

Pricing Effects of Seasoned Debt Issues of Equity REITs

Executive Summary. *Real estate investment trusts (REITs) have been one of the most active sectors in the capital market over the last few years. This study examines the equity valuation effects of seasoned debt offers by REITs during the 1991–1997 period. REITs raised more than \$35 billion through debt issues during this period. The findings indicate a positive significant reaction to announcements of debt offers. Although the results are inconsistent with traditional finance literature, it corroborates Howe and Shilling's (1988) findings for a smaller sample of 73 REITs. Further, the price changes are found to be significant and positively related to the amount of debt issued and significant and negatively related to the apartment and mall property types.*

by Chinmoy Ghosh*
Raja Nag**
C. F. Sirmans***

Introduction and Literature Review

The objective of this study was to examine the pricing or equity valuation¹ effects of real estate investment trusts (REITs) seasoned debt issues² during the years 1991–1997. This was a particularly active period during which 439 debt issuances were made by exchange traded REITs, raising more than \$35 billion.³ This contrasts sharply with the relatively quiet time of capital market activity by REITs during the previous years.⁴

The study includes the new REITs, which are different from their older counterparts in important ways including portfolio investment decisions, management and organization structure, business plans and ownership structure, and institutional interest. As Ling and Ryngaert (1997) observe, these differences may result in more uncertainty about the issuing firm's value, eliciting stronger reaction to information releases. According to Ambrose and Linneman (1999), older REITs were neither growth oriented operating companies nor property trading mutual funds, since REITs are prohibited from short-term trading of properties and are required to have long-term real estate portfolios. The new REITs of the 1990s differ considerably, since they are now "fully integrated operating companies with growth and operating margin objectives similar to industrial operating companies."⁵

Analysis of the equity valuation effects of seasoned debt issues has provided conflicting evidence depending on the nature and purpose of the debt issue. Past empirical research shows mostly that a

*University of Connecticut, Storrs, CT 06269–2041 or chinmoy@sba.uconn.edu.

**William Paterson University, Wayne, NJ 07470 or nagr@wpunj.edu.

***University of Connecticut, Storrs, CT 06269–2041 or cf@sba.uconn.edu.

leverage-increasing change in capital structure is good news—when debt is substituted for equity in general. These phenomena result in positive wealth effects as regards stock price reaction, on average for the short-term. Leverage decreasing issues, along with unexpected decreases in cash flows, result in negative stock price reactions.⁶ Akhigbe, Easterwood and Pettit (1997) examine the role of debt issuer motivation. They observe no significant reaction when issues are motivated by an unexpected increase in capital expenditures, leverage or an expected refinancing of existing debt. However, they find negative and significant price reactions when the debt issue is motivated by an unexpected shortfall in cash flow.

Hypotheses

Smith (1986) provides a summary of the various hypotheses and empirical evidence pertaining to stock market reactions to security issuances. REITs are somewhat unique in that they are exempt from paying corporate taxes. As such, optimal capital structure theories based on the tax deductibility of interest payments would predict 100% equity financing for these firms. For example, Howe and Shilling (1988) argue that the net tax gain to corporate borrowing is unambiguously negative (or non-positive) for firms whose marginal tax rate is zero. Jaffe (1991) refutes this argument and maintains that the value of any individual partnership or REIT should be independent of the degree of financial leverage it employs. Shilling (1996) attributes Jaffe's conclusion to an oversight, and develops a model to show that REIT value can be maximized at 100% debt or equity financing, depending on the assumptions of the model. Under this scenario, announcements of debt issuances may trigger either a positive or negative stock price reaction.

The implied-cash-flow change hypothesis, which posits that unexpected offerings of any security are a signal that future cash flows are lower than expected, predicts a negative stock price response to all security issues.⁷ In a similar vein, signaling theories, which assume that managers are privy to superior information, imply that security issuances can reveal information about expected future

cash flows. Myers and Majluf (1984) demonstrate that this results in a pecking order where retained earnings are preferred to debt, and debt is preferred to equity when managers decide on financing vehicles.⁸

In summary, both Shilling's (1996) model and the pecking order theory⁹ predict that debt issuances by REITs will elicit positive stock price reaction. To invest in any positive net present value (NPV) project, a REIT is usually forced to go the capital market to raise either equity or debt capital.¹⁰ This is because they are compelled to distribute more than 95% of their taxable income to maintain their tax-exempt status. This information is public. Should the investors then penalize REITs like other firms when they go to the equity or debt market? It can now be argued that the better managed REITs use the signaling mechanism to differentiate themselves from the inferior REITs, by raising funds through debt rather than equity, in spite of no apparent tax advantage of debt issuance for a tax-exempt firm. This phenomenon should, therefore, lead to a positive announcement effect for debt issues. Because the implied change in cash flow is negative, however, the announcement may precipitate a valuation loss. The aggregate effect remains an empirical issue.

Data

Announcements of seasoned debt offerings by REITs during the 1991–1997 period were collected from the filing information in the *Investment Dealers Digest*, the National Association of Real Estate Investment Trust's *REIT Handbook* and the *Dow Jones News Retrieval Service*. The announcement dates were established from *Lexis-Nexis* searches and *The Wall Street Journal*. Filing dates are deemed to be announcement dates, where specific different announcement dates do not exist in *The Wall Street Journal* or other news media.¹¹ The filing date was identified with the SEC and the offering date to the market. The search yielded 439 debt issuances of REITs. The largest number of offerings (145) was in 1997. The distribution of the debt issue by sample year is presented in Exhibit 1.

Exhibit 1**Distribution of the Debt Issue by Sample Year**

Overall Sample		Current Sample		
Year	No. Issued	Amount	No. Issued	Amount
1991	7	694	0	0
1992	25	454	3	230
1993	41	5,135	16	1,559
1994	47	3,600	22	2,420
1995	94	4,233	44	2,717
1996	80	5,081	23	1,534
1997	145	12,597	103	6,857
Total	439	35,881	211	15,317

Notes: Distribution of 439 seasoned debt offerings by REITs during the years 1991 to 1997, by amount raised (\$ million) and number of issues. Columns 2 and 3 represent the overall debt sample. Columns 4 and 5 represent the current sample after eliminating Hybrid, Mortgage, and Healthcare REITs, and private placement issues.

All private placements were eliminated from the original sample, as well as issues by mortgage, hybrid and healthcare REITs. This reduces the sample to 211 seasoned debt issues by Equity REITs only. Equity REITs, typically, have direct ownership of income producing real estate—primarily, apartments, shopping centers and office buildings.¹² The sample at this point includes 198 straight debt and thirteen convertible debt offerings. Summary statistics of this sample are provided in Exhibit 2.

The market was most active in 1997 when forty-two Equity REITs raised a total over \$6.8 billion from the capital market through debt. The highest debt amounts raised were by Debartolo Realty Corp. (\$455 million) in April 1994, and by Crown America Realty Trust (\$300 million) in August 1993. The sample includes twenty-one issues of \$10 million or below.¹³

Ninety-eight issues in 1996 and 1997 had maturities of more than five years. These are identified as long-term debt. The Equity REITs raised over \$15 billion through debt issues at an average of \$72.6 million per issue. The lead underwriter rank increased considerably in 1995 and 1996 to 8.33 and 8.59, respectively.¹⁴ This is possibly attributable to underwriters' perception of lower uncertainty associated with REIT seasoned offerings

Exhibit 2**Distribution of 211 Seasoned Debt Offerings by Equity REITs—1991–1997**

Year Offered	Number of Issues	Issue Size	Long Term	Short Term	Lead Underwriter Ranking
1991	0	0	0	0	0.00
1992	3	76.67	2	1	6.67
1993	16	97.43	8	8	8.22
1994	22	110.00	9	13	7.77
1995	44	61.75	28	16	8.33
1996	23	66.70	16	7	8.59
1997	103	66.57	82	21	7.99
Total/Avg.	211	72.59	145	66	7.93

Notes: Distribution of 211 seasoned debt offerings by Equity REITs during the 1991–1997 period. Average amount raised, long- (>five years) and short-term (<five years) maturity, and average rank of lead underwriter, which follow Carter and Manaster (1990) and Carter, Dark and Singh (1998). Issue size in \$million.

over time. Thus, they are more attractive to higher reputed underwriters. Carter and Manaster's (1990) system of ranking the underwriters is followed in this study.¹⁵

Event Study Methodology

To measure the stock price reaction at the filing/announcement of debt issues by REITs, the market-model event-study methodology is employed.¹⁶ Data on the returns of REITs is collected from the Center for Research for Security Prices (CRSP) Tape. The ordinary least squares (OLS) coefficients of the market model regression are estimated over the period $t = -160$ days to $t = -10$ days, where Day 0 is defined as the filing day or the offering day. The daily abnormal stock return, calculated for each firm i , is averaged across firms to obtain the average abnormal return on day t :

$$AR_t = (1/M) \sum [R_{it} - a_i - b_i R_{mt}], \quad (1)$$

Where AR_t is the average risk-adjusted abnormal return for the equally-weighted Equity REIT portfolio on day t , M is the number of firms, R_{it} is the return on stock i on day t , R_{mt} is the return for the S&P500 Index on day t , and a_i and b_i are the OLS estimates of the market-model parameters.

This procedure is followed for daily abnormal returns for twenty-one days ($t = -10$ to $t = +10$) surrounding both the filing and offer dates, respectively, and for the cumulative average abnormal returns over two-day ($t = -1$ to $t = 0$) and ($t = 0$ to $t = +1$) three-day ($t = -1$ to $t = +1$) periods.

Following Mikkelson and Partch (1985), the average abnormal return for each firm is standardized to obtain the average standardized abnormal return (ASAR):

$$ASAR_{it} = (R_{it} - a_i - b_i R_{mt}) / S_{it}, \quad (2)$$

$$\text{Where } S_{it}^2 = V_i^2 \{1 + 1/D + (R_{mt} - R_m)^2 / (\sum R_{mj} - R_m)^2\}, \\ j = 1, \dots, D.$$

V_i^2 is the residual variance of the market regression model of the i th firm, D is number of days used to estimate the market model, R_{mt} is the market return on day t and R_m is the mean market return during the estimation period. The $ASAR_{it}$ s are summed for the two- and three-day periods to determine the average standardized cumulative abnormal return (ASCAR):

$$ASCAR_{(-1,0)t} = \sum ASAR_{it}. \quad (3)$$

Mikkelson and Partch (1985) was followed to calculate the z -Statistics to test the null hypothesis that the abnormal return is zero.

Abnormal Returns Surrounding Filing/ Announcement Day

Exhibit 3 presents the ASARs and ASCARs for eleven days surrounding the filing day for straight debt. The number of stocks in the portfolio, the number of stocks with negative standardized abnormal returns and the corresponding z -Statistics are also reported. Of the 211 original announcements of debt issues, several had the same filing and offer days, but the specifications of the issue differed. The sample also includes cases where the offer days differ but the filing days are the same. When a group of offerings by the same company had the same filing day, it was treated as a single

Exhibit 3
ASARs and ASCARs for Eleven Days
Surrounding the Filing Day for Straight Debt

Day	No. of Stocks	No. of Negative	ASAR	ASCAR	z-Stat.
-5	116	53	0.046	0.046	0.259
-4	116	54	-0.055	-0.009	-0.168
-3	116	63	0.069	0.060	0.419
-2	116	62	-0.133	-0.073	-1.029
-1	116	60	-0.062	-0.135	-0.435
0	116	38	0.586	0.451	5.528*
1	116	66	-0.185	0.266	-2.457*
2	116	71	-0.364	-0.098	-2.999*
3	116	53	0.000	-0.098	0.040
4	116	61	-0.111	-0.209	-0.646
5	116	61	0.047	-0.162	1.072

Notes: ASAR and ASCAR for equally weighted portfolio of Equity REITs around filing dates of straight debt offerings during the 1991-1997 period. Filing dates are identified from the Dow Jones Retrieval Service and *Investment Dealer's Digest* and the *NAREIT REIT Handbook*. Abnormal returns are measured as actual returns minus risk-adjusted returns from the market model estimated over 151 days, starting 160 days preceding the filing date. The S&P500 Index is used as the market proxy. The Mikkelson and Partch (1985) procedure is used to calculate the z -Statistic for significance of abnormal returns. Day 0 is the filing date.

*Significant at the 10% or lower levels.

announcement. This process reduced the sample from 211 to a final size of 116.

For the 116 debt issuances, the ASAR on Day 0 (filing day) is 0.586% with thirty-eight out of 116 stocks posting negative standardized abnormal returns. On Day +1, the ASAR is -0.185% and sixty-six of the 116 stocks experience negative abnormal returns. These abnormal returns are significant at the 1% level on Day 0, which is consistent with the findings in Howe and Shilling (1988). They observed significant returns of 0.981% on Day -1 and 0.742% on Day 0. The corresponding results in this study are -0.062% on Day -1 and 0.586% on Day 0, respectively. The ASCARs for the two-day window from Day -1 to Day 0 are significant and equal 0.524%; and, from Day -1 to Day +1 are also significant and equal 0.339%. The corresponding figures for Howe and Shilling's study were significant and equal to 1.723% and 1.94%, respectively. However, this study also observes negative ASARs for Day +1 (-0.185%) and Day +2

(-0.364%). The overall findings corroborate Howe and Shilling's findings with a larger sample size (116 compared to their 73). Further, the findings conform to the hypothesis of a positive announcement effect to REIT seasoned debt issues.

The results of the thirteen convertible debt issues are not reported separately. However, insignificant positive standardized abnormal returns surrounding Day 0 and Day +1 were observed. This is in contrast to Dann and Mikkelsen's (1984) findings that announcements of publicly issued convertible debt securities convey adverse information. However, for privately placed convertible debt, Fields and Mais (1994) observed a significant positive reaction, since it conveyed favorable information.

Test of Hypotheses: Regression Estimates

The significantly positive reaction to announcements of seasoned debt issues is consistent with the information content and signaling hypotheses. To test the differential impact of these hypotheses and to examine how firm specific attributes influence an individual firm's price change, the following multiple regression models were estimated:

$$\begin{aligned} \text{Model 1: } AVGFD_j = & \beta_1 + \beta_2 AMOUNT_j \\ & + \beta_3 UNDERANK_j \\ & + \beta_4 CUMRET_j + \beta_5 APART_j \\ & + \beta_6 MALLS_j + \beta_7 MISC_j \\ & + \beta_8 UPREIT_j \\ & + \beta_9 LONGMAT_j + \varepsilon_j. \quad (4) \end{aligned}$$

$$\begin{aligned} \text{Model 2: } AVGFD_j = & \beta_1 + \beta_2 AMOUNT_j \\ & + \beta_3 UNDERANK_j \\ & + \beta_4 CUMRET_j \\ & + \beta_5 INSIDE_j + \beta_6 APART_j \\ & + \beta_7 MALLS_j + \beta_8 MISC_j + \\ & \beta_9 UPREIT_j \\ & + \beta_{10} LONGMAT_j + \varepsilon_j. \quad (5) \end{aligned}$$

In both models, the dependent variable ($AVGFD_j$) is the cumulative average return over Days 0 to +1 surrounding the filing date. The explanatory variables include: $AMOUNT$, the amount issued expressed as the percentage of the offering relative to the pre-issue market capitalization. The average size of the issue is \$113.39 million. $UNDERANK$,

the ranking of the lead underwriter for the offering, follows Carter and Manaster (1990) and Carter, Dark and Singh (1998). $CUMRET$ is the market-adjusted cumulative excess returns measured over the 151 days preceding the issue. Model 2 includes an additional variable $INSIDE$ that represents the percentage inside ownership of management and officers of the company prior to the debt offering announcement. Data on inside ownership was collected from SNL Securities Inc. Inside ownership data was unavailable for eighteen issues, resulting in the reduction of sample size from 116 to ninety-eight in Model 2. Average inside ownership is 10.56%. $UPREIT$ is a dummy variable, which has a value 1 for REITs with and $UPREIT$ structure, and 0 otherwise (traditional). Sixty-five out of 116 issues were that of $UPREIT$ s. Finally, to differentiate among REITs investing in specific types of properties, three dummy variables ($APART$, $MALLS$ and $MISC$) were included that each had a value 1 for the specific property type and 0 otherwise (the control variable being $OFFICE$). $LONGMAT$ is also a dummy variable taking the value 1 when the debt issue has a maturity over five years, and 0 otherwise.

The results of the heteroskedastically corrected regression estimates are presented in Exhibit 4. The intercept is positive in both models. The coefficient of $AMOUNT$ is positive and significant in Model 1. This implies that the higher amount of debt issues are associated with a larger positive price reaction. The coefficients for $UNDERANK$, $CUMRET$, $UPREIT$ and $LONGMAT$ are insignificant in both models, and as such no inferences can be drawn. The coefficient of $INSIDE$ is negative and insignificant in Model 2. The coefficients of REIT type dummy variables, $APART$, $MALLS$ and $MISC$, are all negative in both models. The coefficients of $APART$ and $MALLS$ are significantly negative in both the models. Since the intercept of both models is positive, it can be inferred that $APART$, $MALLS$ and $MISC$ are negatively correlated with positive price changes and the control variable $OFFICE$ is positively associated with positive price changes of announcement of debt issues.¹⁷

In summary, the finding of a positive stock price reaction to announcements of debt issues is consistent with Howe and Shilling's (1988) results.

Exhibit 4**Heteroskedastically Corrected Regression Estimates**

Variable	Model 1	Model 2
Independent variables		
Intercept	1.574 (1.34)	1.289 (1.17)
Amount of offering	0.012 (1.90)*	-0.003 (-0.43)
Underwriter rank	-0.107 (-0.75)	-0.054 (-0.37)
Cumulative abnormal return	0.002 (0.11)	0.142 (0.71)
Inside ownership		-0.006 (-0.36)
Dummy variables		
Apartment	-0.896 (-1.96)*	-0.616 (-1.56)*
Mall	-1.181 (-2.59)*	-0.805 (-2.05)*
Misc.	0.056 (0.10)	0.262 (0.49)
UPREIT	0.006 (0.23)	-0.023 (-0.07)
Long-term maturity	0.191 (0.69)	0.063 (0.23)
F-Statistic	2.41*	2.15*

Notes: Heteroskedasticity corrected regression coefficients of average returns (Day 0 to 1) on amount of offering, underwriter rank, cumulative abnormal return, inside management ownership, and dummy variables representing REIT type (as classified by Lehman Brothers), REIT structure, short- and long term maturities of 116 seasoned debt offerings of Equity REITs from 1991 to 1997. Model 2 is based on 98 observations, as no inside ownership data was available for eighteen seasoned debt issues. *t*-Statistics are given in parenthesis. Returns are calculated around filing/announcement Day. Dummy variables: yes = 1, no = 0

*Significant at the 10% or lower levels.

The evidence on the relationship between announcement period abnormal returns and issue- and firm-specific variables corroborates Howe and Shilling's conclusion that a positive reaction to debt offerings is consistent with the signaling hypothesis, and Myers and Majluf's (1984) informational-asymmetry hypothesis.

Abnormal Returns Surrounding Offer Day

The ASARs and ASCARs for the offer day are presented in Exhibit 5. The abnormal return on Day

Exhibit 5**ASARs and ASCARs for Offer Day**

Day	No. of Stocks	No. of Negative	ASAR	ASCAR	Z-Stat.
-5	116	52	0.138	0.138	1.646
-4	116	58	0.091	0.229	0.744
-3	116	62	0.049	0.278	0.412
-2	116	59	-0.033	0.245	-0.463
-1	116	65	-0.017	0.228	0.234
0	116	63	-0.228	0.000	-1.724*
1	116	62	-0.104	-0.104	-1.175
2	116	64	-0.006	-0.110	-0.088
3	116	56	0.074	-0.036	0.679
4	116	54	0.055	0.019	0.577
5	116	61	-0.164	-0.145	-1.178

Notes: ASAR and ASCAR values for equally weighted portfolio of Equity REITs around offer dates of straight debt offerings during the 1991-1997 period. Offer dates are identified from the *Dow Jones Retrieval Service and Investment Dealer's Digest*, and the *NAREIT REIT Handbook*. Abnormal returns are measured as actual returns minus risk-adjusted returns from the market model estimated over 100 days starting 110 days preceding the offer date. The S&P 500 Index is used as the market proxy. Mikkelsen and Partch (1985) procedure is used to calculate the z-Statistic for significance of abnormal returns. Day 0 is the offer date.

*Significant at 10% or lower levels.

-1 is -0.017%, and sixty-five of 116 stocks post negative abnormal returns; the corresponding number for Day 0 is -0.228% with sixty-three firms posting negative returns, and for Day +1 it is -0.104% with 62 firms showing negative abnormal returns. The negative return of -0.228% is barely significant at the 10% level (*z*-Statistic = -1.724). The ASCARs are significantly different from zero for windows $t = 0$ to $t = +1$ (-0.332%). There is no apparent explanation of the negative reaction on offer day of debt issues. Perhaps a market microstructure explanation on the basis of bid-ask bias should be explored following Lease, Masulis and Page (1991). Whether the excess abnormal return on offer day will disappear or not, when the midpoint of the closing bid and ask prices of the offer day is taken, remains an empirical issue.

Conclusion

This study examines the stock price reaction to debt offers by Equity REITs. The issue is

important for several reasons. First, the capital market activity by REITs has increased significantly in the last six years. Second, Howe and Shilling (1988) documented evidence that is inconsistent with traditional finance literature. Finally, because of the tax-exempt status of REITs, there are theoretical implications to the stock price reaction to debt issues by REITs.

The findings are similar to Howe and Shilling's (1988) in that a positive and statistically significant reaction to *announcements* of debt offers was also found. The price changes are also positively and significantly related to the amount issued, and negatively and significantly related to apartment and mall property types of REIT seasoned debt issues. Finally, a significant negative stock price reaction surrounding the *offer* day of REIT seasoned debt issues was observed. There is no apparent explanation for this phenomenon, and it remains an academic puzzle for future research.

Endnotes

1. Valuation effects, equity valuation effects and pricing effects are interchangeable terms. They all mean the stock price reaction to a certain event.
2. Seasoned debt issues (similar to the concept of seasoned equity offerings) are additional/new debt issued by publicly traded companies. It does not include debt issued along with initial public offerings IPOs).
3. This was also the case for seasoned equity offerings. Howe and Shilling (1988) and Ghosh, Nag and Sirmans (1999) examined stock price reactions to REIT seasoned equity offerings. Their findings are consistent with extant literature, which documents a negative stock price reaction.
4. The REIT market was quiet during the late 1980s. New REIT IPOs exploded after 1991. This study uncovered very few security issuances by REITs during the 1986–1990 period. For a review of the growth in REIT IPOs during the 1990s, see Ling and Ryngaert (1997).
5. For further details on the differences between old and new REITs, see Ambrose and Linneman (1999).
6. For detailed examples, see Dann and Mikkelson (1984), Eckbo (1986) and Mikkelson and Partch (1986).
7. Howe and Shilling (1988) observe that REIT operating cash flows are difficult to forecast. While it may be easy to forecast the depreciation deduction and debt service with a fixed-rate mortgage, it is difficult to accurately forecast rents, vacancies and selling prices. Ling and Ryngaert (1997) discuss how the structure and ownership of the new REITs may make the information asymmetry a more serious problem.
8. Pecking-order theory in its entirety may not be applicable to REITs, since pecking-order allows for growth through retained earnings until it is exhausted. For REITs, this avenue of growth is unavailable since 95% of its income is given away as dividends. However, the remaining sequence of pecking-order theory is relevant to REITs.
9. For a discussion on motivation of different financing choices of REITs, including debt, preferred, common equity and private placement, see Ghosh, Nag and Sirmans (1997).
10. As pointed out by an anonymous referee, REITs can invest in new positive NPV projects by generating proceeds through asset sales, thus they are not always compelled to issue debt to finance profitable projects. However, this type of opportunity is not frequent as REITs are prohibited from short-term trading of assets (see Ambrose and Linneman, 1999).
11. In the final sample of 116 issues, nineteen filing dates were counted as announcement dates also.
12. NAREIT classifies Equity, Mortgage and Hybrid REITs using the following rule: REITs are equity trusts if directly held real estate comprises a minimum of 75% of the trust's portfolios. They are mortgage trusts if mortgages comprise a minimum of 75% of the trust's portfolios. They are called hybrid trusts if both directly held real estate and mortgages constitute a holding of less than 75% of the trust's portfolio, respectively.
13. As noted by an anonymous referee, the purpose of the debt issue (*e.g.*, capital expenditure, working capital, etc.) should be useful for our study. Unfortunately, this information for the REIT sample was not available from both *The Wall Street Journal* and the *Dow Jones News Retrieval Service*.
14. However, the underwriter ranking reduced slightly to 7.99 in 1997, when the number of issues was more than twice and four times of that in 1995 and 1996, respectively.
15. For updated rankings, the Carter-Manaster system in Carter, Dark and Singh (1998) was employed.
16. For a detailed exposition of market-model event-study methodology, see Dodd (1980), DeAngelo and Rice (1983) and Mikkelson and Partch (1985), among others.
17. As suggested by an anonymous referee, several independent variables were examined. Some of them were not included in the regression models as they have no direct bearing on the theoretical motivation or results. These variables include stock return volatility as a proxy for risk (measured over 151 days preceding the issue), and dummies for self-managed REITs (101 out of 116) and self-advised REITs (108 out of 116).

References

- Akhigbe, A., J. C. Easterwood and R. R. Pettit, Wealth Effects of Corporate Debt Issues: The Impact of Issuer Motivations, *Financial Management*, 1997, 26, 32–47.
- Ambrose, B. W. and P. Linneman, Old REITs and New REITs, *Wharton Real Estate Review*, 1999.
- Carter, R. and S. Manaster, Initial Public Offerings and Underwriter Reputation, *Journal of Finance*, 1990, 45, 1045–67.
- Carter, R. B., F. H. Dark and A. K. Singh, Underwriter Reputation, Initial Returns, and the Long-Run Performance of IPO Stocks, *Journal of Finance*, 1998, 53, 285–311.

- Dann, L. and W. Mikkelson, Convertible Debt Issuance, Capital Structure change and Financing-related Information, *Journal of Financial Economics*, 1984, 13, 157–86.
- DeAngelo, H. and E. Rice, Anti-takeover of Charter Amendments and Stockholder Wealth, *Journal of Financial Economics*, 1983, 11, 329–60.
- Dodd, P., Merger Proposals, Management Discretion, and Stockholder Wealth, *Journal of Financial Economics*, 1980, 8, 105–37.
- Eckbo, B. E., Valuation Effects on Corporate Debt Offerings, *Journal of Financial Economics*, 15, 1986, 119–51.
- Fields, L. P. and E. L. Mais, Managerial Voting Rights and Seasoned Public Equity Issues, *Journal of Financial and Quantitative Analysis*, 1994, 29, 445–57.
- Ghosh, C., R. Nag and C. F. Sirmans, Financing Choice by Equity REITs in the 1990s, *Real Estate Finance*, 1997, 14, 1997, 41–50.
- ., An Analysis of Seasoned Equity Offerings by Equity REITs (1991–1995), *Journal of Real Estate Finance and Economics*, 1999, 1999, 175–92.
- Howe, J. S. and J. D. Shilling, Capital Structure Theory and REIT Security Offerings, *Journal of Finance*, 1988, 43, 983–93.
- Investment Dealers Digest*, 1991, 1992, 1993, 1994, 1995, 1996 and 1997.
- Jaffe, J. F., Taxes and the Capital Structure of Partnerships, REITs, and Related Entities, *Journal of Finance*, 1991, 46, 401–8.
- Lease, R. C., R. W. Masulis and J. R. Page, An Investigation of Market Microstructure Impacts on Event Study Returns, *Journal of Finance*, 1991, 46, 1523–36.
- Ling, D. and M. Ryngaert, Valuation uncertainty, Institutional Involvement, and the Underpricing of IPOs: The Case of REITs, *Journal of Financial Economics*, 1997, 43, 433–56.
- Mikkelson, W. H. and M. M. Partch, Stock Price Effects and Costs of Secondary Distributions, *Journal of Financial Economics*, 1985, 14, 165–94.
- Mikkelson, W. H. and M. M. Partch, Valuation Effects of Security Offerings and the Issuance Process, *Journal of Financial Economics*, 1986, 15, 31–60.
- Myers, S. and N. Majluf, Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have, *Journal of Financial Economics*, 1984, 13, 187–221.
- REIT Handbook*, National Association of Real Estate Investment Trusts, Washington, DC, 1991, 1992, 1993, 1994, 1995, 1996 and 1997.
- Shilling, J. D., Taxes and Capital Structure of Partnerships, REITs, and Other Related Entities, Working Paper, University of Wisconsin, 1996.
- Smith, Jr., C. W., Investment Banking and the Capital Acquisition Process, *Journal of Financial Economics*, 1986, 15, 3–29.