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PASS-THROUGH BUSINESS ENTITY CHOICE AND EARNINGS MANAGEMENT: EVIDENCE FROM UK REAL ESTATE INVESTMENT TRUST CONVERSION

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Abstract. This empirical study innovatively investigates how the choice of a pass-through business entity and corresponding regulatory regime influence firms' earnings management (EM) behaviors by testing on the UK Real Estate Investment Trust (REIT) conversion. A substantial proportion of UK non-REIT publicly traded property companies (LPCs) have chosen to become REITs since the UK REITs were launched in 2007. We conduct a series of tests on a database containing UK LPCs and REITs from 2000 to 2019 and find that conversion into pass-through business entity regimes like REITs that enjoy more favorable tax treatment but face more restrictions leads to more accrual earnings management (AEM) activity, but less real earnings management (REM) activity.

Keywords: pass-through entity, REIT, accrual earnings management, real earnings management, REIT regulatory regime.

Introduction

One of the reasons REITs have become attractive to investors and can achieve great success in global expansion is that they are treated as a pass-through entity, meaning that they exist outside the scope of corporate income tax in most countries (Niskanen, 2012; Edwards, 1999). In the last decade, numerous countries in Asia and Europe have established REIT markets. For example, many UK non-REIT publicly traded property companies (LPCs) have chosen to become REITs since the UK announced its REIT regime in 2005 and launched it in 2007. In the present study, we call this choice and phenomenon REIT conversion. After non-REIT publicly traded property companies (LPCs) are converted into REITs, their income is not taxable. However, to secure and maintain REIT status, the UK publicly-traded corporations must comply with the requirements of the REIT-specific regulatory regime, which is summarized in Table 1. In order to fit in this regulatory regime for REITs and maintain the pass-through entity status, REITs are highly motivated to trim their disclosed financial information to comply with the requirements above in REITs regulatory regime.

Existing literature has investigated the unique market performance of pass-through entities like REITs compared to other publicly traded firms, suggesting that REITs use specialized managerial approaches (Zhang et al., 2021; Derwall et al., 2009; Glascock et al., 2000). However, very little research has been conducted to investigate the different managerial behaviors, especially financial disclosure behaviors in this field (Deng & Ong, 2018; Liang & Dong, 2019). More importantly, whether and how the favorable treatment and corresponding restrictions of pass-through entities like REITs influence the financial disclosure behavior remains unexplored in the literature. This research aims to close these knowledge gaps.

This research focuses on earnings management (EM) behavior, which is one important aspect of financial disclosure behavior and is defined as the designation of the managerial approaches used to control disclosed financial

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information (Jones, 1991). Previous research suggests inconsistent implications for how the choice of real estate investment entity and the corresponding regulatory regime influence earnings management (EM) behavior (Liang & Dong, 2019). For example, their strict regulatory regime can prevent REITs from engaging in business activities to affect disclosed information. As a result, REITs are likely to be limited in engaging in Real Earnings Management (REM)–engaging with business activities, compared to non-REIT publicly traded real estate corporations (Anglin et al., 2013; Bianco et al., 2007). Meanwhile, these strict requirements and tax benefits as pass-through entities motivate the firms to trim their financial reports to comply with REIT regulations (Edelstein et al., 2008), thus using more Accrual Earnings Management (AEM) since REM approaches are less applicable for REITs to use. Therefore, REITs are likely to engage with more AEM and less REM than non-REIT publicly traded real estate corporations because of the REITs' specific regulatory regime. Further, the non-REIT publicly traded real estate corporations that want to convert into REITs status are motivated to adopt earnings management activities to trim their disclosed financial information to fit in the REITs regulatory regime before and after the REITs conversion.

We adopt a series of empirical tests using the Difference-In-Differences (DIDs) approach, propensity score matching, and entropy balancing matching to test these hypotheses. These empirical tests are performed on unbalanced panel data containing accounting information for all non-REIT publicly traded (i.e., listed) property companies (LPCs) and REITs in the UK from 2000 to 2019. We find that REITs engage in more accrual earnings management (AEM) but less real earnings management (REM) than non-REIT LPCs in general. Further, the DIDs test shows that conversion into REITs state leads to more AEM and less REM. Also, we find that non-REIT LPCs adopt more AEM to trim the financial report to fit in the REITs regulatory regime one year before the conversion happens than other non-REIT LPCs that do not convert to REITs. These test results pass a series robustness test on propensity-score-matched and entropy balanced samples, which further control the differences between control and treatment groups.

These findings imply that the strict requirements of the REIT regulatory regime, constraining the business activities of REITs, restrict the capacity of conducting REM, but the tax benefits as REITs motivate the REITs to adopt more AEM. Moreover, publicly-traded corporations must consider the requirements of the REIT-specific regulatory regime when disclosing their financial information during and after the REIT conversions. Thus, the influences of REIT-specific regulatory regimes are mixed into the disclosed financial information both during and after REIT conversion. Such influences can impair the quality of financial disclosures. These findings contribute to the broad literature on finance and accounting by showing how the tax benefits as a pass-through entity and corresponding restrictions on business activities will prevent firms from using REM approaches and force them to use AEM approaches. In addition, this research can contribute to the broad literature in mainstream accounting and finance because it sheds light on earnings management behavior surrounding important legal issues for the choice of business entity when the taxation environment changes and a new optional business entity is available. Last but not least, this study helps investors and auditors make adjustments for and improve the quality of their interpretations of information disclosed by a pass-through entity like REITs that enjoy tax benefits but face restricted regulation as a consequence.

The rest of the paper is constructed as follows. The following section introduces the UK REIT market. Then the next section on literature reviews the related literature on EM and discusses how real estate investment entities' choices may affect EM. Next, the section on research design presents the treatment effect estimators and develops our testing models. Next, the section on data description and empirical findings describes the sample data and presents our empirical test results. Finally, we provide concluding remarks in the final section.

1. UK REITs market

The UK REIT was established on 1 January 2007 by the Finance Act 2006. On 1 January 2007, nine companies elected to become REITs, and the number of REITs has increased substantially since then (Brounen & De Koning, 2012; Baum & Devaney, 2008). By the end of June 2019, the total number of UK REITs reached 53, and the total market cap was 58.54 EUR billion, representing 5.27% of the global REIT market cap (European Public Real Estate Association, n.d.). The UK REIT market is the largest in Europe in terms of size and number of REITs (Wong, 2021) and the fourth-largest globally in terms of market cap (Newell & Marzuki, 2016). They span various property sectors, including industrial, office, residential, retail, specialty, hotel, and lodging real estate. The following is observed through London Stock Exchange Group (n.d.). Industrial and Office REITs are the largest sub-sector with over $30 billion market cap. The sub-sector with the highest number of REITs is diversified, implying the importance of diversification strategy in risk reduction for UK REITs. The lowest number of REITs is in the hotel and lodging sub-sector. The smallest market cap is observed in the residential sub-sector. Retail and specialty sub-sectors both sit slightly above a $10 billion market cap. Industrial and office REITs show the largest average size (market cap) of REIT among other sub-sectors.

Besides its significance of size, we choose to focus on the UK REIT market in this empirical research study because a substantial amount of UK non-REIT LPCs were converted into REITs following the introduction of the UK REIT on 1 January 2007. The total number of non-REIT LPCs (including corporations that are not later converted into REITs) is not significantly higher than the number of REITs. For example, the number of observations in our test sample is 1,156, in which the number of observations of REITs (year-firm) takes 34%.

Table 1. Regulatory environment comparison between non-REIT LPCs and REITs in the UK

	Non-REIT LPCs	REITs
Income composition requirement	No	At least 75% of a REIT's net profits must be derived from the property rental business
Asset composition requirement	No	(1) At least 75% of a REIT's assets must be used in the property rental business (2) A UK REIT must hold at least three separate assets directly, and no one asset can exceed 40% of the market value of the total portfolio
Leverage ratio requirement	No	The property profits must be at least 1.25 times the property financing costs
Profit distribution obligations	No	90% of the income from the property rental business must be distributed within 12 months of the end of the accounting period
Capital gains treatment requirement	No	Gains arising from the disposal of real estate will count as a bad asset for the balance of business asset test if the cash receipt is not either reinvested or distributed within two years of disposal

Note: This report summarizes the differences of the regulatory regimes between REIT and non-REIT LPCs in the UK.

Further, publicly traded corporations in the UK can benefit from converting into REITs by gaining tax advantages as a pass-through entity. However, publicly traded corporations need to comply with the restrictive REIT-specific regulatory regime in the UK, summarized in Table 1, to achieve and maintain REIT status. The conditions to become a UK REIT are shown as follows. For example, UK REITs face restrictions on business activities and investments. At least three investment properties must be held. At least 75% of a UK REIT's net profits must come from rental income based on operating properties (Clark et al., 2010, p. 41). Additionally, at least 75% of a REIT's assets must be used in the property rental business[1]. No single asset may exceed 40% of the total assets. Moreover, property profits must be at least 1.25 times the financing costs. Development for investment is permitted but subject to tax charge if a sale happens within three years of completion. Finally, 90% of the income from the property rental business must be distributed within 12 months of the end of the accounting period. A conversion fee of 2% of the market value of eligible assets is to be paid (Clark et al., 2010). Conversion rules have changed in 2012 (Wong, 2021). The conversion fee has been abolished. The conversion fee is considered a sunk cost. It does not affect the general results of the present analyses. Empirical evidence will reveal REITs' choices on earnings management. The change of conversion rules does not affect the general results of the study. French REITs regime was introduced four years earlier than the UK REITs regime (Clark et al., 2010). The application of the French REITs regime is flexible and simple compared to the UK REITs regime. UK LPCs face more restrictive conditions to become REITs than France property companies. Upon conversion, an exit tax instead of a conversion fee is paid in France (Clark et al., 2010). In order to fit in this UK REITs regulatory regime and maintain the pass-through entity status, REITs are highly motivated to trim their disclosed financial information to comply with these regulatory regime requirements.

2. Literature review and hypothesis development

Existing literature has investigated the importance of financial risk for the property industry in the UK context. For example, Barkham and Geltner (1996) study evidenced the association between the housing market return and listed property companies' performance. Also, previous literature studying the UK market found that the risk of the financial system had a significant impact on the housing value (Bhattacharya-Mis & Lamond, 2016; Kunze et al., 2020; Muellbauer & Murphy, 1997; Pain & Westaway, 1997) the housing cycle (White, 2005; Jadevicius et al., 2017) and property finance (Kara et al., 2021). Financial risk is associated with the information asymmetry theory, which focuses mainly on the efficiency of the macroeconomy where different participants have different levels of information (Healy & Palepu, 2001). One of the most common research topics in this field relates to literature in corporate finance that aims to improve the quality of financial information disclosure for listed firms. Modern corporations usually separate ownership and management, and the information gap between managers and stakeholders induces financial risk (Laffont & Martimort, 2009). To align the interests of managers, shareholders seek to establish a risk-sharing relationship with managers by using a corporate-performance-based salary contract for managers (Jensen & Meckling, 1976). However, these mechanisms are far from perfect, and the agent-principal problem still exists. For example, managers could utilize these mechanisms with management discretionary power and information advantages to speculate on the financial market for personal gain (Burns & Kedia, 2006). Our research aims to contribute to the discussion on alleviating the financial risk and enhancing transparency by improving the business entity choice.

[1] Cash from sales held up to 24 months can be considered as the equivalent of the property for the purpose of 75% asset test for UK REITs, in accord with Clark et al. (2010).

Earnings management (EM) is the general designation of managerial approaches managers of publicly traded corporations use to influence disclosed financial information (Richardson, 2000; Sloan, 1996). According to the literature, EM approaches can be classified into accrual earnings management (AEM) and real earnings management (REM). AEM is achieved through the discretionary choice of accounting methods to influence accrual items (Cheng & Warfield, 2005; Degeorge et al., 2005). Real earnings management (REM) is achieved by exercising discretionary judgments in various business activities to influence the disclosed financial information (Deng & Ong, 2018; Cohen & Zarowin, 2010; Cohen et al., 2008; Li, 2019). A substantial amount of existing research has confirmed that publicly traded corporations engage in EM activities for various purposes. These include: meeting analyst forecasts or avoiding reporting losses (Burgstahler & Dichev, 1997; Degeorge et al., 2005), embellishing financial reports to attract investors when raising capital (Aharony et al., 1993), smoothing the dividend payouts (Ooi, 2001), seeking higher managerial compensation (Cheng & Warfield, 2005), and complying with regulatory requirements (Edelstein et al., 2008). Therefore, a greater use of EM, especially AEM, by publicly traded corporations implies lower earnings quality since EM modifies publicly-traded firms' disclosed financial information rather than changing their fundamental business conditions.

Business entity management is important alongside accounting guidelines, and the choice of business entity is affected by its attraction to investors and favored tax situation (Franklin, 2015, pp. 573–574). The choice of business entity can be complicated, and the different amounts of income tax based on different business entities can be phenomena (Borden, 2018; Anglin et al., 2011). There have been misclassification cases under the pass-through business entity, reducing tax payment but bringing up legal issues (Burke, 2019). Therefore, the choice of business entity has been sensitive to the taxation environment. Further, Wong (2021) found that the conversion into REITs status leads to a significant increase in institutional ownership and institutional investor in the UK. However, the research of Wong (2021) did not control for the time-variance confounding factors with static panel regression models, which may lead to overestimating the conversion's impact. Further, existing literature has evidenced that increased institutional ownership leads to more accrual earnings management and less real earnings management (Koh, 2003; Sakaki et al., 2017), consistent with our following hypothesis. Conversion into REITs should lead to a change in earnings management, considering that meeting the requirement of the tax regime for REITs motivate publicly traded corporations to manage earnings.

According to Table 1, publicly-traded corporations must comply with strict requirements regarding income composition, asset composition, and leverage ratios to become or maintain REIT status (Baum & Devaney, 2008). However, existing literature has confirmed that fundamental business factors should determine REITs' optimal asset composition, income composition, and leverage ratio. These factors include market price (Chan et al., 2005), asset liquidation value (Giambona et al., 2008; Danielsen et al., 2014), market-to-book value (Feng et al., 2007), financing cost and risk (Ooi, 1999; Sha et al., 2020), global fund flow (Dong, 2012), and economic circle (Lee et al., 2016; Ruddock & Ruddock, 2014). Thus, REITs are motivated to use EM approaches to trim their financial reports to fit REIT regulations. Moreover, once they have done so, they can gain tax advantages. This assumption is supported by Edelstein et al. (2008) research, who proved that REITs utilize EM approaches to control the value of reported earnings to meet the 95% dividend payout ratio requirement. Therefore, publicly traded corporations are likely to use EM approaches to trim their financial reports to meet the regulatory requirements of the REIT regime after they convert into REITs.

Complying with specific requirements in the REIT regulatory regime motivates firms to adopt EM approaches in different directions. For example, Edelstein et al. (2008) found that meeting the dividend payout requirement motivates REITs to reduce earnings using negative EM approaches. By contrast, the income composition constraint motivates REITs to boost rental income by using positive EM approaches since at least 75% of a REIT's net profits must come from property rentals. Consequently, we cannot develop a consistent hypothesis regarding how the directions of EM use will change due to the REIT conversion. Thus, we focus on testing the change of magnitude of using EM approaches caused by REIT conversion in this research.

We anticipate that firms need to use EM to manipulate their financial disclosure to comply with the REIT regulatory regime during and after their REIT conversions. Meanwhile, REITs are required to manage their property assets passively according to the REIT regime. Thus, they are restricted regarding their business activities, such as real estate development and asset management and transactions. Therefore, REITs should be more constrained than non-REIT LPCs regarding REM use. Furthermore, therefore, REITs should use less extent of REM. Thus, to control the financial disclosure to comply with the REIT regulatory regime, REITs will need to use more AEM approaches than non-REIT LPCs, considering the restricted REM use. Given these assumptions, we propose the following hypothesis:

Hypothesis: Firms engage in less REM approaches after conversion into a pass-through entity like REITs, but engage in more AEM during and after the conversion.

3. Research design

3.1. Accrual earnings management (AEM)

Previous literature suggests that EM measurements can break down into two categories: accrual earnings management (AEM) and real earnings management (REM). AEM is defined as the discretionary managerial judgment

used to choose accounting methods dealing with accrual items in financial reports and to influence disclosed financial information (Dechow et al., 1995). The extent of AEM is measured by the discretionary accrual, which is the amount of accrual that cannot be explained by a company's fundamental performance or economic condition. Jones et al. (2008) and Kothari et al. (2005) developed the modified Jones Model based on the work of Jones (1991) and Degeorge et al. (2005) to estimate the discretionary accrual as the measurement of AEM. The modified Jones models that used to estimate the AEM has been the standard procedure in the research of accounting and finance, and they have been adopted by existing literature of REIT to estimate the AEM as below (Ambrose & Bian, 2010; Anglin et al., 2011; Anglin et al., 2013; Liang & Dong, 2019; Zhu et al., 2010):

$$TAccrual_{i,t} = \beta_0 + \beta_1\left(1/TA_{i,t-1}\right) + \beta_2\left(\Delta REV_{i,t} - \Delta AR_{i,t}\right) + \beta_3 PPE_{i,t} + \beta_4 ROA_{i,t} + \varepsilon_{i,t}; \quad (1)$$

$$TAccrual_{i,t} = \beta_0 + \beta_1\left(1/TA_{i,t-1}\right) + \beta_2\left(\Delta REV_{i,t} - \Delta AR_{i,t}\right) + \beta_3 PPE_{i,t} + \beta_4 ROA_{i,t-1} + \varepsilon_{i,t}, \quad (2)$$

where "*TAccrual*" is the total accruals of the firm "*i*" in year "*t*" scaled by the total assets of the previous year for a firm, total accruals are the difference between income before extraordinary items and operating cash flows. "*TA*" is the total assets of a firm. "Δ*REV*" is the annual change in sales revenues, scaled by the previous year's total assets of the firm. "$\Delta AR_{i,t}$" is the annual change of receivable, scaled by the previous year's total assets. "*PPE*" is the gross property, plant, and equipment scaled by the previous year's total assets. "*ROA*" is income before extraordinary items, scaled by the previous year's total assets of a firm. We adopt Equations (1) and (2) with ROA and one year lagged ROA respectively to estimate two error terms are the two measurements of discretionary accrual for the following tests for more robust results.

3.2. Real earnings management

Besides AEM, literature also defines Real Earnings Management (REM) as managing approaches to discretionally alter financial reports in managers' preferred way (Cohen et al., 2008; Cohen & Zarowin, 2010; Gunny, 2010). The accounting literature suggests that REM approaches can break down into three types according to specific activities (Cohen et al., 2008; Cohen & Zarowin, 2010; Keating & Zimmerman, 1999). These three types of REM approaches are introduced in the literature review section.

In this research, we follow the previous literature to estimate and test REM through revenue manipulation only because administrative expenditure is marginal for REITs and real estate asset transaction is not disclosed for UK REITs and LPCs in the database we use. We develop the models based on the literature of Anglin et al. (2013), Edelstein et al. (2008), Deng and Ong (2018), and Liang and Dong (2019) to estimate the abnormal revenue (REV) as the measurements of real earnings management through discretionary control of sales in the context of REIT:

$$REV_{i,t}/TA_{i,t-1} = \alpha_0 + \beta_1 \times \left(1/TA_{i,t-1}\right) + \beta_2 \times MTB_{i,t-1} + \beta_3 \times \Delta REV_{i,t}/TA_{i,t-1} + \varepsilon_{i,t}; \quad (3)$$

$$REV_{i,t}/TA_{i,t-1} = \alpha_0 + \beta_1 \times \left(1/TA_{i,t-1}\right) + \beta_2 \times MTB_{i,t-1} + \beta_3 \times CFO_{i,t}/TA_{i,t-1} + \varepsilon_{i,t}, \quad (4)$$

where "*REV*" is the revenue, and "*MTB*" is the market-to-book ratio. Equations (3) and (4) estimate the abnormal "*REV*" based on the error term that cannot be explained by the fundamental conditions of the firms and can be influenced by REM through sales manipulation. We use the error terms in Equations (3) and (4) as the measurements of REM in the following tests.

3.3. Different earnings management between REITs and non-REIT LPCs

We firstly adopt a regression model to investigate whether the difference in REIT statuses leads to the difference in earnings management. We use the dummy variable "*DREIT*" to identify whether observations are REITs or not and then regress this dummy variable against the EM measurements with other control variables.

$$EM_{i,t} = \alpha + \beta_1 \times \left(DREIT_{i,t}\right) + x'_{i,t}\,\theta + \gamma_t + \varepsilon_{i,t}, \quad (5)$$

where "*EM*" stands for the absolute term of AEM and REM measurements in the natural log, and the coefficient "β_1" is the estimated impact of having REIT status on EM measurements. The choice of control variables "$x'_{i,t}$" is consistent with previous literature (Ambrose & Bian, 2010; Anglin et al., 2013; Liang & Dong, 2018; Liang & Dong, 2014; Liang et al., 2021) and they include total asset "*Size,*" leverage ratio "*LVR,*" change in operating income "*ChangeOI,*" the market-to-book value "*MTB,*" change of revenue "*ChangeREV,*" change of total asset size "*ChangeSize,*" cash from Operation "*CFO,*" and a dummy variable indicating if the firm suffers from loss "*Dloss.*" We also include dummy variables "*DGFC*" and "*IFRS*" to control for the impact of GFC and IFRS adoption. Finally, we control for year fixed effect "γ_t" and cluster the error term on firm-level in the model.

3.4. Impacts of REIT conversion on earnings management

We consider the conversion into REIT as the treatment performed to the company and investigate how this treatment affects the earnings management using a difference-in-differences (DIDs) design. In this DIDs design, we consider all the firm-year observations of the firms that were ever converted into REITs as the treatment group and the rest of firm-year observations of the firms that have never been converted into REIT as the control group. We identify two treatment periods. The first treatment period is after the firm is converted into REIT. The second treatment period is the year before the firm is converted into

REIT, and the second treatment period can capture how the firm adjusts its earnings management before the REIT conversion. The treatment effect, the REIT conversion, is captured by the interaction terms between the treatment group dummy variable and the treatment period dummy variable. The DIDs approach can effectively control the endogeneity and omitted-variable biases because the treatment group dummy variable controls the differences between the control and treatment groups (Koo & Liang, 2021). The DIDs model is developed as below.

$$EM_{i,t} = \alpha + \beta_1 \left(Treatment\ Group_i \times After\ Conversion_i \right) + \beta_2 \left(Treatment\ Group_i \times One\ Year\ Before_i \right) + \beta_3 (Treatment\ Group_i) + x'_{i,t}\,\theta + \gamma_t + \varepsilon_{i,t}, \quad (6)$$

where the "*Treatment Group*" is a dummy variable indicating whether the firm-year observations belong to the firms that have ever converted into REIT in our sample period. For example, the Big Yellow Group converted into REIT in 2007; all the firm-year observations of Big Yellow Group belong to the treatment group, including the observations of Big Yellow Group before 2007. "$After\ Conversion_i$" is a dummy variable indicating the period after REIT conversion of the firm "i." "$One\ Year\ Before_i$" is a dummy variable indicating one year before the firm i was converted into REIT. If firm i has never been converted into REIT throughout the sample period, then both the "$After\ Conversion_i$" and "$One\ Year\ Before_i$" are equal to 0 for all the firm-year observations of firm i. Finally, the choice of control variables "x'" and the fixed effect setting is the same as Equation (5).

4. Data description and measurements of earnings management

The data used in this research were downloaded from the Data Stream and Compustat databases. The database contains accounting information for all the UK non-REIT LPCs and REITs from 2000 to 2019. The total number of observations is 1,156, of which non-REIT LPCs represent 705 and REITs represent 451. All the variables in the database were winsorized at 0.5% before running the regression models to eliminate outliers. Table 2 summarizes the variables used to estimate these EM measurements.

We follow the literature to run Equations (1) to (4) for each year using a cross-sectional model with robust standard errors ruling out any possible heteroscedasticity to estimate the AEM and REM measurements. The estimated EM measurements and other covariates in Equation (5) and Equation (6) are summarized in Table 3 below. Further, Table 4 presents the correlation coefficients of all these variables.

According to Table 3, the mean of "*DREIT*" is 39%, meaning the number of firm-year observations of REITs takes 39% of the whole sample, which is 451. The statistical description of estimated AEM and REM measurements (absolute value in natural logarithm) are consistent with the previous literature (Liang & Dong, 2019). According to Table 4, the estimated measurements of AEM are positively correlated with the "*DREIT*," while estimated REM is negatively correlated with "*DREIT*." These correlation coefficients suggest that REITs use more AEM and less REM, and this finding is consistent with our hypothesis. We will conduct more sophisticated tests to validate that in the following sections.

5. Main test results

This section firstly analyzes the test results of Equation (5) which estimates whether and how the measurements of earnings managements of REIT are different from non-REIT LCP. We present the test results in Table 5. In Table 5, "*AEM*1" and "*AEM*2" are the measurements of accrual-based earnings management estimated by Equations (1) and (2), respectively, and "*REM*1" and "*REM*2" are the measurements of real earnings management estimated by Equations (3) and (4). Coefficients of "*DREIT*" are positive (41.0% to 83.6%) and statistically significant on at least 5% for a model explaining the magnitude of conducting accrual-based earnings management ("*AEM*1" *and* "*AEM*2").

Table 2. Summary of variables for EM measurement estimations

Variable	Definition	No.	Mean	Std. Dev.	Min	Max
Earnings	Net income before extraordinary income scaled	1,073	0.04	0.36	–2.60	10.10
CF	Net cash flow from operation scaled	1,072	–0.01	0.53	–12.69	1.39
TAccrual	Total accrual scaled	1,072	0.05	0.61	–0.89	13.56
TA	Total asset in log	1,156	12.40	2.41	2.77	18.70
REV	Revenue scaled	1,073	0.27	0.47	–0.16	3.49
PPE	Property, plant and equipment scaled	1,032	0.64	0.53	0.00	7.59
REC	Account receivable	1,068	0.07	0.14	0.00	2.63
ROA	Return on asset	1,073	0.04	0.36	–2.60	10.10
MTB	Market to book ratio	1,073	0.04	0.36	–2.60	10.10

Note: This table provides the statistical description of the variables in Equation (1) to Equation (4) which are used to estimate the AEM and REM measurements.

Table 3. Summary of EM measurements and other variables

Variable	Definition	No.	Mean	Std. Dev.	Min	Max
*AEM*1	Measurement of accrual EM in logarithm form of absolute value	1,027	–0.68	1.40	–6.95	5.23
*AEM*2	Measurement of accrual EM in logarithm form of absolute value	953	–0.07	1.19	–7.07	5.25
*REM*1	Measurement of real EM in logarithm form of absolute value	1,034	1.17	0.83	–4.38	3.92
*REM*2	Measurement of real EM in logarithm form of absolute value	1,033	1.16	0.84	–4.09	3.93
DREIT	Dummy variable indicating REIT statues	1,156	0.39	0.49	0.00	1.00
Leverage	Leverage ratio	1,155	0.44	0.35	0.00	8.75
Size	Total asset in log	1,156	12.40	2.41	2.77	18.70
MTB	Market to book ratio	1,095	0.87	2.53	0.01	52.48
ChangeOI	Change in operating income scaled	991	0.02	0.15	–0.73	3.44
ChangeRev	Change of revenue scaled	1,073	0.03	0.21	–0.90	3.44
ChangeSize	Change of total asset size scaled	1,073	0.35	4.40	–0.88	137.38
CFO	Cash from operation scaled	1,072	–0.01	0.53	–12.69	1.39
Dloss	Loss indicating variable	1,156	0.18	0.38	0.00	1.00
DGFC	GFC indicating variable	1,156	0.65	0.48	0.00	1.00
IFRS	IFRS standard adoption indicating variable	1,156	0.37	0.48	0.00	1.00

Note: This table provides the statistical description of the dependent and independent variables in Equations (5) and (6).

Table 4. Correlation coefficients of independent and dependent variables

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
*AEM*1	(1)												
*AEM*2	(2)	0.30*											
		(0.00)											
*REM*1	(3)	0.23*	0.10*										
		(0.00)	(0.00)										
*REM*2	(4)	0.22*	0.09*	0.98*									
		(0.00)	(0.01)	(0.00)									
DREIT	(5)	0.03	0.08	–0.02	–0.12*								
		(0.42)	(0.02)	(0.61)	(0.00)								
Leverage	(6)	–0.03	0.05	–0.22*	–0.02	–0.07							
		(0.35)	(0.10)	(0.00)	(0.61)	(0.02)							
Size	(7)	–0.44*	–0.21*	0.20*	–0.22*	0.13*	–0.02						
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.46)						
MTB	(8)	0.17*	0.04	0.08*	0.20*	0.01	0.14*	–0.21*					
		(0.00)	(0.19)	(0.01)	(0.00)	(0.67)	(0.00)	(0.00)					
ChangeOI	(9)	0.13*	0.03	0.09*	0.08*	–0.01	0.02	–0.09*	0.13*				
		(0.00)	(0.44)	(0.00)	(0.01)	(0.74)	(0.48)	(0.01)	(0.00)				
ChangeRev	(10)	0.24*	0.10*	0.05	0.09*	0.01	0.05	–0.10*	0.17*	0.82*			
		(0.00)	(0.00)	(0.10)	(0.00)	(0.71)	(0.14)	(0.00)	(0.00)	(0.00)			
ChangeSize	(11)	0.07	0.02	–0.00	0.05	–0.01	0.03	–0.08*	0.01	0.80*	0.57*		
		(0.03)	(0.54)	(0.90)	(0.10)	(0.86)	(0.36)	(0.01)	(0.75)	(0.00)	(0.00)		
CFO	(12)	–0.09*	–0.07	0.02	0.00	–0.03	–0.19*	0.12*	–0.12*	–0.61*	–0.55*	–0.77*	
		(0.00)	(0.02)	(0.45)	(0.90)	(0.40)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	
Dloss	(13)	0.03	0.29*	0.98*	0.02	0.05	0.09*	–0.13*	0.07	–0.05	–0.04	–0.03	–0.04
		(0.33)	(0.00)	(0.00)	(0.45)	(0.07)	(0.00)	(0.00)	(0.02)	(0.14)	(0.22)	(0.32)	(0.16)

Note: This table presents the pairwise correlation coefficients of all the variables in Equations (5) and (6). P-values are given in parentheses. * significant at 1 percent.

Table 5. Differences in EM between REITs and non-REIT LPCs

Variables	(1) *AEM*1	(2) *AEM*1	(3) *AEM*2	(4) *AEM*2	(5) *REM*1	(6) *REM*1	(7) *REM*2	(8) *REM*2
DREIT	0.443***	0.836***	0.410***	0.687***	–0.308***	–0.242***	–0.316***	–0.259***
	(2.786)	(7.701)	(3.157)	(6.097)	(–2.825)	(–4.559)	(–2.871)	(–4.656)
Leverage	0.493	0.0516	0.391	0.599**	–0.119	–0.0646	–0.164	–0.108
	(1.228)	(0.184)	(1.375)	(2.095)	(–0.910)	(–0.947)	(–1.227)	(–1.520)
Size	–0.281***	–0.231***	–0.117***	–0.327***	–0.0526	0.0405	–0.0468	0.0529*
	(–6.506)	(–2.738)	(–2.980)	(–3.715)	(–1.643)	(1.570)	(–1.435)	(1.956)
MTB	0.0623	0.0136	0.0139	–0.000525	0.103***	0.0931***	0.106***	0.0936***
	(1.030)	(0.307)	(0.312)	(–0.00936)	(3.522)	(5.944)	(3.662)	(5.708)
ChangeGI	–1.233**	–1.436**	–0.689	–0.289	–0.0706	0.463	–0.127	0.400
	(–2.066)	(–2.287)	(–0.974)	(–0.447)	(–0.124)	(1.580)	(–0.227)	(1.303)
ChangeRev	2.047***	1.457***	1.375**	1.116***	0.206	–0.480***	0.266	–0.436**
	(3.524)	(4.131)	(2.541)	(2.917)	(0.387)	(–2.832)	(0.500)	(–2.456)
ChangeSize	–0.0214	–0.0200	–0.0349	–0.0530***	0.0210	0.00291	0.00727	–0.0118
	(–0.981)	(–1.065)	(–1.382)	(–2.668)	(0.959)	(0.328)	(0.323)	(–1.267)
CFO	–0.0746	–0.221*	–0.171	–0.200	0.192	–0.103*	0.206	–0.0975
	(–0.326)	(–1.743)	(–0.608)	(–1.583)	(0.861)	(–1.694)	(0.916)	(–1.531)
Dloss	0.101	0.00718	0.769***	0.671***	0.00199	0.0593	0.0116	0.0788
	(0.643)	(0.0613)	(6.756)	(5.640)	(0.0162)	(1.059)	(0.0938)	(1.344)
DGFC	–0.389	–0.744***	–0.394*	–0.473**	0.262	0.116	0.265	0.117
	(–1.391)	(–3.205)	(–1.926)	(–2.049)	(1.335)	(1.023)	(1.231)	(0.981)
IFRS	0.0395	0.0579	0.0562	0.288	–0.0967	–0.000131	–0.0997	–0.0203
	(0.145)	(0.248)	(0.272)	(1.218)	(–0.814)	(–0.00116)	(–0.801)	(–0.172)
Constant	2.740***	2.509**	1.074**	3.590***	1.685***	0.594*	1.615***	0.450
	(5.304)	(2.394)	(2.270)	(3.266)	(3.385)	(1.812)	(3.166)	(1.312)
No. observations	926	926	875	875	955	955	955	955
No. group		76		76		77	77	
R-squared	0.254	0.147	0.196	0.206	0.113	0.094	0.094	0.105
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Firm clustering	YES		YES		YES			YES
Firm FE		YES		YES		YES	YES	

Note: This table reports the result of Equation (5) which estimates how the measurements of earnings managements of REIT are different from non-REIT LCP. *AEM* and *AEM*2 are the measurements of accrual based earnings management estimated by Equations (1) and (2) respectively, and *REM* and *REM*2 are the measurements of real earnings management estimated by Equations (3) and (4). Year fixed effect is included in all the models. Firm fixed effect is included in models (2), (4), (6), and (8). Models (1), (3), (5), and (7) cluster the error term on firm level. *T*-statistics are given in parentheses. *** significant at 1 percent, ** 5 percent, * 10 percent.

Also, the coefficients of "*DREIT*" are negative statistical significant in models (5) to (8) that explain the magnitude of conducting REM. These findings are consistent with our hypothesis that REITs engage in more AEM management and less REM than non-REIT LCPs. Further, the sign of estimated coefficients of control variables is consistent with previous literature. For example, firms with bigger sizes and better financial performance are less likely to engage in earnings management activities.

The rest of this section analyzes the test results of Equation (6) which adopts the DIDs approach to investigate how the conversion into REITs status influences the earnings management, and we present the test results in Table 6. We do not include firm fixed effect in all the models in Table 6 because the DIDs method aims to estimate the variances of EM measurements within the group (firm) by the REIT conversion. In addition, including firm fixed effect would lead to loss of variable "*Treatment Group,*" which is time-invariant and indicates if the firm belongs to treatment group. Thus we include year fixed effect and cluster the standard error on firm-level for all the models.

The estimated sign of coefficients of control variables is consistent with Equation (5) in Table 5 and the previous literature (Ambrose & Bian, 2010; Liang & Zhi, 2019). The estimated coefficients of DIDs dummy variable "*Treatment Group*" are not statistically significant for all the models testing accrual-based earnings management and real earnings management measurements. These results indicate no systematic difference in earnings management measurements between the control group (firms never become REITs) and the treatment group (observations belong to firms that have ever become REIT). Thus, we can trust the estimated coefficients of interaction variables "*Treatment Group* × *After Conversion*" and "*Treatment Group* × *One Year Before,*" which measure the causality relationship between the treatment as REIT conversion and changes of earnings management measurements.

According to Table 6, the coefficients of "*Treatment group* × *After Conversion*" are 39.3% in the model (1), 34.2% in the model (2), and –43.3% in the model (3), –46% in model (4). They are all statistically significant on at least 5% level confidence. These results show that the REIT conversion leads to increased AEM by 34.2% to 39.3% and a decrease of REM by 43.3% to 46%. Further, the coefficients of "*Treatment Group* × *One Year Before*" are also positive and significant at 5% in the model (1) and (2). These results indicate that a firm conducts more AEM one year before converting it to a REIT. However, the coefficients of "*Treatment Group* × *One Year Before*"

Table 6. Changes of EM by REIT conversion

Variables	(1) *AEM*1	(2) *AEM*2	(3) *REM*1	(4) *REM*2
Treatment group × after conversion	0.393**	0.342**	–0.433***	–0.460***
	(2.188)	(2.057)	(–3.354)	(–3.321)
Treatment group × one year before	0.514**	0.679***	0.0715	0.0391
	(2.342)	(3.985)	(0.379)	(0.216)
Treatment group	0.115	0.154	0.225	0.259
	(0.492)	(0.946)	(1.023)	(1.130)
Leverage	0.517	0.416	–0.0910	–0.132
	(1.255)	(1.597)	(–0.771)	(–1.102)
Size	–0.280***	–0.115***	–0.0581*	–0.0535
	(–6.524)	(–3.285)	(–1.768)	(–1.612)
MTB	0.0635	0.00565	0.0976***	0.0995***
	(1.121)	(0.131)	(3.668)	(3.872)
ChangeGI	–1.259**	–0.722	–0.130	–0.196
	(–2.101)	(–1.009)	(–0.234)	(–0.357)
ChangeRev	2.059***	1.388**	0.226	0.289
	(3.552)	(2.613)	(0.421)	(0.536)
ChangeSize	–0.0194	–0.0322	0.0215	0.00775
	(–0.920)	(–1.266)	(1.001)	(0.349)
CFO	–0.0495	–0.136	0.203	0.218
	(–0.223)	(–0.495)	(0.915)	(0.967)
Dloss	0.0662	0.721***	–0.0242	–0.0169
	(0.417)	(6.283)	(–0.198)	(–0.136)
DGFC	–0.465	–0.495**	0.180	0.173
	(–1.539)	(–2.378)	(0.814)	(0.726)
IFRS	0.0697	0.0968	–0.0930	–0.0979
	(0.253)	(0.465)	(–0.810)	(–0.815)
Constant	2.717***	1.058**	1.747***	1.691***
	(5.380)	(2.372)	(3.482)	(3.302)
Observations	926	875	955	955
R-squared	0.260	0.209	0.120	0.114
Year FE	YES	YES	YES	YES
Firm clustering	YES	YES	YES	YES

Note: This table reports the result of Equation (6) which estimate how the measurements of earnings managements of firms change because of the REIT conversion. AEM and AEM2 are the measurements of accrual based earnings management estimated by Equations (1) and (2) respectively, and REM and REM2 are the measurements of real earnings management estimated by Equations (3) and (4). Year fixed effect is included and the error term are clustered on the firm level. T-statistics are given in parentheses. *** significant at 1 percent, ** 5 percent, * 10 percent.

are not significant in models (3) and (4) with REM measurement as the dependent variable. This result indicates no significant change in the REM in the year before REIT conversion. These results above support our hypothesis that REITs conversion leads to more AEM and less REM. That is because the REITs are motivated by complying with REITs regulatory regime to adopt an earnings management approach to manipulate the disclosed financial information. Meanwhile, the restricted REIT regulatory regime constrains the capacity to adopt REM based on business activities. Thus firms during and after REIT conversion have to turn to use more AEM approaches.

These findings prove that the financial disclosure behaviors of publicly traded real estate corporations are influenced by changes in entities. Moreover, the changes caused by REIT conversions, which might affect the financial disclosure behaviors of the publicly traded corporations, require them to face a stricter REIT regulatory regime. Thus, the significant changes in EM before and after REIT conversion indicate that publicly traded corporations need to consider REIT regulatory requirements during their financial disclosure processes. As a result, the disclosed financial information of the publicly traded corporations, both during and before the conversion, incorporate the impacts of the REIT regulatory requirements. Furthermore, the increase in AEM use indicates that REITs are motivated to use more AEM approaches to trim their financial reports to comply with REIT regulations, even though the requirement concerning high dividend payouts reduces the equity incentive for REITs to engage in EM (Bianco et al., 2007).

Therefore, in contrast to Bauer et al.'s (2010) findings, the present study argues that the financial disclosure environment of REITs is not more transparent than that of other publicly traded firms. This finding also implies that the REIT regulatory regime is weakened by REITs' active AEM activities, despite the regime's requirement of passive management. Therefore, we recommend that meticulous attention be paid to the effectiveness of the regulatory regime, both during and after REIT conversions. Additionally, the decrease in REM after REIT conversions indicates that the strict REIT regulatory regime, which limits the business activities of REITs, constrains REM activities. Thus, REITs must use AEM approaches instead of REM approaches when they seek to control their disclosed financial information. These findings prove that publicly traded corporations like REITs will decrease their use of REM and turn to AEM when they face restrictions on the business activities they can conduct, given that the limitation on business activities is the only change brought by the REIT conversion that can influence financial disclosure behaviors.

6. Robustness test on matched sample

We adopt the propensity score matching and entropy balancing methods to control the possible endogeneity caused by the correlation between REIT conversion and specific firm features such as total asset size, tangible asset ratio, leverage ratio, and profitability. We firstly adopt the propensity score matching to match the treatment group (firm-year observations of the firm ever converted into REIT) and control group (firm-year observations of the firm never converted into REIT) in Equation (7) and rerun the Equations (5) and (6) on the matched sample. We expect that firms with greater total asset size, higher tangible asset ratio, higher profitability, higher market valuation, and lower leverage ratio are more likely to fit in the REIT regulatory regime in the UK and thus more likely to convert into REIT. Accordingly, we develop the below Probit model to explain the possibility of conducting REIT conversion as the first step of propensity score matching.

$$\begin{aligned} Treatment\ Group_{i,t} &= \alpha + \beta_1\left(Size_{i,t}\right) + \\ &\beta_2\left(TR_{i,t}\right) + \beta_3\left(Leverage_{i,t}\right) + \beta_4\left(ROA_{i,t}\right) + \\ &\beta_5\left(MTB_{i,t}\right) + \gamma_t + \varepsilon_{i,t}, \end{aligned} \tag{7}$$

where the "$Treatment\ Group_{i,t}$" is the dummy variable indicating whether the firm-year observations belong to the treatment group, which are the firms that have ever converted into REIT. "$Size_{i,t}$" is the total asset of the firm in natural log. "$TR_{i,t}$" is the ratio between the firm's tangible asset and total asset in year *t*. "$Leverage_{i,t}$" is the leverage ratio, "$ROA_{i,t}$" is the return on asset, and "$MTB_{i,t}$" is the market to book value ratio. We also control for time fixed effect "γ_t," and cluster the error term on firm-level. Panel A of Table 7 presents the results of Equation (7).

Table 7. Panel A

Variables	Treatment group
Size	–3.032***
	(–6.155)
Leverage	0.297***
	(6.720)
TR	0.307
	(0.823)
ROA	1.119***
	(4.675)
MTB	0.295**
	(2.180)
Constant	–2.475***
	(–3.729)
Observations	766
Year FE	YES
Firm clustering	YES
Pseudo R-squared	0.165
Area under ROC	0.7751

Note: This table reports the result of Equation (6) which explains the possibility of REIT conversion as the first step of propensity score matching. Year fixed effect is included and the error term are clustered on the firm level. *T*-statistics are given in parentheses. *** significant at 1 percent, ** 5 percent, * 10 percent.

Table 8. Panel B test on propensity-score matched samples

Variables	(1) *AEM*1	(2) *AEM*2	(3) *REM*1	(4) *REM*2	(5) *AEM*1	(6) *AEM*2	(7) *REM*1	(8) *REM*2
DREIT	0.619***	0.452***	–0.372**	–0.401**	0.662***	0.339***	–0.561***	–0.618***
	(2.932)	(3.686)	(–2.493)	(–2.553)	(3.003)	(2.713)	(–2.931)	(–2.930)
Treatment group × after conversion					0.926***	0.819***	–0.258	–0.304
					(2.691)	(2.893)	(–0.867)	(–0.997)
Treatment group × one year before					–0.0367	0.203	0.291	0.335
					(–0.144)	(1.611)	(1.339)	(1.452)
Treatment group	0.619***	0.452***	–0.372**	–0.401**	0.662***	0.339***	–0.561***	–0.618***
	(2.932)	(3.686)	(–2.493)	(–2.553)	(3.003)	(2.713)	(–2.931)	(–2.930)
Control variables	Included	Included	Included	Included	Included	Included	Included	Included
Observations	405	399	405	405	405	399	405	405
R-squared	0.286	0.282	0.271	0.263	0.298	0.302	0.288	0.284
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Firm clustering	YES	YES	YES	YES	YES	YES	YES	YES

Note: This table reports the result of re-running the Equations (5) and (6) on the propensity-score matched sample. Models (1) to (4) report the results of Equation (5), and models (5) to (8) report the results of Equation (6). *AEM* and *AEM*2 are the measurements of accrual based earnings management estimated by Equations (1) and (2) respectively, and *REM* and *REM*2 are the measurements of real earnings management estimated by Equations (3) and (4). Year fixed effect is included and the error term are clustered on the firm level. *T*-statistics are given in parentheses. *** significant at 1 percent, ** 5 percent, * 10 percent.

As the Panel A of Table 7 shows, the possibility of conversion into REIT is positively correlated with the firm size, tangible asset ratio, and market to book ratio, while negatively correlated with the leverage ratio. These test results are consistent with our expectations. More importantly, the estimated area under ROC is 77.51%, indicating a good model fit and strong explaining power for the possibility of REIT conversion. The balancing property is satisfied in the propensity-matched sample, and we do not find significant differences between the covariates.

In the second step of the propensity score matching test, we match firms based on the propensity scores computed in the first step with a caliper distance of 20% of the standard deviation of the propensity score (Austin, 2011). Then we re-run Equation (5) and Equation (6) on the matched samples and present the results in Panel B of Table 8.

The year fixed effect is included, and the standard error is clustered on firm-level in all the models in Panel B of Table 8. In addition, models (1) to (4) report the results of Equation (5), which investigates the difference of earnings management measurements between REITs and non-REITs PLCs on the propensity-score-matched sample, and models (5) to (8) reports the results of Equation (6) which investigates the impact of REITs conversion on earnings management.

According to Panel B of Table 8, the numbers of propensity-score matched observations in models with *AEM*, *AEM*2, and REM as dependent variables are 405, 399, and 405, respectively. Most importantly, the coefficients of "*DREIT*" are 61.9%, 45.2%, –37.2%, and 40.1% for models (1) to (4) with dependent variables as *AEM*, *AEM2*, *REM,* and *REM*2 respectively. The coefficients of DIDs interaction variable "*Treatment Group* × *After Conversion*" are 81.9% to 92.6% in models (5) and (6), and –25.8% to –30.4% in models (7) to (8) with dependent variables as *AEM*, *AEM*2, *REM*, and *REM*2 respectively. These coefficients are all statistically significant at least 5% level. These tests results support the hypothesis and are consistent with the main test results that REIT conversion leads to more AEM and less REM.

In addition to propensity score matching, we adopt an entropy balancing method to account for possible bias caused by the endogeneity issue mentioned above and heterogeneity between the treatment and control groups. In entropy balancing matching, we adopt a maximum entropy reweighting scheme that reweights the REITs and LCP subsamples covariates to satisfy a balance condition (Hainmueller, 2012). Thus, entropy balancing can adjust inequalities between two groups of observations concerning the first, second, and possibly higher moments of the covariate distributions. It also obviates the continual balance checking and iterative searching required in propensity score matching, which has been criticized in the recent literature (King & Nielsen, 2019; Shipman et al., 2017). Panels A in Table 9 shows that the balance of covariates between REITs and LCPs groups is achieved after the entropy balancing adjustments. Panels B of Table 10 presents the test results of Equations (5) and (6) using the entropy-balanced samples.

According to Panel B of Table 10, the year fixed effect is included, and the standard error is clustered on the firm level in all the models. The coefficients of "*DREIT*" are 49.7%, 35.3%, –28%, and –28.6% for models (1), (3), (5), and (7) with *AEM*1, *AEM*2, *REM*1, *REM*2 as dependant variables, respectively. The coefficients of DIDs interaction variable "*Treatment Group* × *After Conversion*" are 51.3%, 28.5%, –38.3%, and 40.4% in models (2), (4), (6), and (8)

Table 9. Panel A statistical description of entropy-balanced samples

	Treatment group			Control group		
	Mean	Variance	Skewness	Mean	Variance	Skewness
Before weighting						
Leverage	0.39	0.19	15.47	0.46	0.04	1.18
Size	12.98	6.40	–0.99	12.25	4.18	–0.48
MTB	0.91	3.06	8.15	0.65	1.90	13.77
ChangeOI	0.03	0.04	13.27	0.01	0.01	–1.29
ChangeRev	0.04	0.06	9.38	0.01	0.02	3.13
ChangeSize	0.57	44.06	19.42	0.15	0.86	12.43
CFO	–0.04	0.42	–16.59	0.00	0.18	–20.90
Dloss	0.20	0.16	1.51	0.15	0.13	1.97
After weighting						
Leverage	0.39	0.19	15.47	0.39	0.03	–0.26
Size	12.98	6.40	–0.99	12.98	4.23	–0.35
MTB	0.91	3.06	8.15	0.91	5.41	8.44
ChangeOI	0.03	0.04	13.27	0.03	0.01	3.42
ChangeRev	0.04	0.06	9.38	0.04	0.04	4.12
ChangeSize	0.57	44.06	19.42	0.56	4.77	5.26
CFO	–0.04	0.42	–16.59	–0.04	0.53	–12.46
Dloss	0.20	0.16	1.51	0.20	0.16	1.51

Note: This table compares the statistical description of covariates in Equations (4) and (5) between control group and treatment group before and after entropy balancing adjustment.

Table 10. Panel B Test on entropy-balanced samples

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	*AEM*1	*AEM*1	*AEM*2	*AEM*2	*REM*1	*REM*1	*REM*2	*REM*2
DREIT	0.497***		0.353***		–0.280***		–0.286***	
	(4.516)		(3.618)		(–5.045)		(–5.016)	
Treatment group × after conversion		0.513***		0.285**		–0.383***		–0.404***
		(3.832)		(2.163)		(–4.102)		(–4.065)
Treatment group × one year before conversion		0.516**		0.691***		–0.138		–0.160
		(2.582)		(3.374)		(–0.816)		(–0.997)
Treatment group		0.00709		0.166		0.174		0.200
		(0.0447)		(1.203)		(1.480)		(1.592)
Control variables	Included	Included	Included	Included	Included	Included	Included	Included
Observations	926	926	875	875	955	955	955	955
R-squared	0.287	0.292	0.241	0.255	0.170	0.176	0.157	0.164
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Firm clustering	YES	YES	YES	YES	YES	YES	YES	YES

Note: This table reports the result of re-running the Equations (5) and (6) on the entropy balancing adjusted sample. Models (1), (3), (5), and (7) report the results of Equation (5), and models (2), (4), (6), and (8) report the results of Equation (6). Year fixed effect is included and the error term are clustered on the firm level. *T*-statistics are given in parentheses. *** significant at 1 percent, ** 5 percent, * 10 percent.

with *AEM*, *AEM*2, *REM*, *REM*2 as dependant variables respectively. These coefficients are all statistically significant at least 5% level. Besides that, the coefficient of "*Treatment Group × One Year Before*" is positive and statistically significant at a 5% level in the models (2) and (4) with AEM as a dependant variable. These tests results support the hypothesis and are consistent with the previous results.

Finally, we conduct a robustness test to investigate whether and how the measurements of earnings managements of REIT enter directly the market under the REIT status are different from REIT converted from LPCs, and present the results in Table 11. We do not find significant differences in AEM and REM between the two groups.

Table 11. Differences in EM between direct entry REITs and REIT converted from LPCs

Variables	(1) *AEM*1	(2) *AEM*2	(3) *REM*1	(4) *REM*2
REIT-direct entry	0.170	–0.0399	0.118	0.141
	(0.733)	(–0.160)	(1.024)	(1.238)
Control variables	Included	Included	Included	Included
No. observations	320	306	349	349
R-squared	0.491	0.363	0.109	0.083
Year FE	YES	YES	YES	YES
Firm clustering	YES	YES	YES	YES

Note: This table reports the result of regarding how the measurements of earnings managements of REIT enter directly the market under the REIT status are different from REIT converted from LPCs. Year fixed effect is included in all the models, the error term clusters on firm level. *T*-statistics are given in parentheses. *** significant at 1 percent, ** 5 percent, * 10 percent.

Conclusions

This empirical study investigates how the business entity and corresponding regulatory regime influence firms' earnings management (EM) behavior by testing the conversion of UK Real Estate Investment Trust (REIT). We conduct a series of tests on a panel database containing information on all non-REIT LPCs and REITs in the UK between 2000 and 2019. We find that the REITs engage in more accrual-based earnings management but less real earnings management than non-REIT LCPs. Further, the Difference-in-Differences model results show that REITs conversion leads to more accrual earnings management and less real earnings management, and the firms engage in more accrual earnings management before the REITs conversion. These findings pass the robustness test using propensity-score-matched sample and entropy balanced sample.

The change brought by REITs conversion that could influence the earnings management of REITs is the restrictive REIT regulation regime that makes sure REITs operate as a pass-through entity to maintain a favorable tax position. Thus, the test findings indicate that the restrictive REIT regulatory regime squeezes the room for REITs to engage in real earnings management and forces REITs to adopt more accrual earnings management for various operational needs like trimming the financial report to fit in the regulatory regime as a pass-through entity.

Existing literature in REITs and property finance shows that REITs with a pass-though entity structure have less complex business operations and thus may have a more transparent business environment and better corporate governance (Edwards, 1999; Danielsen et al., 2014). This research contributes to the literature of REITs and property finance as the first empirical study evidencing the need to meet the regulatory regime of REITs as a pass-through entity to switch away from REM approaches and turn to AEM approaches. Thus, the financial disclosure of REITs is not necessarily more transparent than other listed properties. Furthermore, this research contributes to the broad literature on finance and accounting by shedding light on earnings management behavior surrounding important legal issues for the choice of business entity when the taxation environment changes and a new optional business entity is available.

Further, this research helps investors and auditors to improve the interpretation of the disclosed financial information of pass-through entities like REITs and firms that pursue conversions into pass-through entities. These types of firms and REITs are motivated by the need to comply with the regulatory regime of pass-through entities to adopt AEM to trim the disclosed financial information. As a result, the auditors and investors of these firms should check for the indication of adopting AEM and adjust accordingly by factoring in the impacts of the requirements of the pass-through entities regime. In order to improve the transparency and stability of the market, the regulators of the current and potential REITs market should establish policies and invest efforts to prevent firms from adopting AEM to trim their disclosed financial information to fit in the regulatory regime of pass-through entities like REIT. Special attention should be put on scrutinizing the disclosed financial information of the firms that are on the edge of complying with the requirements of these regulatory regimes.

One limitation of this research is that the model used to estimate the AEM as suggested by main stream accounting literature may have the heteroscedasticity issue because of including the reciprocal of lagged total asset. Future research should be conducted to investigate this issue. Further, different rules in the REIT regulatory regime motivate REITs to adopt EM in different directions, future research could try to disentangle the impacts of these specific rules in regulatory regime. Finally, this research can be extended by incorporating other measurements of financial disclosure quality and measurements.

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