

Determinants and Market Impact of Seasoned Equity Offerings:

The Case of A-REITs

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ABSTRACT

The paper examines the decision by Australian Real Estate Trusts (A-REITs) to issue seasoned equity offerings from 2000 - 2008 and stock market reaction to the offerings. The findings reveal that highly leveraged A-REITs with variable earnings are less likely to issue seasoned equity offerings. Inconsistent results for structure and type of properties held by the A-REIT do not allow for inference to be drawn. Similar to previous studies of seasoned equity offerings, we find a significant negative abnormal return associated with their announcement and no evidence of excessive leakage of information. Furthermore, market reaction differences to announcements of SEOs for the pre-global financial crisis (GFC) (2000-2006) and GFC eras (2007-2008) are noted with GFC era shareholders incurring larger abnormal return losses at 1.13% in comparison to the pre-GFC era shareholder loss of 0.34% on the SEO announcement day. Cross-sectional regressions show that the issued amount, leverage and profitability are significant factors affecting abnormal returns. Growth opportunities, tangibility, operating risk, size of A-REIT and other variables capturing A-REIT structure and property types held do not have an impact on abnormal returns.

Keywords: A-REITs; Seasoned equity offerings; Market reaction; Global financial crisis

[†]An earlier version of this paper under its former title 'A-REIT Seasoned Equity Offerings: Determinants and Market Reaction' was presented by the first author at the 2009 Joint International AREUEA\AsRES Conference in Los Angeles. The authors thank various conference participants for comments and discussions. All remaining errors and omissions are solely the responsibility of the authors.

Introduction

Many A-REITs used equity capital to fuel growth and expansion during the mid-1990's, but later switched to debt financing in 1997 when the Reserve Bank of Australia cut interest rates in the second half of 1996, which made debt financing a cheaper option to equity capital (Kavanagh 1997). Chikolwa (2009) shows the dominance by A-REITs of using public debt to funding operations and expansion through commercial mortgage-backed securities and unsecured bonds over equity raisings for the period 2000 - 2008. With the shutting down of the Australian public debt markets in Q3:2007, A-REIT equity raisings came back in vogue with a total of AU\$14.4 billion raised in 2007 - 2008. PIR (2008) state that a total AU\$50.9 billion was raised through equity raisings between 2000 – 2008. The current issuances counter established theory that firms time their equity issue to coincide with high equity prices (Baker et al. 2003), firms that issue SEOs exhibit strong abnormal performance during the period preceding issue (Schultz 2003, 2004) and that shareholders and management will attempt to take advantage of 'window of opportunity' in choosing when to issue equity (Loughran & Ritter 1995; Ritter 1991)¹.

Newell (2008) showed the prominence of the A-REIT market second to the US and two A-REITs (Westfield and Stockland) being part of the top 10 largest REITs as at December 2007 and yet no study has empirically investigated A-REIT equity raisings. Prior non-Australian REIT research documents that investors react negatively, on average, to announcements of seasoned equity offerings (SEO) (Brounen & Eichholtz 2002; Ghosh et al. 1999; Marciukaityte et al. 2007), although competing explanations

¹ Quarterly total returns of the S&P/ASX A-REIT 300 and the ASX All Ordinaries Indices fell by -33.2% and by 20.2%, respectively, to December 2008. With the Australia public debt market closed, asset sales and SEOs were the main capital raising options available for A-REITs.

remain for these empirical results and little evidence exists of the determinants of REIT's choice to issue SEOs.

As such, the purpose of this paper is to analyse two areas of A-REIT SEOs, namely, determinants of the decision by an A-REIT to issue SEO and market reaction to SEOs before and during the global financial crisis (GFC) to December 2008. Despite a wealth of literature on market reaction to SEOs, there is limited evidence on the motivation behind SEO issuance. A recent study by Woojin and Weisbach (2008) investigates this issue on the basis of capital raising and market timing and concludes that SEOs are used both to finance investment and to exploit a firm's valuation when it is valued very highly by the market.

Apart from data being based on Australia, the study differs from previous international studies as it includes other firm-specific attributes such as property sector, stapled management structure² and international operations in addition to the traditional determinants of capital structure such as asset size, profitability ratios, tangibility of assets, growth opportunities, and operating risk. The analysis is conducted using data pertaining to 34 A-REITs in the S&P/ASX 300 Index for the period 2000 - 2008.

Our results show that that leverage, growth opportunities and operating risk are the main determinants of the decision by A-REITs to issue SEO. Of the property-specific factors, only stapled management structure and international operations are significant determinants, with type of property held by an A-REIT show inconsistent results. Similar

² Stapled management structure involves funds management and property development, in addition to the traditional passive property holding for investment.

to previous REIT studies of SEO, we find a significant negative abnormal return associated with their announcement and no evidence of excessive leakage of information.

The paper is structured as follows. Section 2 reviews literature on SEO. Section 3 discusses the data and methodology. The study results and their analyses are shown in Section 4. Concluding are shown in Section 5.

Literature Review

Several competing explanations have been postulated on why investors react negatively, on average, to SEO announcements. Although, no single hypothesis fully explains market reaction to SEOs, they all contribute to the body of knowledge on SEOs.

One explanation to investors' negative reaction to SEOs is the *price pressure hypothesis*. The essential argument of the hypothesis is that the negative market reaction to equity issues occurs because there are no very close substitutes for the equity of the issuing company, and so the price has to fall sharply for the market to absorb the increased quantity supplied (Scholes 1972). However, Loderer et al. (1991) found no evidence to suggest that the negative abnormal returns were due to the determinants of price elasticity.

Under the *information asymmetry effect hypothesis*, negative stock price reactions to the announcements and attributes this phenomenon to the information asymmetry between corporate managers and outside investors (Myers & Majluf 1984). Corporate managers have superior information about investment projects, with outside investors believing that managers act in the interest of existing shareholders and therefore prefer to issue equity when they perceive that it is overvalued. Korajczyk et al. (1991) argue that the

information asymmetry between insiders and outsiders is not fixed over time and firms will prefer to issue equity when the market is most informed.

Miller and Rock's (1985) *investment opportunity hypothesis* theorises that firms are faced with constant investment requirements and thus security issues signal a projected shortfall in the earnings of the issuing company. Chang and Chen (2007) find that announcing firms with favourable investment opportunities have a positive response to the announcements of their secured debt offerings, in contrast to Eckbo (1986) who found that share prices did not change significantly when debt issues were announced to the market.

Barclay and Litzenberger's (1988) *wasteful investment hypothesis* postulates that market reaction to all disclosures of new security issues will be positively related to indications of corporate growth prospects. This builds on earlier insights by Jensen's (1986) analysis that the market reaction to new financing announcements will reflect investors' awareness that managers have an incentive to overinvest newly raised funds by spending the cash on projects with negative net present values (NPVs) as long as their rewards are closely linked to the size of the firm rather than to shareholders' wealth. The theory therefore predicts that the market reaction to equity issues will be adverse as long as investors are sceptical of managers' motives.

Under the *wealth effects hypothesis*, unexpected issue of new equity reduces the risk of the firms' outstanding debt and consequently results in a wealth transfer from shareholders to bondholders. Therefore, the firm's debt-to-equity ratio decrease results in negative abnormal returns (Masulis 1983). However, Elliot et al (2009) find that

bondholders experience a significant positive return on the announcement of an SEO and this effect is more pronounced for bonds with lower ratings.

Previous attempts to identify the factors which explain any cross-sectional variation in the market reaction to seasoned equity offers (SEOs) have provided relatively mixed results. For example, several studies have examined the relationship between the size of an equity issue and the market reaction to the announcement; they find that the association is either (i) negative and insignificant (Aggarwal & Zhao 2008; Lin et al. 2008), negative and significant (Ghosh et al. 1999; Masulis & Korwar 1986), positive and insignificant (Sant & Ferris 1994). Other variables which have been examined as potential determinants of the market reaction to SEOs include (a) pre-issue information (Lin et al. 2008), (b) debt levels (Walker & Yost 2008), (c) issue purposes (Autore et al. 2009), (d) growth opportunities (Burton et al. 2000; Chou et al. 2009), (e) institutional holding (Ghosh et al. 1999), (f) operating performance of issuer (Andrikopoulos 2009); investigations into the role played by each of these factors also show mixed results.

Lin et al (2008) find none of the pre-issue disclosures by managers to reduce the costs of SEOs are capable of reducing the price drop at issue announcement and that both price and trading volume reactions are not related to the intervals between the disclosures and the issue announcements.

Autore et al. (2009) find that issuers stating recapitalization or general corporate purposes experience abnormally poor performance in the subsequent three years, but issuers stating investment display little or no subsequent underperformance. Recapitalisation includes issuing equity to pay down debt obligations. If debt is

excessive, recapitalizing by issuing equity to pay down debt might reduce shareholder value. To avoid this, management could recapitalize debt by issuing stock when investors are overly optimistic about the firm's future prospects, potentially resulting in relative devaluation over the long-run. For example, Hertznel and Li (2007) find that issuing firms that are overvalued tend to reduce debt after the issue. A different insight is offered by Walker and Yost (2008), who find that firms with a stated intention of paying down debt actually have leverage ratios three years after the SEO that are similar to leverage ratios prior to the SEO. Thus, firms issuing equity to refinance may be opportunistic market timers and, therefore, we expect these firms to experience poor long-run performance.

Autore et al. (2009) and Hertznel and Li (2007), find that issuers with higher growth options invest more after the SEO and do not experience poor post-issue stock returns, but issuers with greater overvaluation decrease long-term debt and increase cash after the issue and suffer poor long-run stock performance. This finding differs, however, from the result of Walker and Yost (2008) that issuers intending to decrease debt have subsequent improvements in industry-adjusted operating performance. Another contrary view of the negative relation between the level of growth opportunities and post-offering long-term stock performance for firms issuing equity privately is offered by Chou et al. (2009) who attribute this to three explanations: *real investment hypothesis* (Li et al. 2009), *skewness preference* (Barberis & Huang 2008), and *conditional over-optimism*.

Andrikopoulos (2009) state that the long-term underperformance is significantly related to a deterioration of companies' operating fundamentals in the post-offering period. Allen and Soucik (2008) report underperformance of Australian firms issuing seasoned equity during the first 5 years following the offer and significant overinvestment in the

sixth year. They attribute the underperformance to the initial underpricing, as reflected in the dilution yield measure of initial returns.

Ghosh et al. (1999) found the structure and type of properties held by the REIT to be insignificant, with no allowable inference to be drawn. Brounen and Eichholtz (2002) also come to the same conclusion for type of property held by European property companies.

Data and Methodology

Data and Sample Selection

This study examines the event of SEOs by 34 A-REITs in the S&P/ASX 300 Index during 2000 – 2008. The financial data and trading data for A-REITs were collected from Aspect Fin Analysis and Connect 4 databases, respectively. Returns for the ASX Ordinaries Index were obtained from DataStream database. From 2000 – 2008, 277 SEOs were issued totalling AU\$26 billion, of which 81 were above AU\$10 million; see Table 1. A minimum SEO issue size of AU\$10 million was selected on the basis that most A-REITs invest in properties above this amount and such an amount will have an impact on their operational capacity. The final sample reduces to 64 after combining all issues in a particular year.

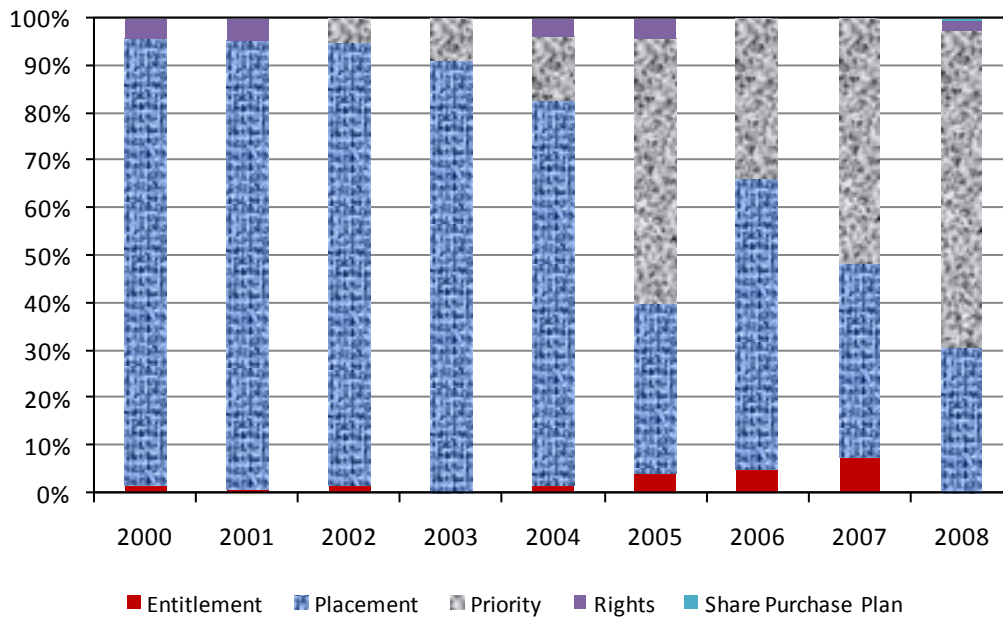
Table 1: A-REIT Seasoned Equity Offerings 2000 - 2008

Year	No. of Issues	AU\$ Billion	Percentage
2000	16	\$1.29	5.0%
2001	43	\$2.06	8.0%
2002	40	\$3.84	14.9%
2003	32	\$3.49	13.5%
2004	33	\$2.07	8.0%
2005	28	\$2.98	11.5%
2006	28	\$2.09	8.1%
2007	31	\$3.83	14.8%
2008	26	\$4.16	16.1%
Total	277	\$25.81	100.0%

Source: Authors' compilation from Connect 4 Database

Furthermore, Figure 1 shows how the composition of these issues were dominated by private placements in the earlier years and in the recent past by priority issues. Private placements totalled AU\$16.8 billion and priority issues AU\$7.9 billion, respectively, over the study period.

Table 1: Composition of A-REIT Seasoned Equity Offerings 2000 - 2008



Source: Authors' compilation from Connect 4 Database

The sample is divided into two to investigate differences in issuance drivers and market reaction, if any, during the A-REIT growth period of 2000 – 2006 and the GFC period 2007 – 2008. De Francisco et al. (2009) put the period from the 1990s until mid-2007 as the ‘golden era’ of the A-REIT sector during which time the sector experienced average growth of 22% per annum and reaching a peak market capitalisation of AU\$127 billion in May 2007. From then on the A-REIT sector has underperformed the ASX share market, with quarterly total returns of the S&P/ASX A-REIT 300 and the ASX All Ordinaries indices falling by -33.2% and by 20.2%, respectively, to December 2008.

Descriptive Statistics

Descriptive statistics regarding the sample of large SEO issues above AU\$10 million are provided in Table 2.

Table 2: Descriptive Statistics

Variable	Mean	Maximum	Minimum	Std. Dev.
ERD	7.913	9.277	4.768	0.721
LTA	0.417	1.003	0.000	0.185
ROA	0.026	0.220	-7.652	0.511
TOQ	1.001	2.028	0.000	0.353
PPT	0.556	0.999	0.000	0.372
SDE	0.124	2.590	0.000	0.471
SIZ	8.933	10.706	0.000	1.590
SRE	0.197	1.000	0.000	0.398
SOF	0.135	1.000	0.000	0.343
SDD	0.074	1.000	0.000	0.263
SOT	0.279	1.000	0.000	0.450
SSS	0.541	1.000	0.000	0.499
INT	0.616	1.000	0.000	0.487

Notes: The summary statistics are based on a sample of 229 firm-year observations. The regressors are natural log of AU\$ million of seasoned equity raised (ERD); leverage: the ratio of total liability to total assets (LTA); profitability: return on assets (ROA); growth opportunities: Tobin's Q (TOQ); tangibility: ratio of book value of property to total assets (PPT); operating risk: standard deviation of EBIT scaled by total assets for each firm over the entire period covered (SDE); size: natural logarithm of total assets (SIZ); and property sector dummy variables of 1 or 0 otherwise: retail (SRE), office (SOF), industrial (SDD); others (SOT); stapled structure management dummy variable of 1 or 0 otherwise (SSS); and international operations dummy variable of 1 or 0 otherwise (INT).

The reliability of the research as a whole is checked through estimation of the pair-wise correlation coefficients between any two regressors. Table 3 shows that correlation among the regressors is low with 12 out of 59 correlation coefficients higher than 0.2 but all under 0.5 in absolute value. According to these results the multicollinearity problem seems to be avoided.

Table 3: Correlation Coefficients

	LTA	ROA	TOQ	PPT	SDE	SIZ	SRE	SOF	SDD	SOT	SSS
ROA	-0.113										
TOQ	0.244	-0.101									
PPT	-0.328	0.104	-0.124								
SDE	0.112	-0.355	0.355	-0.194							
SIZ	0.311	0.141	0.351	0.297	-0.118						
SRE	-0.050	0.032	-0.204	0.164	-0.096	0.017					
SOF	-0.164	0.027	-0.013	0.297	-0.086	0.085	-0.196				
SDD	-0.071	0.018	-0.084	0.147	-0.060	0.084	-0.140	-0.112			
SOT	0.337	0.046	0.128	-0.410	-0.111	-0.139	-0.308	-0.246	-0.176		
SSS	0.084	-0.059	0.148	-0.305	0.175	0.020	-0.185	-0.225	-0.141	-0.052	
INT	-0.010	0.081	-0.179	0.034	-0.229	0.126	0.187	0.076	0.224	-0.348	0.084

Notes: The summary statistics are based on a sample of 229 firm-year observations. The dependent variables for the models are binary taking the value of 1 if an A-REIT raised seasoned equity, 0 otherwise. The regressors are leverage: the ratio of total liability to total assets (LTA); profitability: return on assets (ROA); growth opportunities: Tobin's Q (TOQ); tangibility: ratio of book value of property to total assets (PPT); operating risk: standard deviation of EBIT scaled by total assets for each firm over the entire period covered (SDE); size: natural logarithm of total assets (SIZ); and property sector dummy variables of 1 or 0 otherwise: retail (SRE), office (SOF), industrial (SDD); others (SOT); stapled structure management dummy variable of 1 or 0 otherwise (SSS); and international operations dummy variable of 1 or 0 otherwise (INT).

Measurement and Interpretation of Variables

Following previous studies that have investigated the impact of leverage (Walker & Yost 2008), profitability (Andrikopoulos 2009), tangibility (Lyandres et al. 2008), size (Guo & Mech 2000), growth opportunities (Chou et al. 2009) and operating risk (Guo & Mech 2000) on the announcement effect of SEOs, additional variables of property sector, stapled management structure, and international operations are included in this study to fully capture the structure and type of properties held by the A-REIT similar to Ghosh et al. (1999).

Guo and Mech (2000) document evidence that larger firm, the higher the probability of SEOs. They also suggest that security risk is a more direct measure of valuation of uncertainty, which implies that firms with higher risk are less likely to issue equity. In addition, they show that firms with more cash on hand and expected internal cash flow are less likely to issue equity. Burton et al. (2000) and Chou et al. (2009) report the effect of equity issue announcements is influenced by the value of the growth opportunities of the issuing firm. Lyandres et al. (2008) employ the ratio of investment in real assets to total assets as a measure of investment. We proxy size by the natural logarithm of total assets (SIZ) and use return on assets (ROA) to measure profitability. We use an approximation of Tobin's q (TOQ) to proxy for growth opportunities. The Tobin's q ratio is defined as the ratio of the market value of equity plus the book value of debt to the book value of assets. The proxy for tangibility is the ratio of the book value of property to total assets (PPT). Standard deviation of earnings before income tax (EBIT) scaled by total assets (SDE) for each firm over the entire period covered is used as a proxy for operating risk.

Probit Model

Accordingly, the probit model we employ to estimate the probability of a SEO is as follows:

$$\begin{aligned}
 Prob(SEO_{it} = 1) = & \alpha_0 + \alpha LTA_i + \alpha ROA_i + \alpha TOQ_i + \alpha PPT_i + \alpha SDE_i + \alpha SIZ_i + \\
 & \alpha DUM_{p,i} + \alpha DUM_{s,i} + \alpha DUM_{l,i} + \zeta_i
 \end{aligned} \tag{1}$$

where: SEO = dummy variable that equals 1 if an A-REIT i issued a SEO in year t , otherwise 0;

LTA = ratio of total liability to total assets;

ROA = return on assets;

TOQ = ratio of the market value of equity plus the book value of debt to the book value of assets;

PPT = ratio of the book value of property to total assets;

SDE = standard deviation of earnings before income tax (EBIT) scaled by total assets;

SIZ = natural logarithm of total assets;

DUM_P = dummy variable for property sector;

DUM_S = dummy variable for stapled management structure; and

DUM_I = dummy variable for international operations.

Event Study Methodology

To analyse the price effect of the SEOs, the standard market model approach was employed as outline in Brown and Warner (1985). Specifically, each sample observation was regressed against a market index, the ASX All Ordinaries Index R_{mt} , using an ordinary least square as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (2)$$

where: R_{it} = continuous return on the shares of firm i during period t ;

R_{mt} = continuous return on the market index during period t ;

α_i = intercept for firm i ; and

β_i = slope coefficient (market beta) for firm i .

An estimation window of (-115, -16) was used for the above regression. The window was deemed appropriate considering that prior studies tended to use a similar size estimation window, and that 100 trading days strike a balance between accurately gauging a company's relationship to the market and incorporating too many firm specific trends that could bias the regression.

The alpha and beta of the market model were used to calculate the predicted returns of each observation over a range of event window, [-15,+15]. The Abnormal Return (AR_{it}) for each event day was then calculated as the difference between the observed return and predicted return.

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \quad (3)$$

To test whether the average abnormal return was statistically different from zero, we follow the technique proposed by Dodd and Warner (1983) where individual abnormal returns are standardised (by their standard deviations) and then aggregated to obtain a Z-statistics as follows:

$$Z = \frac{1}{\sqrt{N}} \sum_{i=1}^N \left[\frac{AR_{it}}{\sigma(AR_i)} \right], \quad (4)$$

where:

$$\sigma(AR_i) = \sum_{t=-115}^{-16} \left[\frac{(AR_{it} - \overline{AR}_i)^2}{99} \right]^{\frac{1}{2}}, \text{ and} \quad (5)$$

$$\overline{AR}_i = \frac{1}{100} \sum_{t=-115}^{-16} AR_{it} \quad (6)$$

The advantage of this standardising procedure is that it permits the entire cross-sectional distribution of abnormal returns to be compared to a unit normal and reduces the effects of outliers (Dodd & Warner 1983).

Cumulative abnormal returns for A-REIT_i, denoted CAR_i are formed by summing AR_{it} over various lengths of time. Average ARs and CARs are calculated and tested to see if they are different from zero.

Ordinary Least Square Methodology

A model is developed and estimated for cross-sectional market reaction to SEOs using an ordinary least square regression based on theoretical explanations in literature. The model includes variables for issue amount (ERD), leverage (LTA), profitability (ROA), tangibility (PPT), operating risk (SDE), size (SIZ), and dummy variables to capture structure and property types held by an A-REIT. The following multivariate regression equation was used:

$$CAR_{it} = \alpha_0 + \beta_1 ERD_i + \beta_2 LTA_i + \beta_3 ROA_i + \beta_4 TOQ_i + \beta_5 PPT_i + \beta_6 SDE_i + \beta_7 SIZ_i + \beta_8 DUM_{p,i} + \beta_9 DUM_{s,i} + \beta_{10} DUM_{l,i} + \varepsilon_{it} \quad (7)$$

where: CAR_{it} = standardized cumulative abnormal return day 0 to day 1;

ERD_i = natural logarithm of issued amount;

Results and Analysis

Determinants of SEO Issuance Choice

Two separate, single equation models were estimated by probit model for the entire study period of 2000 - 2008. The results are given in Table 4. The models explain between 17% and 25 % of the within-sample variance in the dependent variables and the LR statistics show that the models are, overall, significant.

Table 4: Probit Regression Results of SEO Issuance Choice

Variable	Model 1		Model 2	
	Coeff.	z-stat	Coeff.	z-stat
C	-0.350	-0.700	-0.367	-0.623
LTA	-1.185	-1.718 ***	-1.054	-1.620 ***
ROA	4.107	1.334	5.863	1.821 ***
TOQ	0.441	1.416	0.722	2.165 **
PPT	0.790	2.521 **	0.297	0.829
SDE	-9.491	-2.667 *	-14.464	-3.411 *
SIZ	-0.037	-0.494	-0.051	-0.649
SRE				1.929
SOF				1.166
SDD				-0.097
SOT				-0.917
SSS				-2.550 **
INT				1.977 **
McFadden R-squared		0.165		0.253
LR statistic		50.024		76.638
Prob(LR statistic)		0.000		0.000

Notes: The dependent variables for the models are binary taking the value of 1 if an A-REIT issued seasoned equity, 0 otherwise. The regressors are leverage: the ratio of total liability to total assets (LTA); profitability: return on assets (ROA); growth opportunities: Tobin's Q (TOQ); tangibility: ratio of book value of property to total assets (PPT); operating risk: standard deviation of EBIT scaled by total assets for each firm over the entire period covered (SDE); size: natural logarithm of total assets (SIZ); and property sector dummy variables of 1 or 0 otherwise: retail (SRE), office (SOF), industrial (SDD); others (SOT); stapled structure management dummy variable of 1 or 0 otherwise (SSS); and international operations dummy variable of 1 or 0 otherwise (INT). *Significant at 1% level; ** significant at the 5% level; and ***significant at the 10% level.

In order to maintain brevity and to capture the A-REIT setting, only results of model 2 are discussed. Leverage (LTA) and operating risk (SDE) show a negative significant relationship at 10% level and 5% level, respectively, to the decision to issue SEOs by A-REITs. This result supports that of Guo and Mech (2000) that highly leveraged firms with variable earnings are less likely to issue SEOs. Profitability (ROA) and growth opportunities (TOQ) are positive and significant at 5% level. The result for profitability is anomalous as profitable firms are less likely to issue SEOs. Tangibility and size are insignificant. Variables for structure and type of properties held by the A-REIT are inconsistent and mainly insignificant; only the retail A-REIT, stapled management structure and international operations variables are significant at 5% level. These results are consistent with Brown and Riddiough (2003) who found property type held by REITs to be insignificant in the choice to issue either debt or equity.

Event Study Results

Table 5 presents daily average standardised abnormal returns (ASAR) and average standardised cumulative abnormal returns (ASCAR) for A-REIT SEO issuance during the event window. The day zero average abnormal return is -0.56% with statistical significance at 1% level. The largest abnormal return in the event window occurs on day 1 at -0.95% which can imply that the market fully reacts to SEO issuance a day after the announcement. After the announcement date, the other days that are statistically significant are days 3 and 4 at 10% and 5% levels, respectively. There is no strong evidence of leakage of information on SEO issuance as only days -12 and -4 are statistically significant at 5% and 10% levels, respectively. The ASAR for the window (-1,+1) is -1.39% which is comparable in magnitude with similar studies in US by Ghosh

et al. (1999) who had -1.56% and in Europe by Brounen and Eichholtz (2002) who had -1.21%.

Table 5: Stock Price Effects Surrounding the Announcement of A-REIT Seasoned Equity Issues 2000-2008

Event Day	ASAR	z-stat	ASCAR	z-stat
-15	-0.134	-1.073	-0.134	-1.064
-14	-0.036	-0.283	-0.170	-0.951
-13	0.078	0.623	-0.092	-0.420
-12	-0.282	-2.248 **	-0.374	-1.479
-11	0.000	-0.004	-0.374	-1.325
-10	0.066	0.525	-0.308	-0.996
-9	-0.158	-1.259	-0.466	-1.395
-8	-0.063	-0.499	-0.529	-1.480
-7	-0.134	-1.068	-0.662	-1.748 ***
-6	-0.050	-0.400	-0.712	-1.784 ***
-5	-0.180	-1.437	-0.893	-2.131
-4	0.241	1.926 ***	-0.651	-1.489
-3	-0.169	-1.347	-0.820	-1.801 ***
-2	0.081	0.644	-0.739	-1.565
-1	0.125	0.995	-0.615	-1.257
0	-0.564	-4.502 *	-1.179	-2.333 **
1	-0.955	-7.620 *	-2.134	-4.097 *
2	-0.203	-1.620 ***	-2.337	-4.361 *
3	-0.268	-2.138 **	-2.604	-4.731 *
4	-0.036	-0.287	-2.640	-4.675 *
5	-0.021	-0.164	-2.661	-4.598 *
6	0.307	2.453	-2.354	-3.973 *
7	-0.003	-0.027	-2.357	-3.892 *
8	-0.152	-1.211	-2.509	-4.055 *
9	-0.031	-0.244	-2.539	-4.021 *
10	-0.080	-0.637	-2.619	-4.067 *
11	0.006	0.051	-2.613	-3.981 *
12	-0.184	-1.470	-2.797	-4.185 *
13	0.020	0.161	-2.777	-4.083 *
14	-0.087	-0.693	-2.864	-4.140 *
15	-0.092	-0.733	-2.955	-4.203 *

This table presents the stock price effects surrounding seasoned equity announcements of over AU\$10 million by A-REITs in the S&P ASX300 Index over the entire study period of 2000 - 2008. The event day (Day 0) is defined as the actual date of announcement by the A-REIT. ASAR is the average standardised abnormal return of the cross-sectionally combined observations for the relevant event day. ASCAR is the average standardised cumulative abnormal return between day -15 and the relevant event day.

Overall, the ASCAR around the SEO announcement day have negative values and trend in a downward direction. On the announcement day, the ASCAR is a loss of 1.18% to shareholders. This loss continues to reach -2.96% on day 15 as the days have significant results at 1% level. ASCAR results further confirm those of ASAR of minimal evidence of announcement leakage; only days -7, -6 and -3 have significant results at 10%.

We further divide our sample into two periods to investigate market reaction differences, if any, to A-REIT SEO issuance for the pre-GFC and GFC periods, i.e. 2000 - 2006 and 2007 – 2008, respectively. Market reaction results for the two periods are shown in Table 6.

Shareholders experienced a larger loss on the SEO announcement day at -1.13% during the GFC era in comparison to the pre-GFC era loss of 0.34%. Results show evidence of information leakage of SEO issuance three days before the announcement as days -3 to -1 indicate significant negative abnormal returns at either 1% or 5% levels. This is confirmed as only day 10 has a significant abnormal return at 10% level. In addition, the ASCAR is lesser at -2.55% in comparison to the pre-GFC era value of -3.13% on day 15.

For the pre-GFC era, the market fully negatively reacted a day after the SEO announcement at 1.07% and continued in a downward trend to record a cumulative loss of 3.73% on day 15 at 1% level of significance. Furthermore, ASCAR support evidence of information leakage as only four days had insignificant negative abnormal returns, with the rest of the days significant at either 5% or 10% levels.

Table 6: Stock Price Effects Surrounding the Announcement of A-REIT Seasoned Equity Issues in Pre-GFC and GFC Eras

Event Day	Period A: 2000-2006				Period B: 2007-2008			
	ASAR	z-stat	ASCAR	z-stat	ASAR	z-stat	ASCAR	z-stat
-15	-0.136	-0.915	-0.136	-0.905	-0.035	-0.148	-0.035	-1.064
-14	-0.186	-1.249	-0.322	-1.513	0.355	1.492	0.320	-0.951
-13	-0.024	-0.164	-0.347	-1.329	0.281	1.180	0.601	-0.420
-12	-0.316	-2.121	-0.663	-2.199 **	-0.189	-0.793	0.412	-1.479
-11	-0.033	-0.225	-0.696	-2.067 **	0.116	0.488	0.529	-1.325
-10	0.151	1.015	-0.545	-1.477	-0.126	-0.527	0.403	-0.996
-9	-0.189	-1.267	-0.734	-1.841 ***	-0.101	-0.426	0.302	-1.395
-8	0.010	0.065	-0.724	-1.699 ***	-0.233	-0.977	0.069	-1.480
-7	-0.087	-0.583	-0.811	-1.794 ***	-0.221	-0.930	-0.152	-1.748
-6	-0.206	-1.386	-1.017	-2.136 **	0.368	1.544	0.215	-1.784
-5	-0.117	-0.784	-1.134	-2.270 **	-0.198	-0.831	0.017	-2.131
-4	0.157	1.057	-0.977	-1.872 ***	0.293	1.232	0.311	-1.489
-3	0.024	0.162	-0.952	-1.754 ***	-0.660	-2.770 *	-0.349	-1.801
-2	-0.112	-0.749	-1.064	-1.888 ***	0.563	2.365 **	0.214	-1.565
-1	-0.038	-0.257	-1.102	-1.890 ***	0.512	2.151 **	0.727	-1.257
0	-0.344	-2.310 **	-1.446	-2.401 **	-1.129	-4.740 *	-0.402	-2.333
1	-1.068	-7.171 *	-2.514	-4.049 *	-0.758	-3.185 *	-1.161	-4.097
2	-0.138	-0.926	-2.652	-4.150 *	-0.269	-1.129	-1.430	-4.361
3	-0.341	-2.288 **	-2.993	-4.559 *	-0.163	-0.684	-1.593	-4.731
4	-0.110	-0.739	-3.103	-4.607 *	0.150	0.628	-1.443	-4.675
5	0.027	0.184	-3.076	-4.456 *	-0.120	-0.504	-1.563	-4.598
6	0.314	2.111 **	-2.761	-3.909 *	0.352	1.480	-1.211	-3.973
7	-0.063	-0.424	-2.824	-3.910 *	0.010	0.040	-1.201	-3.892
8	-0.079	-0.531	-2.904	-3.935 *	-0.333	-1.399	-1.534	-4.055
9	-0.090	-0.607	-2.994	-3.976 *	0.188	0.788	-1.346	-4.021
10	0.037	0.246	-2.957	-3.851 *	-0.450	-1.891 ***	-1.797	-4.067
11	0.134	0.900	-2.823	-3.608 *	-0.332	-1.394	-2.129	-3.981 **
12	-0.291	-1.955 **	-3.115	-3.908 *	0.098	0.413	-2.030	-4.185 **
13	0.049	0.326	-3.066	-3.780 *	-0.069	-0.291	-2.099	-4.083 **
14	-0.041	-0.276	-3.107	-3.766 *	-0.170	-0.714	-2.269	-4.140 **
15	-0.019	-0.131	-3.127	-3.728 *	-0.282	-1.183	-2.551	-4.203 **

This table presents the stock price effects surrounding seasoned equity announcements of over AU\$10 million by A-REITs in the S&P/ASX300 Index over the sub-sample periods of 2000-2006 and 2007-2008, respectively. The event day (Day 0) is defined as the actual date of announcement by the A-REIT. ASAR is the average standardised abnormal return of the cross-sectionally combined observations for the relevant event day. ASCAR is the average standardised cumulative abnormal return between day -15 and the relevant event day.

Cross-Sectional Regression Results

In Table 7, results of the examination of cross-section explanations of the market reaction to the announcement effect are presented. These represent the entire study period as not enough data points were available for the GFC period, 2007 - 2008, to offer meaningful results. The dependent variable in each of the models is the two-day ASCAR, as described earlier. The base model (model 1) includes control variables for the firm's leverage, profitability, growth opportunities, tangibility, operating risk and size. Model 2 includes variables to capture structure and property type held by an A-REIT, in addition to the base model variables. The R-squared (0.38) for full model confirms good explanatory power.

Table 7: Regression Analysis of ASCAR

Variable	Model 1		Model 2	
	Coeff.	t-stat	Coeff.	t-stat
C	-0.020	-0.579	-0.065	-1.146
ERD	0.006	5.248 *	0.007	4.526 *
LTA	0.022	2.028 **	0.024	1.789 ***
ROA	-0.070	-1.581	-0.124	-1.793 ***
TOQ	-0.011	-1.644 ***	-0.005	-0.346
PPT	-0.003	-0.699	-0.002	-0.315
SDE	0.025	0.747	0.046	0.914
SIZ	-0.002	-0.960	0.001	0.247
SRE			0.002	0.446
SOF			0.000	-0.048
SDD			0.004	0.411
SOT			0.007	1.363
SSS			0.004	1.085
INT			0.002	0.406
R-squared	0.370		0.381	

Notes: The dependent variable is the average standardised cumulative abnormal return for day 0 and +1.

The regressors are natural log of the issued amount (ERD); leverage: the ratio of total liability to total assets (LTA); profitability: return on assets (ROA); growth opportunities: Tobin's Q (TOQ); tangibility: ratio of book value of property to total assets (PPT); operating risk: standard deviation of EBIT scaled by total assets for each firm over the entire period covered (SDE); size: natural logarithm of total assets (SIZ); and property sector dummy variables of 1 or 0 otherwise: retail (SRE), office (SOF), industrial (SDD); others (SOT); stapled structure management dummy variable of 1 or 0 otherwise (SSS); and international operations dummy variable of 1 or 0 otherwise (INT). *Significant at 1% level; ** significant at the 5% level; and ***significant at the 10% level.

To maintain brevity, results of Model 2 which fully reflects A-REIT market structure and type of properties held are discussed. Issue amount (ERD) and leverage (LTA) are positive and significant at 1% and 10% levels, respectively. The significant positive relationship between relative size (ERD) and the announcement returns is inconsistent with the general and signalling asymmetry models of Myers and Majluf (1984) and Miller and Rock (1985) and the empirical evidence for SEOs. However, the result is consistent with Owen and Suchard (2008) for rights issues in Australia. Leverage has an

anomalous positive sign as the wealth transfer hypothesis states that highly leveraged firms should have a negative impact of announcement returns. This result may not be surprising as literature has been inconclusive on the relation between leverage and issuance announcement returns (Aggarwal & Zhao 2008; Masulis & Korwar 1986)

Profitability (ROA) is negative and significant at 10% and has largest explanatory power of the coefficients at -0.124. This supports the view that high cash flow reflects greater internal resources and less need for external capital suggesting that the need for new capital could be interpreted as bad news. The remaining variables for growth prospects (TOQ), tangibility (PPT), operational risk (SDE) and size (SIZ) are statistically insignificant despite showing anticipated signs. Lin et al. (2008) find variables capturing firm size, growth opportunities and firm risk, among others, to have insignificant influence on price reaction. Similar to Ghosh et al. (1999) we find structure and type of properties held by the A-REIT to be insignificant, which does not allow for inference to be drawn. This is further reinforced by the marginal increase in R-squared from 0.37 for the base model 1 to 0.38 for the full model 2, showing that the unique A-REIT features have little explanatory power on market reaction to the announcement effect.

Conclusion

The paper examines the decision by Australian Real Estate Trusts (A-REITs) to issue seasoned equity offerings from 2000 - 2008 and stock market reaction to the offerings. The findings review that leverage and operating risk are negative significant determinants of the decision to issue seasoned equity offerings (SEO); profitability and growth opportunities are positive significant determinants. Of the structure and type of properties held by the A-REIT, only stapled management structure and international

operations are significant determinants. Types of property held by A-REITs show inconsistent results that does not allow for inference to be drawn.

Similar to previous studies of SEO, we find a significant negative abnormal return associated with their announcement and no evidence of excessive leakage of information. Furthermore, we investigate for market reaction differences to announcements of SEOs for the pre-global financial crisis (GFC) (2000-2006) and GFC eras (2007-2008). In the GFC era, shareholders had a larger loss in abnormal return at 1.13% in comparison to the pre-GFC era lost of 0.34% on the SEO announcement day. In addition, evidence is shown that information leakage occurred three days before the SEO announcement date in the GFC era. On the contrary, the market in the pre-GFC era fully reflected the SEO announcement after a day of the announcement and continued to show significant negative abnormal returns until day 15.

Cross-sectional regressions show that the issued amount, leverage and profitability are significant factors affecting abnormal returns. Growth opportunities, tangibility, operating risk, size of A-REIT and other variables capturing A-REIT structure and property types held do not have an impact on abnormal returns.

These findings add to literature as no study has examined SEOs by A-REITs, despite Australia being the second largest global REIT market. Though outside the scope of this paper, the roles played by underwriters and institutional investors in A-REIT SEOs would be another interesting area of future research.

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