# How Do Managers and Shareholders Respond to Taxation? An Analysis of the Introduction of the UK Real Estate Investment Trust Legislation

**Short running title: Responses to Taxation**

**Key words:** Agency costs, Complexity, Investor sophistication, Non-tax costs, Real Estate Investment Trusts, Tax

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**Acknowledgements:** The authors would like to thank the following for helpful comments and suggestions: the anonymous reviewers, Roger Willett (Associate Editor), Stewart Jones (Editor in Chief), Alan Goodacre, Lynn Hodgkinson, Joanne Horton, Keith Hughton, Richard Jackson, Gerhard Kling, Mike Peel, David Stopforth, Mark Tippett, seminar participants at: Bangor University, Gregynog Accounting and Finance Research Colloquium, EIASM Workshop on Current Research in Taxation, UNSW Tax Administration Conference, Tax Research Network Annual Conference and Oxford University Centre for Business Taxation, two sell side equity analysts and head of tax at a UK quoted multinational group.

The authors would also like to gratefully acknowledge academic research funding provided by the Institute of Chartered Accountants in England and Wales' (ICAEW) charitable trusts.

# How Do Managers and Shareholders Respond to Taxation? An Analysis of the Introduction of the UK Real Estate Investment Trust Legislation

**Abstract:** Corporate finance decisions, measurement of accounting profits and market valuations are invariably made within the framework of a taxation system(s). Previous research indicates both ambiguity over the influence of taxation on managers' behavior and limitations in the ability of shareholders to process tax information.

The establishment of the UK's Real Estate Investment Trust (REIT) regime in 2006 allowed quoted companies to opt out of company level taxation. We examine the reasonableness of managers and shareholders' responses i.e. their ability to process information. When compared with shareholders, managers demonstrated a greater knowledge of the legislation, and of its applicability. For example, managers appeared to pre-empt the effects of the legislation. This should also act as a warning of the potential downside of increased cooperation between tax policy makers and taxpayers in trying to make more appropriately formed legislation. Further, managers appeared to be willing to trade off the interests of shareholders for their own personal gain which is surprising given the visibility of the REIT conversion process. Although shareholders were willing to pay less in such instances, their apparent inability to prevent this behavior illustrates the limitation of shareholder control over managers' behavior.

We find shareholders can accurately assess the general effects of the legislation but were unable, when combined with company information, to identify specific companies likely to benefit from the legislation. Without any increase in shareholder sophistication, concerns exist over the effectiveness of shareholders in acting as monitors of managers' tax decision making and decision making more generally.

**Key words:** Agency costs, Complexity, Investor sophistication, Non-tax costs, Real Estate Investment Trusts, Tax

**How Do Managers and Shareholders Respond to Taxation? An Analysis of the Introduction of the UK Real Estate Investment Trust Legislation.**

Decisions on capital structure, dividend policy, corporate restructuring, organizational form, measurement of accounting profits and market valuations etc. are invariably made within the framework of a taxation system(s). However, evidence from a long history of research indicates both ambiguity over the influence of taxation and associated non-tax costs on managerial decision-making (Damodaran et al., 2005, Hanlon and Heitzman, 2010, Armstrong et al., 2015, and Doidge and Dyck, 2015). Further, research examining shareholders and analysts report behavioral limitations in evaluating the implications of taxation (Chen and Schoderbek, 2000, Plumlee, 2003, Lev and Nissim, 2004, Seida and Wempe, 2004, Weber, 2009, Doidge and Dyck, 2015, Bonsall et al., 2017).

The ability of shareholders to effectively monitor and control managers' tax related decisions is in part dependent on them having a reasonable understanding of the tax system(s) under which managers and companies operate. Similarly, the effectiveness of taxation based policy incentives and systems of tax administration are in part determined by how managers and shareholders evaluate changes to taxation (Shackelford and Shevlin, 2001, Hanlon and Heitzman, 2010).

Against a backdrop of increasing complexity of both tax legislation and tax administration, we examine the responses of managers and shareholders to a newly introduced tax regime affecting existing UK quoted companies. Using the tax and other information available to managers and shareholders, we examine the reasonableness of their decisions i.e. their ability to process information. In doing so, we complement studies examining the properties of information used by decision makers.

The introduction of a UK Real Estate Investment Trust (REIT) tax regime in 2006 provided existing UK resident quoted property investment companies (PICs) the option to opt out of UK corporate income taxation. The REIT legislation was a significant event in terms of economic impact. Despite the Government's stated intention for the new regime to be tax neutral, a mean increase of £101.45m in the equity market value of potential REIT companies arose on its announcement. In the popular press, the market response was described as follows: *'More than £3.4bn was added to the property sector's combined market value as leading companies including British Land and Land Securities saw £700m and £1.1bn respectively added to their market capitalisation in the course of the afternoon.*' (Daily Telegraph, 2006, p. 16).

The REIT setting was chosen because the tax change is clearly defined in terms of business activity and, critically, from a research design perspective, managers' actions are publically observable and identifiable. Further, the tax and non-tax factors are clearly and explicitly identified in the legislation allowing a clear identification of non-tax factors that can counteract the benefits of planned tax incentives.

Our initial focus is on managers. We examine managers' responses by modeling their decisions on whether to convert to REIT status, or maintain the existing basis of taxation. In addition to the abolition of a company level income tax charge, managers have to consider the effect of a number of other identifiable factors associated with the decision to convert. The legislative imposition of a minimum dividend payout of 90% reduces managerial discretion over dividend policy. In turn, there is a consequential effect of an increased reliance on external sources of finance (Damodaran *et al.*, 2005). Further, on conversion to REIT status, any existing deferred tax provision on unrealized investment gains becomes redundant and is written back immediately into shareholders' reserves increasing distributable reserves. We find evidence consistent with managers prioritizing their welfare at the expense of shareholders. While evidence of moral hazard is well established, it is surprising to

observe it in such a highly visible and therefore transparent setting. We also find evidence consistent with managers pre-empting the effects of the legislation. Such action can impose an extra burden on attempts by governments and tax administrations to improve legislation and practice through consultation prior to legislating.

Secondly, we focus on shareholders. We use hindsight to examine the accuracy of shareholders' expectations over the identity of which PICs would subsequently convert. We do this by comparing the abnormal returns (ARs) of those PICs which did convert with those that decided to maintain their existing taxable status. Then, we examine whether the cross-sectional variation in observed ARs can be explained by identifiable company specific characteristics linked to the effects of the legislation. While shareholders appear to correctly evaluate the general effect of the legislation at the industry level, importantly, we do not find evidence of an ability to form accurate expectations at the individual company level. Without any increase in shareholder sophistication, concerns exist over the effectiveness of shareholders in acting as monitors of managers' tax decision making, e.g. the UK statutory requirement for 'large' companies to publish their tax strategy (HM Revenue and Customs, 2016), may have limited effectiveness. Such concerns can have implications for the effectiveness of regulation more generally.

## REAL ESTATE INVESTMENT TRUST LEGISLATION

The UK Government's intention to introduce a REIT regime was subject to public consultation comprising publication of discussion documents and public statements on well-defined dates. This provides for an examination of price changes or wealth effects around a series of clearly identifiable announcement dates. The consultation process followed the Barker Review's (2003) recommendation to the UK Government to consider introducing a REIT regime. At the end of the consultation exercise, legislation was announced in the 2006 Budget (HM Treasury, 2006). The

recommendation was designed to increase small investor choice, liquidity and provide for a more efficient use of commercial property (HM Revenue and Customs, 2006a).

Under the legislation, income and gains on property investment activities of companies within the REIT regime are exempt from UK corporate income tax and in consequence, the tax deductibility of debt interest ceases.[1] Those companies opting to remain outside of the regime remain subject to corporate income tax on all their profits. REITs are required to distribute at least 90% of the tax exempted income to shareholders in the form of a Property Income Distribution (PID) (paid net of a tax credit). Such distributions are treated as rental income and taxable at a top marginal rate of 40% in the hands of individual UK resident shareholders.[2] Non-UK resident shareholders may be able to reclaim the tax credit under the terms of any Double Tax Agreement. UK taxable and tax exempt non-individual shareholders can receive PIDs gross.[3]

A critical design issue is the treatment of companies' unrealized capital gains existing at the date of establishment of REIT status. The UK's novel approach, announced on 22 March 2006, is a conversion or entry charge set at 2% of the accounting carrying gross value of properties used in property investment.[4,5] By offsetting the loss of company level taxation, the charge is designed to ensure revenue neutrality (HM Revenue and Customs, 2006a). The unusual nature of the charge and its level had not been included in any of the prior consultation. On 19 July 2006, the enactment of the resulting Finance Bill allowed for additional features of the REIT regime to be legislated via Statutory Instruments (SIs). On 1 November 2006,

[1] In order to qualify as a REIT, a company's property investment activities must represent at least 75% of total activities measured in terms of both income and assets.
[2] In contrast, the top marginal rate on dividend income is 32.5%.
[3] Appendix A summarizes the effect of the legislation on various shareholder groups by tax status.
[4] There is no deemed disposal and requisition as adopted by some jurisdictions in introducing REITs.
[5] This is the announcement referred to in the quote reported in the introduction.

Parliament passed the necessary SIs (HM Revenue and Customs, 2006b).

Following the 2006 Budget, some PICs made conditional statements about their intention to convert, e.g. Land Securities plc (2006), while other companies made conditional statements later in the period leading up to 1 November 2006. By seeking shareholder approval for the necessary changes to articles of association, companies had to publicly reveal their intention to convert involving two announcements. The first being publication of a shareholder circular and the second, the publication of the results of the approval process. The dates of these shareholder announcements and the date of conversion are company specific. In contrast, the dates of the legislative announcements discussed earlier are common to all companies. For ease of subsequent reference, these various announcements will be referred to by 'announcement number' as set out in the summary of announcements in table one.

*XXX TABLE ONE ABOUT HERE XXX*

## RELEVANT LITERATURE

Although the REIT legislation does not require a change to a company's organizational form, the effect of converting to a REIT is to fundamentally change the company's basis of taxation akin to a change of organizational form. This section initially focuses on the literature on managers' and shareholders' responses to taxation induced changes of organizational form. The section then considers evidence on shareholders' and analysts' ability to interpret tax law and its implications at the company level.

Studies of real estate industry including organizational form are generally scarce within the accounting and finance literature (Jones, 2017).[6] An exception is Goolsbee and Maydew (2002) who examined the propensity of US industrial companies with investment property assets to convert to a REIT. Their focus is on estimating potential

[6] Recent studies instead have focused on the relationship between REIT's and debt issues (Keng Tan, 2017) or the risk return profile of real estate debt (Van der Spek, 2017).

aggregate tax revenue loss from the conversion opportunity. Goolsbee and Maydew (2002) identified three significant tax effects also relevant to the UK REIT setting. Firstly, a reduction in company level taxation by exempting real estate income (both rental income and realized gains); secondly, an increase in company level taxation from debt interest ceasing to be tax deductible; and thirdly, a likely increase in dividend payments following from a minimum dividend payment rate of 90%. Against these net tax effects, Goolsbee and Maydew (2002) argued managers would have to consider non-tax costs in the form of reduced agency costs arising from greater reliance on external capital following increased payouts. Notwithstanding minimum levels of distribution, agency costs in REITs are significant due to high levels of non-systematic risk and limited liquidity of REITs (Alcock and Steiner, 2017).

In contemplating changes of organizational form, Damodaran *et al.* (2005) found managers compared their anticipated loss from a reduction in their discretion, i.e. reduction in value of managerial agency costs, with the anticipated gain from an increase in the value of their shareholding. Durnev *et al.* (2016) identified a similar tradeoff, with levels of managerial agency costs sufficient to outweigh most of the potential tax benefits from locating subsidiaries in Offshore Financial Centers. The relationship between levels of managerial ownership and willingness to convert to a more restricted REIT status depends on the underlying relationship between levels of managerial ownership and managerial agency costs. As the incentive hypothesis (Jensen and Meckling 1976) and entrenchment hypothesis (Morck *et al.* 1988) give conflicting predictions, the relationship is an empirical question.

Hodder *et al.* (2003) examined US legislation enabling banks to convert to tax free status. They identified counteracting tax effects, one-off tax costs of conversion and ongoing differences in taxation between alternative organizational forms. The former had the potential to dominate the latter (Hodder *et al.*, 2003, Hanlon and Heitzman, 2010). Further, Hodder *et al.* (2003) identified a similar trade off in non-

tax costs arising from an interaction between the financial accounting consequences of the tax free status and banks' regulatory capital constraints. Clearly, direct tax effects and non-tax costs interact to influence managers' decisions.

There is evidence that shareholders do not always fully appreciate the significance of tax. While Edwards and Shevlin (2011) concluded that share price responses to legislation (*Tax Fairness Plan*, TFP) affecting Canadian trust companies were consistent with informed behavior, in contrast, Doidge and Dyck (2015) identified short-term uninformed behavior. They noted the initial sell off in the trust sector *'was to some extent indiscriminate. For example, REITs fell by almost 4% even though they were exempt from the TFP'* (Doidge and Dyck, 2015, p. 58).

In examining tax induced corporate inversions, Cloyd *et al.* (2003) and Seida and Wempe (2004) found the lack of market reaction *'puzz(ling)'* and *'perplexing'*. One explanation is that *'… analysts, and perhaps the market at large, have difficulty estimating the financial impact of inversion*' (Seida and Wempe, 2004, p. 824). In a similar vein, Durnev *et al.* (2016) concluded that shareholders do not fully appreciate the consequential increase in agency costs arising from tax avoidance motivated actions. The apparent inability to evaluate tax legislation may reflect limitations in shareholders' tax processing skills (Plumlee, 2003, Weber, 2009, Bonsall *et al.*, 2017), or reflect significant information asymmetry between companies and shareholders (Bonaimé *et al.*, 2014 and Bonsall *et al.*, 2017).

As companies' tax positions become more complex and opaque (Bonsall *et al.*, 2017) the degree of information asymmetry is likely to increase. There is a widespread concern among accounting regulators in the US (FASB, 2016), the UK (FRC, 2015) and by the IASB (IASB, 2016a) over the inadequacy of companies' tax related disclosures. Shareholders consider the current disclosure rules result in a 'lack of transparency' and requested disclosure on companies' 'tax strategies, tax risk and tax cash flow' (IASB, 2016b). A lack of tax transparency underlies the agency

theory motivation for tax avoidance (Slemrod, 2004, Desai and Dharmapala, 2006, Abdul Wahab and Holland, 2012).

## RESEARCH METHOD

We examine managers' and shareholders' responses using a combination of univariate and multiple regression analyses. The conclusions we subsequently draw are based on the results of standard hypothesis testing e.g. t-tests and judgments about the 'reasonableness' of the overall explanatory power of the estimated models.

Following the passing of the REIT legislation in 2006, only a subset of the population of potential REITs converted to REIT status. Fortuitously, from a research perspective, this separation between converting and non-converting PICs allows an examination of managers' and shareholders' behavior. The population of potential REITs, i.e. existing PICs, is identified as all UK resident constituent members of the *FT-SE Real Estate Holding & Development* industry classification on the *London Stock Exchange* (LSE) as at December 2005. This definition generates a population of potential convertors of 40 UK resident companies of which 17 subsequently converted (*subsequent converters*) and 23 remaining (*non-converters),* see table two.[7]

*XXX TABLE TWO ABOUT HERE XXX*

*Manager Responses – Modeling Conversion Decision*

We examine the decisions of managers on whether to convert to REIT status or remain a fully taxable company by using a logit estimation of the probability of conversion to REIT status. We estimate the following model equation (1):

$$Z_i = \beta_0 + \beta_1 Exempt\_Income_i + \beta_2 Exempt\_Gains_i + \beta_3 Deferred\_tax_i + \beta_4 Gearing_i + \beta_5 Managerial\_Ownership_i + \beta_6 Payout_i + \beta_7 Non\_UK\_Shareholding_i + \beta_8 Size_i + \varepsilon_i \quad (1)$$

In equation (1) the dependent variable takes a value of one if the PIC is a

[7] The relatively small number of observations, common in taxation research biases, against finding statistical significance, even in the presence of economically significant effects (Brooks *et al.*, 2016).

subsequent convertor and a value of zero if it is a non-convertor. The independent variables comprise three groups, company level tax, shareholder level tax and non-tax costs and are formally defined in table three. Four company level tax related variables are employed: *Exempt_Income, Exempt_Gains, Deferred_Tax* and *Gearing*. The variables *Exempt_Income* and *Exempt_Gains* proxy the ongoing tax benefit of conversion (Goolsbee and Maydew, 2002). Because managers may delay property disposals until after conversion (Hodder *et al.*, 2003), the association between *Exempt_Gains* and, the likelihood of conversion and share price increase could be either positive or negative. A positive relation is expected between *Exempt_Income* and likelihood of conversion and share price increase.[8] The variable *Gearing* proxies the loss of tax relief on interest payments (Goolsbee and Maydew, 2002) with a negative association anticipated between *Gearing* and the likelihood of conversion and in turn share price increase. Finally, the variable *Deferred_Tax* proxies the potential tax saving on unrealized gains and comprises the aggregate net provided and unprovided deferred tax balances.[9] We would expect a positive association between *Deferred_Tax* and, the likelihood of conversion and share price increase. This variable is specific to the UK setting because in other jurisdictions, conversion normally involves a deemed taxable disposal (Goolsbee and Maydew, 2002).

*XXX TABLE THREE ABOUT HERE XXX*

The shareholder level tax related variable *Non_UK_Shareholding* is designed to proxy the tax cost of increased dividend payout. The higher the proportion of shares held by non-UK resident shareholders, the lower the cost to shareholders collectively of the change in tax characterization of dividends. We capture the effect of the non-

[8] As subsequently discussed, the variables in equation 1 are used to examine the cross-sectional variation in ARs and for expediency, we also discuss these hypothesised relationships in this section.

[9] These comprise primarily deferred tax on unrealized gains, other timing differences (typically accelerated capital allowances) and assets in the form of unutilized tax losses.

UK residence status using the variable *Non_UK_Shareholding* and hypothesize a positive association with the likelihood of conversion and share price increase.

Finally, we consider non-tax costs. The variable *Payout* measures the annual dividend payout ratio. The extent to which companies have to increase dividend payout represents a non-tax cost (Goolsbee and Maydew, 2002). We hypothesize a positive association between *Payout* and the likelihood of conversion and share price increase. We measure managers' willingness to convert as a function of their level of share ownership, *Managerial_Ownership.* We do not hypothesize the direction of association because of the contrasting effects of the incentive hypothesis and entrenchment hypothesis. Our last variable controls for company size using the variable *Size.* The variable controls for the costs of conversion, e.g. professional and regulatory, and to the extent they include fixed elements are regressive with respect to size (HM Treasury, 2005, Hansford and Hasseldine, 2012).[10,11]

We also report below further estimations based on revisions to this initial model to reflect managerial discretion on timing. Firstly, managers could anticipate the effects of the legislation (Hodder *et al.*, 2003) by delaying the realization of gains until after REIT conversion. We test for this possibility by replacing the variable *Exempt_Gains* with its lagged value *Exempt_Gains_PY*. Secondly, following the imposition of corporate income tax on previously untaxed Canadian income trusts, Doidge and Dyck (2015) found increasing levels of debt. Equivalently, in the REIT case, managers may reduce levels of debt in anticipation of the loss of corporate income tax relief on debt interest. We test for such adjustments by replacing the variable *Gearing* with its lagged value *Gearing_PY*.

[10] We do not explicitly control for the conversion charge. The inclusion of investment property income captures variations in the level of property holding. Further, the Pearson (Spearman) correlation coefficient of 0.708 (0.895) between total assets and investment properties supports using a single variable to capture the level of property investment (table 5).

[11] To remove potential scale effects (Barth and Kallapur, 1996, Horton, 2008), the non-ratio measures are deflated. Two bases of deflating are used, initially total assets and subsequently shareholders' equity. We highlight any differences between the total assets and shareholder equity deflated results. Full results of the equity deflated estimations are available from the authors upon request.

The necessary financial statement data was extracted from the companies' latest financial statements in the public domain at 22 March 2006. Data for the variables *Deferred_Tax*, *Exempt_Income* and *Exempt_Gains* was hand collected with the remaining financial statement data obtained via *Thomson Reuters Datastream* database. Data necessary to compile the two shareholder-related variables, *Managerial_Ownership* and *Non_UK_Shareholding*, was obtained from *Bureau van Dijk's FAME* database. Share price and index values were obtained from *Thomson Reuters Datastream* database.

*Shareholder Responses - Wealth Effects of Legislation*

To assess shareholders' ability to estimate the potential net benefits of conversion, we perform two analyses. Firstly, we compare the mean wealth effects of the subsequent convertors with those of non-convertors at each announcement date and then cumulatively over all announcements. Statistically significant differences in the level of ARs between the two groups would be consistent with an ability to predict or anticipate the net effects of the legislation. Secondly, we model the cross-sectional variation in companies' $ARs_{t0}$ and $CARs_{t0\_2}$ in terms of a range of variables hypothesized to capture the benefits and costs of conversion. We interpret a 'high' adjusted $R^2$ and coefficients with hypothesized signs as evidence of shareholders' understanding of the combined effects of the legislation and companies' REIT related characteristics.

We use the market adjusted model to calculate ARs (Strong, 1992, Horton and Serafeim, 2010, Edwards and Shevlin, 2011). By removing the wealth effect of other legislative changes captured by the market wide index (FTSE All-Share Index), the resulting ARs should reflect specific real estate related legislative changes. ARs are defined as follows:

$$AR_{i,t} = Ln\left[P_{i,t} \big/ P_{i,t-1}\right] - Ln\left[I_t \big/ I_{t-1}\right] \quad (2)$$

Where P = closing share price, I = closing FTSE All-Share Index and, *i* and *t* are individual company and time subscripts respectively. The mean daily ARs are then calculated as follows:

$$AAR_t = 1/n \sum_{i=1}^{n} AR_{i,t} \quad (3)$$

Where *n* is the number of companies. The mean AR captures the abnormal or unexpected return over the interval t-1:t in response to a particular REIT announcement. To allow for a delay in the response, cumulative average abnormal returns (CAARs) are estimated over a three day period t0, t+2 as follows: [12]

$$CAAR_{i,0,+2} = \sum_{t0}^{t+2} AAR_t \quad (4)$$

As the calendar dates of the majority of announcements are common to all PICs, their ARs are likely to be highly cross-sectionally correlated. In recognition, the c*rude dependence adjustment* (Brown and Warner, 1980, Edwards and Shevlin, 2011) is employed.[13] The resulting test statistic is defined as follows:

$$t = AAR_t / s \quad (5)$$

Where *s* is the standard deviation of the ARs over the comparison period defined as:

$$s = \sqrt{1/30 \sum_{t=-34}^{-5} (AR_t - \overline{\overline{AAR}})^2} \quad (6)$$

$$\text{with } \overline{\overline{AAR}} = 1/n \sum_{t=-34}^{-5} AR_t \quad (7)$$

The statistical significance of CAARs accumulated over T days is assessed using the following test statistic (Miles and Rosenfeld, 1983, Campbell *et al.*, 2010):

[12] The choice of accumulation period is subjective. The interval t0+2 days is commonly used, for example Edwards and Shevlin (2011).

[13] The adjustment is made by estimating the variance of the AARs across a 'comparison period', prior to the announcement on the assumption that in this earlier period, the level of cross-sectional correlation will be lower in the absence of a common event. Because of less than 30 trading days between 'announcement 4' and 'announcement 5', the variance estimate for 'announcement 5' uses the same calendar observations as used for 'announcement 4', thereby avoiding any overlap.

$$t = CAAR_T \Big/ \sqrt{T}_{.S} \quad (8)$$

The differences in CARs of subsequent-converters and non-converters are assessed using the following t-statistic (Miles and Rosenfeld, 1983, Campbell *et al*., 2010):

$$t = \frac{CAAR_{sc} - CAAR_{nc}}{\sqrt{T.(s_{sc}^2 + s_{nc}^2)}} \quad (9)$$

Where *sc* and *nc* refer to the subsequent-converters and non-converters sub-groups respectively and T is the number of days (three) in the CAAR accumulation period.

*Shareholder responses - modeling variation in wealth effect*

We examine the cross-sectional variation in ARs using the same set of independent variables used in equation (1) above. The focus is now on share price changes in contrast to the earlier examination of managers' decisions. The variables are described above and defined in table three.[14]

$$(C)AR_i = \beta_0 + \beta_1 Exempt\_Income_i + \beta_2 Exempt\_Gains_i + \beta_3 Deferred\_tax_i + \beta_4 Gearing_i + \beta_5 Managerial\_Ownership_i + \beta_6 Payout_i + \beta_7 Non\_UK\_Shareholding_i + \beta_8 Size_i + \varepsilon_i \quad (10)$$

## RESULTS

After a discussion of the descriptive statistics, the results are presented in three stages: *Managers' responses – modeling conversion decision; Shareholders' responses - wealth effects of legislation;* and *Shareholders' responses - modeling variation in wealth effect.*

Descriptive statistics for the variables used in equations (1) and (10) are reported in table four (panels A and B) along with univariate tests of differences between the sub-groups of subsequent convertors and non-convertors (panel C). Significant differences occur for three variables. On average, subsequent convertors

[14] As each announcement has the same calendar date for all companies, the Sefcik and Thompson (1986) estimation is employed to control for cross-sectional heteroscedasticity and cross-sectional dependence in the regression residuals (Edwards and Shevlin, 2011). We estimate the weighted returns over the period -30 to day -5 relative to the announcement day t0.

have higher levels of *Deferred_Tax*, lower levels of *Managerial_Ownership* and are bigger in *Size.*

*XXX TABLES FOUR and FIVE ABOUT HERE XXX*

Table five reports the Pearson (Spearman) correlations. The maximum absolute Pearson correlation is below a typically used threshold level of 0.8 to indicate serious levels of multicollinearity. Further, the condition number reported in table eight also indicate non-serious levels of multicollinearity (Hair *et al*., 2009).

*Managers' Responses – Modeling Conversion Decision*

The results of the logit model in equation (1) are shown in column 3 of table six. The overall model is significant at the 1% level (likelihood ratio 37.361, df. 8). The model correctly classifies 87.5% of the combined convertors and non-converters compared with an expected percentage of 50.75% on a random basis. The variables *Exempt_Income*, *Deferred_Tax*, and *Payout* are statistically significant and in accordance with their expected positive signs. The variable *Gearing* is significant with its expected negative sign. The variable *Managerial_Ownership* is negative consistent with the entrenchment effect dominating the incentive effect. The variable *Exempt_Gains* is negative and statistically significant. Neither *Non_UK_Shareholding* nor *Size* are statistically significant at the 5% level.

*XXX TABLE SIX ABOUT HERE XXX*

The greater number of significant variables in the model of managers' conversion decisions in comparison with those in the modeling of shareholder returns (as discussed subsequently) is consistent with the managers exhibiting a greater level of sophistication or understanding of the legislation and its effect on individual companies. This is to be expected given managers' superior access to company specific information. The lack of significance of the variable *Size,* in contrast to its significance in the modeling of $ARs_{t0}$ and $CARs_{t0\_2}$ (reported subsequently), suggests

managers do not rely on this broad company characteristic as a proxy. Instead, they rely on specific characteristics e.g. levels of gearing and payout.[15]

The negative sign of the variable *Exempt_Gains* in models I and III is consistent with *subsequent converters* having a lower level of realized gains in anticipation of tax free disposals following conversion.[16] The results of the model incorporating the two lagged variables *Exempt_Gains_PY* and *Gearing_PY* are reported in model II. The results are qualitatively the same as those for model I with the exception that the variables *Exempt_Gains_PY* and *Payout* are no longer significant.

With several significant bi-variate correlations involving the *Size* variable, we re-estimate the original model, model I, with the *Size* variable omitted. The results are reported as model III and are qualitatively identical to those of model I.

*Shareholder Responses - Wealth Effects of Legislation*

Consistent with the stated intention of 'revenue neutrality', no significant ARs occurred on any of the first six announcements. The only occurrence of significant ARs arose on 'announcement 7' ($CARs_{t0\_2}$: 0.023, t-statistic: 2.183 see table seven, panel A).[17,18] These significant CARs are based on all 40 PICs, when CARs are compared between the sub samples of subsequent-convertors and non-convertors the difference is not statistically different from zero (difference in $CARs_{t0\_2}$: 0.029, t-statistic: 1.651). On announcement day $t_0$, the subsequent convertors reported significant ARs ($ARs_{t0}$ 0.058: t-statistic 6.758) consistent with shareholders appropriately interpreting the legislation and its relevance to individual companies. Although non-convertors also experienced significant ARs ($ARs_{t0}$ 0.015: t-statistic

[15] The results based on the shareholder's equity deflated model are similar with two exceptions. *Payout* is no longer significant at the 5% level while the variable *Non_UK_Shareholding* is positive as hypothesized and significant at the 1% level of significance.

[16] In contrast, a univariate analysis reveals no difference in non-convertors' and subsequent convertors' levels of exempt gains in either year. Similarly, within year, neither of the differences are significant.

[17] Returns for the other announcements are included in appendix B.

[18] For none of the 12 announcements were there statistically significant ARs at $t_{-1}$ or $t_{-2}$. This result is consistent with no significant anticipation of a REIT wealth effect around any of the announcements.

3.005) suggesting a lack of ability to discriminate, the difference in ARs between the two groups on the day of the announcement is significant ($ARs_{t\_0}$ 0.058 = 0.015, t-statistic: 4.311). Over this shorter one-day period, there is evidence of shareholders distinguishing between the two groups, albeit both experiencing significant ARs. Across the three-day accumulation period, shareholders can only interpret the announcement as being beneficial for the sector in general.

*XXX TABLE SEVEN ABOUT HERE XXX*

The above analysis of $CARs_{t0\_2}$ assumes temporal independence of the ARs across the announcements. When the $ARs_{t\_0}$ and $CARs_{t0\_2}$ are combined for the nine announcements common to both subsequent convertors and non-convertors, the conclusion of a lack of discrimination still holds, see table seven panel B. Both groups experience statistically significant $ARs_{t\_0}$ (0.071 and 0.024 respectively) and $CARs_{t0\_2}$ (0.103 and 0.066 respectively). The difference is not statistically significant for either set of $ARs_{t0}$ or $CARs_{t0\_2}$, see table seven, panel B. For completeness, we report the returns combined over all 12 announcements for the group of subsequent-convertors, see table seven, panel C. The ARs and CARs are statistically significant at the 2.5% level ($CARs_{t0\_2}$ 0.096, t-statistic 2.447; and $ARs_{t\_0}$ 0.061, t-statistic 2.719).

The significant ARs occurring at announcement 7 can be examined in terms of the immediate economic significance of REIT conversion. The mean value of net deferred tax provisions (£406.7m) which can be released in the financial accounts on conversion, exceeds the mean conversion charge (£67.7m) paid by the subsequent convertors.[19] Across the sub-group of subsequent convertors, the ratio of deferred tax release (DTR) to conversion charge (CC) (DTR/CC) ranges from 2.97 to 8.16 with a mean value of 5.39 (see table four, panel A). The immediate effect of conversion is, therefore, an increase in accounting earnings as in all cases, the deferred tax release

[19] Details of deferred tax released and amount of conversion charge paid are disclosed in the financial reports for the year of conversion. Subsequent year's reports were checked for any adjustment.

exceeded the conversion charge.[20] For the subsequent convertors (non-convertors), when converted to monetary amounts, the individual companies' $CARs_{t0\_2}$ on 'announcement 7' range from -£3.750m (-£16.940m) to £596.610m (£45.360m) with a mean increase of £101.45m (£7.849m).[21] At the sector level, shareholders clearly evaluated the option to convert as being value increasing and strongly linked to companies' ability to realize previously unrealized gains free of company level taxation. Of course, the ARs would also reflect anticipated net benefit of future tax savings.

*Shareholder Responses - Modeling Variation in Wealth Effect*

This section models the $ARs_{t0}$ and $CARs_{t0\_2}$ arising on 'announcement 7', the only announcement for which statistically significant $CARs_{t0\_2}$ were observed.[22] In table eight, two sets of regressions are reported based on the model in equation (10). The dependent variables in models I and II are the $ARs_{t0}$ and $CARs_{t0:t2}$ respectively. Two further models, III and IV, are reported which differ from models I and II. The lagged values of exempt gains and gearing i.e. *Exempt_Gains_PY* and *Gearing_PY* are included in place of their respective current year values. The explanatory power of the two $ARs_{t0}$ models (models I and III) is higher than the $CAR_{t0\_2}$ models (models II and IV) with respective adjusted $R^2$s of 66.00% and 69.14% compared with 37.69% and 41.91%. The relative magnitudes suggest a more informed response by shareholders on the announcement day compared with the longer three-day accumulation period. A similar conclusion was drawn in the section *Shareholder Responses – Wealth Effects of Legislation* above.

*XXX TABLE EIGHT ABOUT HERE XXX*

[20] The likely cash flow saving may be lower to the extent that a company does not currently intend to dispose of the underlying assets.

[21] Occurring on the 2006 budget announcement ('announcement 7'), the changes in market value should have reflected the newly disclosed conversion charge.

[22] In subsequent tests of robustness, we examine the assumption that the 'announcement 7' returns are an unbiased measure of the overall wealth effect.

The following discussion will first examine models I and III where the dependent variable is $ARs_{t0}$. In both models, the tax variables *Exempt_Income, Deferred_Tax* and *Non_UK_Shareholding* are significant and consistent with the hypothesized positive sign. There is no evidence that tax relief on either debt interest (*Gearing*) or level of dividend (*Payout*) are significant factors in shareholders' evaluation of the benefits of conversion. The variable *Exempt_Gains* is not significant in model I. However, when instead the lagged value is included, as in model III, the coefficient is positive and significant. This difference in significance is consistent with shareholders anticipating that current values of *Exempt_Gains* could be a biased estimate of future levels of gains because of managers pre-empting the change of law (Hodder *et al*., 2003) by deferring disposals.

Higher levels of managerial ownership are significantly associated with lower $ARs_{t0}$ consistent with shareholders anticipating self-interested behavior of managers. The size variable (*Size*) is positive and significant consistent with costs of conversion being negatively associated with size notwithstanding the conversion charge being positively related to company size. Models II and IV where the dependent variable is $CAR_{t0:t2}$ show similar results to the above models with respect to the variables *Exempt_Gains*, *Gearing* and *Payout*. In the case of the variables *Exempt_Income*, *Deferred Tax* and *Non_UK_Shareholding*, the coefficients are of the hypothesized sign but are not statistically significant in either models II and IV.[23]

*Sensitivity tests*

Untabulated results indicate shareholders' responses to 'announcement 7' are independent of the cumulative level of returns on earlier announcements.[24] A related

[23] When instead of total assets as a deflator models I, II, III and IV are estimated using shareholders' equity, the following additional coefficients are now significant: model I *Gearing* (-ve), model II *Exempt_Income* (+ve), Model III *Gearing* (-ve) and model IV *Exempt_Income* (+ve) and *Deferred_Tax* (+ve). Full results are available from the authors upon request.

[24] Nested regressions of the models reported in table 8 with the inclusion of an additional variable measuring the accumulated $AR_{t0}$ or $CARs_{t0\_2}$ of the previous six announcements do not show any significant increases in the reported $R^2$s. Nested regressions are used to identify the incremental

question is whether shareholders anticipate companies' subsequent conversion decisions and any differential wealth effect when responding to 'announcement 7'. Two approaches are adopted to examine this possibility. Firstly, the inclusion of a dummy variable coded one for the subsequent-convertors and zero for non-convertors into each of the models reported in table eight, does not lead to any significant increases in the reported $R^2$s, see table eight. Secondly, we examine slope coefficient estimates for evidence of anticipation. With the relatively small number of observations, it is not appropriate to include slope dummies to capture differential effects of subsequent conversion. Instead, we test for differences in the slope coefficients collectively between the two groups, i.e. subsequent convertors and non-convertors. The F-statistic (chow test) is not significant at the 5% level in any of the four models. Shareholders do not appear to respond differently or discriminate between the non-convertors and subsequent-convertors at 'announcement 7'.

Secondly, to assess the extent to which shareholders' and managers' responses can be considered consistent with each other, we examine the relationship between the logit model classification, i.e. predicted converter or predicted non-convertor and shareholder responses. Regressing $ARs_{to}$ ($CARs_{t0,t+2}$) on probability of conversion (*pr*) based on logit model (1) resulted in adjusted $R^2$s of 39.82% and 27.24% respectively. There is, as expected, a positive relationship between the probabilities of conversion (*pr*) and in turn $ARs_{to}$ and $CARs_{t0,t+2}$. The $R^2$s are arguably lower than would be expected if managers and shareholders both interpret the same information similarly. We further examine the interrelationship between managers' and shareholders' decisions. We find no systematic relationship between companies' status as being misclassified by the logit model and the resulting $ARs_{to}$ and $CARs_{t0,t+2}$.[25]

change in explanatory power of each model following the inclusion of an additional variable. This approach is designed to avoid multicollinearity which could arise from prior ARs as a further independent variable. Results are available from authors upon request.

[25] Two subsequent convertors were classified as non-convertors by the logit model while three non-convertors were classified as convertors. Regressing in turn $ARs_{to}$ and $CARs_{t0,t+2}$ on two dummy

## CONCLUSIONS

Taxation has the potential to affect the outcome of decisions across a wide range of business activities. Against a setting of increasing complexity of tax legislation and tax administration, it is reasonable to question how managers and shareholders make sense of taxation. This concept is important in considering the effectiveness of regulation more widely beyond the field of taxation, e.g. financial reporting.

In summary, compared with shareholders, managers considered a wider range of tax and non-tax factors, implying both a greater understanding of the legislation and ability to assess its applicability. Further, managers appeared to pre-empt the effects of the legislation. The interaction between legislative pre-emption and managerial self-interest can have obvious adverse effects on the cost effectiveness of legislation. In an environment where cooperation between tax policy makers and tax payers is encouraged with the aim of facilitating appropriately formed legislation (HM Treasury, 2010), pre-emption is a topic worthy of further research.

We find shareholders can understand the general effect of the REIT legislation and show some sophistication by incorporating consequential non-tax factors in their analysis. In contrast to managers though, their ability is more limited at a finer level of analysis where, on average, they fail to form accurate expectations at the individual company level. Any limitation in interpreting the interaction between tax legislation and company characteristics raises concerns over the effectiveness of shareholders in acting as monitors of managers' tax decision making. Without an increase in shareholder sophistication, initiatives to increase disclosure of managers' tax

variables the first coded '1' for the two misclassified convertors and '0' otherwise, and the second coded '1' for the three misclassified non-convertors and '0' otherwise, resulted in insignificant coefficients for both variables. When $ARs_{to}$ and $CARs_{t0,t+2}$ were in turn regressed on five dummy variables, one for each misclassified company, none of the coefficients were statistically significant. These results indicate each misclassified companies' returns were no different from the average return. Results are available from authors upon request.

decisions, e.g. the UK statutory requirement for 'large' companies to publish their tax strategy (HM Revenue and Customs, 2016), may have limited effectiveness.

Revisions to financial reporting standards should be made that increase shareholders' ability to understand and, assess tax decisions and their tax and non-tax consequences (IASB, 2016b). Shareholders should be more demanding of the information they require from managers in evaluating companies' and their managers' performance (FRC, 2015, IASB, 2016b). This call has in part been addressed on their behalf by the recent IFRIC 23 — *Uncertainty over Income Tax Treatments* (IASB 2017) and HM Revenue and Custom's consultation on notification of uncertain tax treatment by large businesses (HM Revenue and Custom 2020).

While shareholders appear to be able to anticipate conflict between their interests and those of managers, this awareness does not appear to always impede or restrain managers acting in their own self-interest. This is surprising given the visibility of the REIT conversion option. Instead, shareholders appear to discount the price they are willing to pay as indicated by lower ARs. The willingness of managers to forego conversion at the apparent expense of shareholders is an example of how tax incentives can be frustrated by non-tax factors. When designing and evaluating tax incentives, policy makers need to consider measure to counteract non-tax costs.

Care should be exercised in judging whether the results have a more general application, because of, by necessity, the small population of companies available for examination. While future research could focus on settings with a higher number of observations with the potential for greater statistical power (Gelman and Carlin, 2014), suitable settings that cleanly identify the tax decision are rarely observed. Against this limitation, it can be countered that the industry setting examined in this paper is well defined in terms of activity and critically involved an explicit decision to participate, which was publicly observable by shareholders and managers.

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TABLE 1

SUMMARY OF REIT RELATED ANNOUNCEMENTS

Panel A. Policy and legislative announcements

| Number | Date | Publication | Description |
|---|---|---|---|
| 1 | 10/12/03 | 'Barker review of housing supply: Securing our future housing needs' (Barker Review, 2003) | Proposed consideration be given to introduction of REIT regime in the UK |
| 2 | 17/03/04 | 'Promoting more flexible investment in property: A consultation' (HM Treasury, 2005) | Confirmed the Government was considering introducing a tax revenue neutral REIT regime |
| 3 | 16/03/05 | 'UK real estate investment trusts: A discussion paper' (HM Treasury, 2005) | Confirmed, subject to resolving 'challenging issues' in the design of the tax treatment, Government's intention to introduce tax revenue neutral legislation in 2006 |
| 4 | 05/12/05 | 'Pre budget report' (HM Revenue and Customs, 2005a) | Intention to legislate was repeated |
| 5 | 14/12/05 | 'UK real estate investment trusts (UK-REITs) draft legislation' ( HM Treasury (2005b) | Set out the tax treatment of REITs but, again, as with the earlier announcements, did not give an indication of the nature or amount of any conversion charge |
| 6 | 27/01/06 | 'UK Real Estate Investment Trusts (UK-REITs) update of draft legislation' (HM Revenue and Customs, 2006b) | Draft legislation was updated |
| 7 | 22/03/06 | 'Budget Speech – A Strong and Strengthening Economy: Investing in Britain's Future' (HM Treasury, 2006) | Final confirmation to introduce legislation that year and disclosure of basis and amount of conversion charge. |
| 8 | 19/07/06 | Enactment of 2006 Finance Act | The Act covers excise duties, value added tax, income tax, corporation tax and capital gains tax. |
| 9 | 01/11/06 | 'Passing of REIT Statutory Instruments' (HM Revenue and Customs, 2006c) | Four statutory instruments (SI 2006/2864, SI 2006/2865, SI 2006/2866 and SI 2006/2867) |

Panel B. Company specific announcements

| Number | Date | Publication |
|---|---|---|
| 10 | Various | Circular to shareholders on change to Articles of Association |
| 11 | Various | Publication of the results of the EGM |
| 12 | Various | Conversion to REIT |

†Table 1 describes REIT related announcements by various parties.

TABLE 2

IDENTITY AND DATE OF COMPANIES CONVERTING TO REIT STATUS AND NON-CONVERTING

| Panel A. Converting companies | | Date of conversion |
|---|---|---|
| (1) | British Land | 01/01/2007 |
| (2) | Brixton | 01/01/2007 |
| (3) | Great Portland Estates | 01/01/2007 |
| (4) | Hammerson | 01/01/2007 |
| (5) | Land Securities | 01/01/2007 |
| (6) | Liberty International (changed name to Capital Shopping Centres Group and then to Intu) | 01/01/2007 |
| (7) | Primary Health Properties | 01/01/2007 |
| (8) | Slough Estates (now Segro) | 01/01/2007 |
| (9) | Workspace Group | 01/01/2007 |
| (10) | Big Yellow | 15/01/2007 |
| (11) | McKay Securities | 01/04/2007 |
| (12) | Shaftesbury | 01/04/2007 |
| (13) | Warner Estate Holdings | 01/04/2007 |
| (14) | Derwent London | 01/07/2007 |
| (15) | Mucklow (A & J) Group | 01/07/2007 |
| (16) | Town Centre Securities | 01/10/2007 |
| (17) | Highcroft Investments | 01/04/2008 |

| Panel B. Non-converting companies | |
|---|---|
| (1) | Capital & Regional |
| (2) | Cardiff Property |
| (3) | CLS Holdings |
| (4) | Countrywide |
| (5) | Daejan Holdings |
| (6) | Development Securities |
| (7) | D TZ Holdings |
| (8) | Fletcher King |
| (9) | Grainger |
| (10) | Helical Bar |
| (11) | London & Associated Properties |
| (12) | London Merchant Securities |
| (13) | Marylebone Warwick Balfour |
| (14) | Minerva |
| (15) | Mountview Estates |
| (16) | Panther Securities |
| (17) | Quintain Estates & Development |
| (18) | Savills |
| (19) | Smart (J) |
| (20) | St. Modwen Properties |
| (21) | Stewart & Wight |
| (22) | Teesland |
| (23) | Unite Group |

† Table 2 presents the list of 'converters' and the date of conversion, and 'non-converters'. All the above companies were included in the *FT-SE Real Estate Holding & Development* classification as at 31 December 2005.

TABLE 3

DEFINITION OF VARIABLES AND DATA SOURCES

| Abbreviation | Description | Source |
|---|---|---|
| REIT_Con | Coded 'one' if company converted to REIT status otherwise 'zero'. | Financial statements |
| Deferred_Tax | [Provided net† deferred taxation + unprovided net† deferred taxation] /total assets | Financial statements |
| Exempt_Income | Rental income/ total assets | Financial statements |
| Exempt_Gains | [Realized gains on investment properties recognized in IS + realized gains on investment properties recognized in equity]/total assets | Financial statements |
| Exempt_Gains_PY | As above using prior year observations | Financial statements |
| Gearing | Total debt *WC 03255* /equity *WC 03501*‡ | Worldscope database |
| Gearing_PY | As above using prior year observations | Worldscope database |
| Managerial_Ownership | [Number of directors' direct and indirect beneficial]/Number of shares in issue | Financial statements |
| Non_UK_Shareholding | Percentage of shares held by non-UK resident shareholders | FAME database |
| Payout | Dividend/profit after tax | Financial statements |
| Size | Natural log of total assets (equity *WC 03501*+ total debt *WC 03255*)‡ | Worldscope database |

† Table 3 presents the variable measurements and data sources.
‡ Liabilities minus assets.
§ *WC ****** = Worldscope code.

TABLE 4
DESCRIPTIVE STATISTICS

| Panel A. Subsequent-converters (sc) n=17 | Mean | Median | Standard deviation | Min | Max |
|---|---|---|---|---|---|
| Exempt_Income | 0.063 | 0.057 | 0.032 | 0.043 | 0.186 |
| Exempt_Gains | 0.017 | 0.015 | 0.020 | -0.010 | 0.068 |
| Exempt_Gains_PY | 0.012 | 0.005 | 0.017 | 0.000 | 0.058 |
| Deferred_Tax | 0.073 | 0.078 | 0.026 | 0.002 | 0.104 |
| Gearing | 0.727 | 0.638 | 0.454 | 0.046 | 2.063 |
| Gearing_PY | 0.746 | 0.739 | 0.356 | 0.000 | 1.529 |
| Payout | 1.394 | 0.558 | 2.694 | 0.197 | 11.360 |
| Managerial_Ownership | 10.000 | 4.510 | 12.910 | 0.024 | 40.432 |
| Non_UK_Shareholding | 10.254 | 8.350 | 11.526 | 0.000 | 38.710 |
| Size | 13.662 | 13.656 | 1.600 | 10.551 | 16.281 |
| Investment_Properties £M | 2,365.780 | 804.000 | 3,286.940 | 30.523 | 10,981.800 |
| Conversion charge (CC) £m | 67.674 | 27.610 | 92.962 | 0.668 | 315.000 |
| Deferred tax released (DTR) £m | 406.748 | 126.100 | 627.247 | 2.017 | 2,309.200 |
| Ratio of DTR: CC | 5.391 | 5.476 | 1.384 | 2.974 | 8.158 |
| Wealth effect announcement 7 £m | 101.453 | 18.939 | 174.400 | -3.750 | 596.610 |

| Panel B. Non-converters (nc) n=23 | Mean | Median | Standard deviation | Min | Max |
|---|---|---|---|---|---|
| Exempt_Income | 0.048 | 0.053 | 0.032 | 0.000 | 0.113 |
| Exempt_Gains | 0.031 | 0.012 | 0.046 | -0.013 | 0.189 |
| Exempt_Gains_PY | 0.022 | 0.004 | 0.044 | -0.007 | 0.161 |
| Deferred_Tax | 0.021 | 0.042 | 0.069 | -0.225 | 0.100 |
| Gearing | 0.934 | 0.494 | 1.215 | 0.000 | 4.214 |
| Gearing_PY | 0.938 | 0.528 | 1.354 | 0.000 | 5.189 |
| Payout | 0. 686 | 0.483 | 0.673 | 0.000 | 2.243 |
| Managerial_Ownership | 24.358 | 18.610 | 22.082 | 4.285 | 79.284 |
| Non_UK_Shareholding | 6.885 | 3.650 | 10.990 | 0.000 | 43.740 |
| Size | 12.233 | 12.481 | 1.620 | 7.817 | 13.945 |
| Investment_Properties £M | 278.802 | 87.812 | 365.590 | 0.000 | 991.460 |
| Wealth effect announcement 7 £m | 7.849 | 0.084 | 14.814 | -16.94 | 45.360 |

| Panel C. Differences between mean values | t-test | Mann Whitney |
|---|---|---|
| Exempt_Income | 1.518 | 166.00 |
| Exempt_Gains | -0.985 | 185.50 |
| Exempt_Gains_PY | -1.167 | 161.00 |
| Deferred_Tax | 3.019*** | 76.00*** |
| Gearing | -0.667 | 170.00 |
| Gearing_PY | -0.567 | 140.50 |
| Payout | 1.059 | 156.00 |
| Managerial_Ownership | -2.391** | 106.00*** |
| Non_UK_Shareholding | 0.939 | 147.50 |
| Size | 2.772*** | 112.00** |
| Investment_Properties £M | 2.606** | 71.00*** |
| Wealth effect announcement 7 £m | 2.573*** | 99.00*** |

† Panels A and B Table 4 present the descriptive statistics of independent variables used in the logit and regression models. Panel C Table 4 presents the univariate tests of differences between the sub-groups of subsequent convertors and non-convertors for each independent variable.
*, **, *** indicate significance at 5%, 2.5% and 1% respectively (two tailed). The variable descriptions are presented in Table 3.

TABLE 5

SPEARMAN AND PEARSON CORRELATION MATRIX

| | Exempt_ Income | Exempt _ Gains | Exempt_ Gains_PY | Deferred_ Tax | Gearing | Gearing _ PY | Payout | Managerial _ Ownership | Non_UK_ Shareholding | Size | Investment Properties |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Exempt_Income | | 0.114 | 0.068 | 0.321* | 0.194 | 0.285 | 0.067 | 0.465** | 0.004 | 0.199 | 0.522** |
| Exempt_Gains | 0.278 | | 0.252 | 0.075 | -0.124 | 0.059 | 0.264 | -0.046 | 0.122 | 0.049 | 0.83 |
| Exempt_Gains_PY | 0.146 | 0.279 | | 0.124 | -0.174 | -0.191 | 0.157 | 0.214 | -0.100 | -0.133 | 0.118 |
| Deferred_Tax | 0.329* | 0.198 | 0.204 | | -0.371* | 0.053 | 0.171 | 0.092 | -0.340* | 0.330* | 0.730** |
| Gearing | 0.373* | -0.059 | -0.154 | 0.033 | | 0.716** | -0.099 | -0.016 | 0.254 | 0.226 | -0.019 |
| Gearing_PY | 0.361* | 0.095 | -0.127 | 0.168 | 0.870** | | -0.098 | 0.131 | -0.003 | 0.280 | 0.160 |
| Payout | -0.030 | 0.023 | -0.110 | 0.045 | 0.063 | 0.060 | | -0.175 | -0.062 | 0.060 | 0.110 |
| Managerial_Ownership | 0.480** | -0.092 | -0.033 | -0.089 | -0.020 | -0.006 | -0.184 | | -0.341* | -0.322* | 0.00 |
| Non_UK_Shareholding | -0.017 | 0.138 | -0.093 | -0.126 | 0.475** | 0.367* | 0.101 | -0.394* | | 0.266 | -0.083 |
| Size | 0.146 | 0.170 | 0.109 | 0.393* | 0.511** | 0.596** | -0.001 | -0.44** | 0.474** | | 0.708** |
| Investment Properties | 0.302 | 0.161 | 0.258 | 0.536** | 0.391* | 0.511** | 0.136- | 0.381 | 0.353 | 0.895 | |

† Table 5 presents the coefficients of Spearman correlation (on the diagonal) and coefficients of Pearson correlation (on the off diagonal). The variable descriptions are presented in Table 3.
*, **, *** indicate significance at 5%, 2.5% and 1% respectively (two tailed).

TABLE 6

MANAGERS' RESPONSES - REIT CONVERSION

| Variable | Expected sign | Model I | Model II | Model III |
|---|---|---|---|---|
| Exempt_Income | + | 51.685<br>*2.14*** | 38.729<br>*2.65**** | 50.863<br>*2.19*** |
| Exempt_Gains | +/- | -108.716<br>*-3.16**** | | *-104.373*<br>*-2.85**** |
| Exempt_Gains_PY | +/- | | -18.830<br>*-1.85* | |
| Deferred_Tax | + | 62.73<br>*2.45*** | 55.995<br>*2.35**** | 64.506<br>*2.74**** |
| Gearing | - | -2.991<br>*-2.71**** | | -2.871<br>*-2.66**** |
| Gearing_PY | - | | -1.016<br>*-1.68** | |
| Managerial_Ownership | +/- | -12.834<br>*-2.28*** | -8.721<br>*-2.52*** | -13.495<br>*-2.39**** |
| Payout | + | 0.423<br>*1.72** | -0.09<br>*0.51* | 0.378<br>*1.45* |
| Non_UK_Shareholding | + | 22.015<br>*1.42* | 9.849<br>*1.09* | 0.225<br>*1.64* |
| Size | + | 0.168<br>*0.38* | 0.001<br>*0.01* | |
| Constant | + | -4.502<br>*-0.91* | -3.641<br>*-1.10* | -2.377<br>*-1.53* |
| Wald | | 25.06 (8) | 24.86 (8) | 22.40 (7) |
| likelihood ratio | | 37.361 (8) *** | 30.158 (8) *** | 37.296 (7) *** |
| N | | 40 | 40 | 40 |

† Table 6 presents the results of estimating the logit model. The variable descriptions are presented in Table 3.

‡ Dependent variable coded '1' if company subsequently converted to REIT status, '0' otherwise.

§ Percentage correctly classified (Percentage expected on random classification: 50.75%):
Model 1 - 87.5% (Percentage of subsequent-converters and non-converters correctly classified: 88.24% and 86.96% respectively*);*
Model II - 82.50%, (82.35% and 82.61% respectively); and
Model III - 87.50%, (88.24% and 86.96% respectively).

*, ** and *** indicate significant at 5%, 2.5% and 1% level respectively.

TABLE 7

SHAREHOLDER RESPONSES - WEALTH EFFECTS OF LEGISLATION

Panel A. Announcement 7 $ARs_{t0}$ and $CARs_{t0\_2}$

| | All companies (n=40) | | | Subsequent-converters (n=17) | | | | | | Non-converters (n=23) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | Median | Std. Dev | Mean | n>0 | Median | Min | Max | Std. Dev | Mean | n>0 | Median | Min | Max | Std. Dev |
| $ARs_{t0}$ | 0.034<br>*5.471****<br>*[4.311***]* | 0.029 | 0.037 | 0.058<br>*6.785**** | 16 | 0.049 | -0.003 | 0.123 | 0.039 | 0.015<br>*3.005**** | 15 | 0.012 | -0.024 | 0.063 | 0.024 |
| $ARs_{t1}$ | -0.007<br>*-1.060*<br>*[-1.721]* | 0.002 | 0.024 | -0.016<br>*-1.907* | 6 | -0.026 | -0.046 | 0.021 | 0.024 | 0.001<br>*0.157* | 16 | 0.002 | -0.032 | 0.033 | 0.015 |
| $ARs_{t1}$ | -0.004<br>*-0.630*<br>*[0.271]* | -0.008 | 0.014 | -0.002<br>*-0.269* | 5 | -0.008 | -0.021 | 0.025 | 0.013 | -0.005<br>*-0.987* | 6 | -0.008 | -0.025 | 0.011 | 0.008 |
| *$CARs_{0:t2}$* | 0.023<br>*2.183**<br>*[1.651]* | 0.018 | 0.030 | 0.040<br>*2.661*** | 16 | 0.036 | -0.004 | 0.091 | 0.031 | 0.011<br>*1.256* | 13 | 0.004 | -0.024 | 0.079 | 0.026 |

Panel B. Announcement 1 - 9 combined $ARs_{t0}$ and $CARs_{t0\_2}$

| | All companies (n=40) | | | Subsequent-converters (n=17) | | | | | | Non-converters (n=23) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | Median | Std. Dev | Mean | n>0 | Median | Min | Max | Std. Dev | Mean | n>0 | Median | Min | Max | Std. Dev |
| $ARs_{t0}$ | 0.044<br>*2.432*<br>*[1.734]* | 0.061 | 0.054 | 0.071<br>*3.233**** | 17 | 0.073 | 0.023 | 0.148 | 0.034 | 0.024<br>*1.340* | 14 | 0.036 | -0.136 | 0.110 | 0.058 |
| $CARs_{0:t2}$ | 0.082<br>*2.622***<br>*[0.792]* | 0.081 | 0.074 | 0.103<br>*2.728**** | 17 | 0.126 | 0.036 | 0.175 | 0.042 | 0.066<br>*2.122** | 19 | 0.077 | -0.174 | 0.238 | 0.088 |

Panel C. Announcement 1 - 12 combined $ARs_{t0}$ and $CARs_{t0\_2}$

| | Subsequent-converters (n=17) | | | | | |
|---|---|---|---|---|---|---|
| | Mean | n>0 | Median | Min | Max | Std. Dev |
| $ARs_{t0}$ | 0.061<br>*2.719*** | 15 | 0.062 | -0.069 | 0.275 | 0.074 |
| $CARs_{0:t2}$ | 0.096<br>*2.447*** | 17 | 0.083 | 0.034 | 0.255 | 0.060 |

† Table 7 presents the descriptive statistics and univariate analysis of average abnormal returns ($ARs_{t0}$) and cumulative average abnormal returns ($CARs_{t0:t2}$) by sub categories of subsequent-converters and non-converters.

‡Figures in italics are t-statistics $H_1$ $\overline{CAR} \neq 0$ and square brackets are t –statistics: $H_1$ $\overline{CAR}_{sc} \neq \overline{CAR}_{nc}$ respectively.

*, **, *** indicate significance at 5, 2.5 and 1% respectively (two-tailed).

TABLE 8

REGRESSION OF ANNOUNCEMENT 7 RETURNS - $ARs_{tO}$ AND $CARs_{t0,t+2}$ ON COMPANY AND SHAREHOLDER CHARACTERISTICS

| | Expected sign | Model I | Model II | Model III | Model IV |
|---|---|---|---|---|---|
| | | $AR_{t0}$ | $CAR_{t0: t2}$ | $AR_{t0}$ | $CAR_{t0: t2}$ |
| Exempt_Income | + | 0.163 | 0.147 | 0.148 | 0.140 |
| | | *2.78**** | *1.43* | *2.56**** | *1.32* |
| Exempt_Gains | +/- | -0.09 | -0.144 | | |
| | | *-1.23* | *-1.13* | | |
| Exempt_Gains_PY | +/- | | | *0.213* | 0.226 |
| | | | | *2.87**** | *2.41*** |
| Deferred_Tax | + | 0.150 | 0.116 | *0.160* | 0.940 |
| | | *2.92**** | *1.26* | *3.38**** | *1.44* |
| Gearing | - | -0.004 | 0.001 | | |
| | | *-1.33* | *0.02* | | |
| Gearing_PY | - | | | *-0.001* | 0.003 |
| | | | | *-0.43* | *0.63* |
| Managerial_Ownership | +/- | -0.066 | -0.036 | *-0.075* | -0.048 |
| | | *-4.53**** | *-1.32* | *-5.24**** | *-1.95* |
| Payout | + | -0.001 | 0.001 | *-0.002* | -0.001 |
| | | *-0.68* | *0.04* | *-1.54* | *-0.42* |
| Non_UK_Shareholding | + | 0.055 | 0.052 | *0.044* | 0.041 |
| | | *2.28*** | *1.46* | *1.96** | *1.19* |
| Size | + | 0.011 | 0.007 | *0.011* | 0.007 |
| | | *5.18**** | *2.23*** | *4.95**** | *2.12** |
| Constant | + | -0.109 | -0.074 | -0.114 | -0.079 |
| | | *-4.39**** | *-1.89* | *-4.35**** | *-1.89* |
| F-statistic | | 10.46*** | 3.95*** | *12.06**** | 4.52*** |
| | | (8, 31) | (8, 31) | (8, 31) | (8, 31) |
| Adjusted $R^2$ | | 66.00% | 37.69% | 69.41% | 41.91% |
| Incremental $R^2$ following inclusion of variable (C)$AR_{EV15/}$ | | 0.47 | 0.41 | 0.47 | 0.82 |
| | | (1, 30) | (1, 30) | (1,30) | (1,30) |
| Incremental $R^2$ following inclusion of variable *REIT_CON* | | 0.85 | 0.06 | 3.15 | 1.75 |
| | | (1, 30) | (1, 30) | (1, 30) | (1, 30) |
| Incremental $R^2$ following exclusion of variable *Size* | | 17.15*** | 5.55** | *19.78**** | 6.39** |
| | | (1,31) | (1,31) | (1, 31) | (1,31) |
| Condition number | | 2.84 | 2.68 | 2.84 | 2.68 |
| Shapiro-Wilk *W* | | 0.970 | 0.960 | 0.957 | 0.960 |

†Table 8 presents OLS regressions with Sefcik and Thompson (1986) standard errors.

‡ The variable descriptions are presented in Table 3.

*, ** and *** indicate significant at 5%, 2.5% and 1% level respectively.

Appendices

APPENDIX A

SUMMARY OF EFFECTIVE TAX RATES BY SHAREHOLDER TAX STATUS PRE AND POST CONVERSION TO REIT STATUS (Source Holland (2014), adapted from KPMG (2007))

| Shareholder | PRE REIT | | | | | REIT | | |
|---|---|---|---|---|---|---|---|---|
| | PBT | Corporation Tax (30%) | Income Tax on dividend | After Tax | Effective Tax Rate | PBT=PAT | Income Tax on PID | Effective Tax Rate |
| UK higher rate taxpayer | 100 | 30 | 17.5 | 52.5 | 47.5% | 100 | 40 | 40% |
| UK basic rate taxpayer | 100 | 30 | 0 | 70 | 30% | 100 | 22 | 22% |
| UK Pension Fund | 100 | 30 | 0 | 70 | 30% | 100 | 0 | 0% |
| Non-resident shareholder (non-treaty) | 100 | 30 | 0 | 70 | 30% | 100 | 22 | 22% |
| Non-resident shareholder (treaty country) | 100 | 30 | 0 | 70 | 30% | 100 | 15 | 15% |
| PEPs/ISAs/CTFs | 100 | 30 | 0 | 70 | 30% | 100 | 0 | 0% |
| Authorized unit trust/OEIC | 100 | 30 | 0 | 70 | 30% | 100 | 20 | 20% |
| UK corporate | 100 | 30 | 0 | 70 | 30% | 100 | 30 | 30% |

† Appendix A summarizes the effect of REIT legislation on various shareholder groups by tax status

‡ PBT=Profit before tax, PAT=Profit after tax, PID=Property income distribution, PEP=Personal equity plan, ISA=Individual savings account, CTF= Child trust fund, OEIC=Open-ended investment companies.

APPENDIX B

CUMULATIVE AVERAGE ABNORMAL RETURNS ($CARs_{t0:t2}$) BY ANNOUNCEMENT DATE AND BY SUB-CATEGORIES OF SUBSEQUENT-CONVERTERS AND NON-CONVERTERS

| | All companies (n=40) | | | (Subsequent-converters n=17) | | | | | Non-converters n=23 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Event | Mean | n>0 | Median | Mean | n>0 | Median | Min | Max | Mean | n>0 | Median | Min | Max |
| 1 | 0.018<br>*(1.523)*<br>*[-0.489]* | 34 | 0.008 | 0.013<br>*(0.934)* | 13 | 0.008 | -0.011 | 0.048 | 0.022<br>*(1.748)* | 21 | 0.008 | -0.013 | 0.121 |
| 2 | 0.002<br>*(0.248)*<br>[0.094] | 31 | 0.000 | 0.003<br>*(0.327)* | 12 | 0.002 | -0.057 | 0.041 | 0.002<br>*(0.174)* | 19 | 0.000 | -0.050 | 0.030 |
| 3 | -0.003<br>*(-0.429)*<br>*[-1.481]* | 19 | -0.004 | -0.013<br>*(-1.379)* | 4 | -0.011 | -0.040 | 0.014 | 0.004<br>*(0.622)* | 15 | 0.014 | -0.047 | 0.062 |
| 4 | 0.003<br>*(0.247)*<br>*[0.032]* | 21 | 0.002 | 0.003<br>*(0.247)* | 10 | 0.006 | -0.025 | 0.049 | 0.002<br>*(0.205)* | 11 | 0.000 | -0.032 | 0.046 |
| 5 | 0.013<br>*(1.159)*<br>*[1.112]* | 23 | 0.007 | 0.024<br>*(1.933)* | 13 | 0.018 | -0.016 | 0.074 | 0.005<br>*(0.381)* | 10 | -0.003 | -0.044 | 0.052 |
| 6 | 0.006<br>*(0.521)*<br>*[-0.020]* | 25 | 0.007 | 0.006<br>*(0.450)* | 13 | 0.008 | -0.040 | 0.026 | 0.006<br>*(0.487)* | 12 | 0.006 | -0.025 | 0.061 |
| 7 | 0.023<br>*(2.183*)*<br>*[1.651]* | 29 | 0.018 | 0.040<br>*(2.661**)* | 16 | 0.036 | -0.004 | 0.091 | 0.011<br>*(1.256)* | 13 | 0.004 | -0.024 | 0.079 |
| 8 | 0.009<br>*(0.762)*<br>*[-0.563]* | 24 | 0.006 | 0.015<br>*(1.015)* | 15 | 0.011 | -0.007 | 0.067 | 0.005<br>*(0.398)* | 9 | -0.005 | -0.098 | 0.141 |
| 9 | 0.012<br>*(1.014)*<br>*[0.188]* | 25 | 0.003 | 0.014<br>*(1.035)* | 11 | 0.006 | -0.016 | 0.066 | 0.010<br>*(0.908)* | 14 | 0.002 | -0.021 | 0.062 |
| 10 | | | | 0.002<br>*(0.440)* | 7 | -0.003 | -0.042 | 0.061 | | | | | |
| 11 | | | | 0.002<br>(0.300) | 9 | 0.057 | -0.042 | 0.001 | | | | | |
| 12 | | | | -0.012<br>*(-1.339)* | 3 | -0.014 | -0.064 | 0.057 | | | | | |
| 1 - 9 | 0.082<br>*(2.622**)*<br>*[0.792]* | 36 | 0.074 | 0.103<br>*(2.728***)* | 17 | 0.126 | 0.036 | 0.175 | 0.066<br>*(2.122*)* | 19 | 0.077 | -0.174 | 0.238 |
| 1-12 | | | | 0.096<br>*(2.556**)* | 17 | 0.089 | 0.026 | 0.198 | | | | | |

† Appendix C presents cumulative average abnormal returns by announcement date and by sub-categories of subsequent-converters and non-converters. ‡ Figures in curved brackets are t-statistics $H_1$ $\overline{CAAR} \neq 0$ and square brackets are t –statistics: $H_1$ $\overline{CAAR_{sc}} \neq \overline{CAAR_{nc}}$ respectively.

*, **, *** indicate significance at 5%, 2.5% and 1% respectively (two-tailed).