955)
merrill	0.0013	0.0012	0.0031	0.0013	0.0018
	(0.450)	(0.259)	(0.849)	(0.674)	(0.435)
selfmgt	0.0029	0.0040	-0.0023	0.0022	0.0030
	(1.320)	(1.461)	(-0.559)	(1.049)	(1.008)
ptoffind	-0.0002	0.0011	0.0012	0.0035	-0.0021
	(-0.112)	(0.426)	(0.314)	(1.541)	(-0.686)
maryland	-0.0038**	-0.0040**	-0.0047	-0.0016	-0.0052*
	(-2.176)	(-2.051)	(-1.178)	(-0.911)	(-1.960)
postgfc	0.0042	0.0013	0.0174**		0.0046
	(0.943)	(0.249)	(2.199)		(0.962)
Constant	0.0148	0.0246**	0.0024	0.0120	0.0235**
	(1.202)	(2.139)	(0.078)	(0.934)	(2.112)
Observations	799	600	199	240	555
R-squared	0.443	0.414	0.581	0.268	0.404
Adj. R-squared	0.420	0.382	0.503	0.205	0.375

The table consists of 5 OLS multiple regression specifications with a sample of 800 Seasoned Equity Offerings for 1996-2010. The dependent variable is the indirect costs of offer discount which averages 1.99%. The specification one is with full sample observations, the specification two is for SEOs with less than or equal to the third quartile of SEO proceeds scaled in dollars 2010 ($179 million), the specification three is for SEOs with greater than or equal to

the third quartile of SEO proceeds scaled in dollars 2010 ($179 million), the specifications four and five are for SEOs issued before and after the effectiveness of REIT Modernization Act 1999 which became effective from January 2001. Heteroskedasticity consistent robust t-statistics are in parentheses. ***, **, * denote he level of significance at $p<0.01$, $p<0.05$, and $p<0.1$, respectively. The variables are as defined in Table 1. The results in the table are based on the following OLS specification.

$$\begin{aligned}\text{offdisc} = {} & \beta_0 + \beta_1 \text{directcosts} + \beta_2 \text{lnseoproceeds} + \beta_3 \text{lnpriormkrprice} + \beta_4 \text{reloff} + \beta_5 \text{retvol} + \beta_6 \text{multbookmngrs} \\ & + \beta_7 \text{numrepund} + \beta_8 \text{undrank} + \beta_9 \text{topauditor} + \beta_{10} \text{upreit} + \beta_{11} \text{preseo} + \beta_{12} \text{nyse} + \beta_{13} \text{merrill} \\ & + \beta_{14} \text{selfmgt} + \beta_{15} \text{ptoffind} + \beta_{16} \text{maryland} + \beta_{17} \text{postgfc}\end{aligned}$$

Table 6: Tobit regression results of factors determining the underpricing of U.S. REIT SEOs from 1996 to 2010.

VARIABLES	(1) model	(2) model	(3) model	(4) model	(5) model
directcosts	-0.1376*	-0.1642**	0.0810	-0.1380	-0.1360
	(-1.886)	(-1.985)	(0.477)	(-1.016)	(-1.618)
lnseoproceeds	0.0059***	0.0053***	0.0037	0.0033**	0.0081***
	(4.330)	(3.301)	(0.705)	(2.463)	(4.159)
lnpriormktprice	-0.0002***	-0.0003***	-0.0002**	-0.0002	-0.0002***
	(-4.104)	(-3.592)	(-1.989)	(-1.153)	(-3.288)
reloff	0.0124**	0.0109**	0.0204	-0.0007	0.0178***
	(2.298)	(2.131)	(1.632)	(-0.198)	(3.073)
retvol	0.3751***	0.1304	0.5207***	0.2830	0.3869***
	(3.036)	(0.762)	(2.890)	(1.301)	(2.673)
multbookmngrs	0.0006	-0.0027	0.0070	-0.0036	-0.0005
	(0.290)	(-1.111)	(1.547)	(-1.210)	(-0.192)
numrepund	-0.0017**	-0.0016**	-0.0004	-0.0016**	0.0001
	(-2.530)	(-2.084)	(-0.317)	(-2.379)	(0.090)
undrank	-0.0037***	-0.0040***	-0.0004	-0.0022	-0.0039***
	(-5.167)	(-5.387)	(-0.129)	(-1.642)	(-4.781)
topauditor	-0.0021	-0.0023	-0.0015	0.0010	-0.0032
	(-1.107)	(-1.072)	(-0.366)	(0.416)	(-1.322)
upreit	0.0043**	0.0031	0.0110**	0.0057*	0.0048*
	(2.107)	(1.353)	(2.351)	(1.931)	(1.860)
preseo	-0.0020	-0.0011	-0.0048	-0.0017	-0.0039
	(-1.087)	(-0.582)	(-1.086)	(-0.815)	(-1.605)
nyse	0.0036	0.0015	0.0089	-0.0019	0.0046
	(1.304)	(0.546)	(0.899)	(-0.521)	(1.315)
merrill	0.0077***	0.0100***	0.0035	0.0015	0.0095**
	(2.837)	(2.843)	(0.750)	(0.691)	(2.576)
selfmgt	0.0038*	0.0044**	0.0032	0.0023	0.0033
	(1.882)	(2.003)	(0.644)	(0.919)	(1.318)
ptoffind	0.0010	0.0011	0.0008	0.0072***	-0.0036
	(0.414)	(0.415)	(0.159)	(2.776)	(-1.100)
maryland	0.0016	0.0028	0.0005	-0.0006	0.0045
	(0.724)	(1.255)	(0.083)	(-0.285)	(1.327)
postgfc	0.0145**	0.0161*	0.0257***		0.0159**
	(2.054)	(1.873)	(2.661)		(2.220)
Constant	0.0014	0.0108	-0.0503	0.0121	-0.0172
	(0.118)	(0.741)	(-1.483)	(0.929)	(-1.234)
Observations	799	600	199	240	555
Log Pseudo Likelihood	1787	1404	410	657	1175
Pseudo R-squared	-0.0801	-0.0502	-0.153	-0.0377	-0.0892

The table consists of 5 Tobit regression specifications with a sample of 800 REIT Seasoned Equity Offerings (SEOs) for 1996-2010. The dependent variable is the underpricing, defined as the percentage change of offer price from offer day closing market price with respect to offer price, which averages 1.18% and is winsorized at the 1st and 99th percentiles. The specification one is with full sample observations, the specification two is for SEOs with

less than or equal to the third quartile of SEO proceeds scaled in dollars 2010 ($179 million), the specification three is for SEOs with greater than or equal to the third quartile of SEO proceeds scaled in dollars 2010 ($179 million), the specifications four and five are for SEOs issued before and after effectiveness of the REIT Modernization Act 1999 from January 2001. Heteroskedasticity consistent robust t-statistics are in parentheses. ***, **, * denote level of significance at $p<0.01$, $p<0.05$, and $p<0.1$, respectively. The other variables are as defined in Table 1. The results in the table are based on the following Tobit specification.

$$\begin{aligned}\text{undprice} = {} & \beta_{0} + \beta_{1}\text{directcosts} + \beta_{2}\text{lnseoproceeds} + \beta_{3}\text{lnpriormkrprice} + \beta_{4}\text{reloff} + \beta_{5}\text{retvol} + \beta_{6}\text{multbookmngrs} \\ & + \beta_{7}\text{numrepund} + \beta_{8}\text{undrank} + \beta_{9}\text{topauditor} + \beta_{10}\text{upreit} + \beta_{11}\text{preseo} + \beta_{12}\text{nyse} + \beta_{13}\text{merrill} \\ & + \beta_{14}\text{selfmgt} + \beta_{15}\text{ptoffind} + \beta_{16}\text{maryland} + \beta_{17}\text{postgfc}\end{aligned}$$

Table 7: Tobit regression results of factors determining the offer discount of U.S. REIT SEOs from 1996 to 2010.

VARIABLES	(1) model	(2) model	(3) model	(4) model	(5) model
directcosts	-0.2550***	-0.2438***	-0.2339	-0.2144*	-0.2453***
	(-4.320)	(-3.713)	(-1.510)	(-1.779)	(-3.436)
lnseoproceeds	-0.0005	0.0003	0.0020	0.0011	-0.0013
	(-0.502)	(0.246)	(0.710)	(0.901)	(-0.974)
lnpriormktprice	-0.0000	-0.0001	0.0001	-0.0000	-0.0000
	(-0.656)	(-1.378)	(1.176)	(-0.465)	(-0.342)
reloff	0.0134***	0.0102**	0.0185*	0.0155***	0.0117*
	(2.649)	(1.968)	(1.676)	(5.332)	(1.690)
retvol	0.3066***	0.3204**	0.2526**	0.4702**	0.2926***
	(3.528)	(2.560)	(1.987)	(2.296)	(2.824)
multbookmngrs	-0.0023	-0.0023	-0.0002	0.0034	-0.0049**
	(-1.370)	(-1.190)	(-0.066)	(1.190)	(-2.324)
numrepund	-0.0007	-0.0005	-0.0017*	-0.0018***	0.0003
	(-1.482)	(-0.888)	(-1.869)	(-3.354)	(0.411)
undrank	-0.0002	-0.0001	-0.0006	-0.0007	-0.0001
	(-0.296)	(-0.216)	(-0.281)	(-0.696)	(-0.096)
topauditor	0.0008	0.0017	-0.0011	0.0017	0.0002
	(0.554)	(1.047)	(-0.391)	(1.028)	(0.091)
upreit	0.0012	-0.0003	0.0086**	0.0012	0.0017
	(0.768)	(-0.163)	(2.302)	(0.647)	(0.798)
preseo	-0.0012	-0.0033**	0.0065**	-0.0020	-0.0007
	(-0.924)	(-2.343)	(2.196)	(-1.251)	(-0.384)
nyse	0.0000	-0.0013	0.0065	0.0005	0.0008
	(0.020)	(-0.615)	(1.196)	(0.147)	(0.324)
merrill	-0.0004	-0.0020	0.0031	0.0015	-0.0004
	(-0.220)	(-0.743)	(1.069)	(0.814)	(-0.155)
selfmgt	0.0022	0.0030	-0.0032	0.0014	0.0022
	(1.336)	(1.635)	(-0.991)	(0.820)	(1.053)
ptoffind	0.0009	0.0019	0.0023	0.0035	-0.0005
	(0.488)	(0.867)	(0.749)	(1.637)	(-0.204)
maryland	-0.0043***	-0.0042**	-0.0047	-0.0018	-0.0062***
	(-2.681)	(-2.360)	(-1.339)	(-1.142)	(-2.586)
postgfc	0.0045	0.0020	0.0158**		0.0047
	(1.068)	(0.401)	(2.299)		(1.089)
Constant	0.0523***	0.0632***	0.0050	0.0123	0.0561***
	(5.508)	(5.668)	(0.186)	(0.885)	(4.775)
Observations	799	600	199	240	555
Log Pseudo Likelihood	2031	1561	498	720	1350
Pseudo R-squared	-0.171	-0.160	-0.242	-0.0655	-0.163

The table consists of 5 Tobit regression specifications with a sample of 800 REIT Seasoned Equity Offerings (SEOs) for 1996-2010. The dependent variable is the underpricing, defined as the percentage change of offer price from offer day closing market price with respect to offer price, which averages 1.18% and is winsorized at the 1st and 99th percentiles. The specification one is with the full sample observations, the specification two is for SEOs

with less than or equal to the third quartile of SEO proceeds scaled in dollars 2010 ($179 million), the specification three is for SEOs with greater than or equal to the third quartile of SEO proceeds scaled in dollars 2010 ($179 million), the specifications four and five are for SEOs issued before and after effectiveness of the REIT Modernization Act 1999 from January 2001.
Heteroskedasticity consistent robust t-statistics are in parentheses. ***, **, * denote level of significance at $p<0.01$, $p<0.05$, and $p<0.1$, respectively. The other variables are as defined in Table 1. The results in the table are based on the following Tobit specification.

$$\begin{aligned}\text{offdisc} = {} & \beta_{0} + \beta_{1}\text{unddisc} + \beta_{2}\text{lnseoproceeds} + \beta_{3}\text{lnpriormkrprice} + \beta_{4}\text{reloff} + \beta_{5}\text{retvol} + \beta_{6}\text{multbookmngrs} \\ & + \beta_{7}\text{numrepund} + \beta_{8}\text{undrank} + \beta_{9}\text{topauditor} + \beta_{10}\text{upreit} + \beta_{11}\text{preseo} + \beta_{12}\text{nyse} + \beta_{13}\text{merrill} \\ & + \beta_{14}\text{selfmgt} + \beta_{15}\text{ptoffind} + \beta_{16}\text{maryland} + \beta_{17}\text{postgfc}\end{aligned}$$

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