

# The REIT Conversion Puzzle

This version: August 27, 2020

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## **Abstract**

*Real Estate Investment Trusts (REITs) are a globally recognized form of real estate ownership that offer tax benefits at a corporate level. Despite their clear advantages, however, a significant share of potentially eligible Real Estate Operating Companies (REOCs) do not opt for conversion to a REIT structure. This paper examines 80 REOC-to-REIT conversions across 13 countries. We find REIT conversions are generally driven by the extent of country-specific tax benefits. They are also more likely following prior conversions by other REOCs, and in countries with a larger share of extant REITs. REIT conversions may be motivated by NAV discounts, especially if management's compensation is highly equity-based. This illustrates the importance of aligning the interests of management and shareholders. On the other hand, relatively restrictive REIT criteria, such as the disclosure and taxation of hidden values during the conversion process, are associated with significantly lower conversion probabilities. Countries that have eased REIT criteria have subsequently seen significantly more conversions.*

*Keywords: REITs, REOCs, Conversion, Agency Conflicts*

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## 1. Introduction

Since their establishment in the U.S. in 1960, Real Estate Investment Trusts (REITs) have continually gained in popularity around the world. They currently exist in almost 40 countries, with many more in the process of adopting REIT regimes (EPRA, [2018](#)). In 2020, China announced the introduction of a public REIT structure for its infrastructure property companies (Reuters, [2020](#)). The key advantage of a REIT structure relative to a Real Estate Operating Company (REOC) is liberation from corporate income taxes. The nuances of the regulations that govern REIT status differ across countries, but all require the majority of assets and/or income to be derived from real estate. REITs are also required to distribute most of their earnings to investors in the form of dividends.

As a result of these common characteristics, REITs have become a globally recognized form of real estate ownership for retail and institutional investors seeking liquid vehicles to invest in high-quality properties (Downs et al., [2019](#)). The literature provides clear evidence in favor of REIT conversions, i.e., REOCs adopting the REIT structure. For example, Damodaran et al. ([1997](#)) document a significant increase in net income for U.S. REOCs following adoption of a REIT structure. Delcours and Dickens ([2004](#)) find that U.S. REITs have lower systematic risk and lower agency costs than REOCs. Moreover, Bond and James ([2004](#)) and Rehkugler et al. ([2012](#)) find that European REITs trade at significantly higher NAV premiums than REOCs. Damodaran et al. ([2005](#)), Brounen et al. ([2013](#)), and Piao et al. ([2017](#)), using U.S. data, all find positive cumulative abnormal returns following the announcement of a REOC-to-REIT conversion. Beracha et al. ([2019](#)) observe increasing efficiency among U.S. REITs in the past ten years and estimate an associated reward through a higher market valuation of 4% annually. Given these distinct benefits, it is thus puzzling that the share of REITs relative to REOCs remains low in many countries. Why do the managers of potentially eligible REOCs forgo the advantages of REIT structures, in particular, the valuable tax benefits?

This paper examines the determinants of the REOC-to-REIT conversion decision. The extant literature has tended to focus on post-conversion effects. For example, Damodaran et al. ([1997](#))



examine changes in operational performance following organizational form changes, especially REIT conversions and deconversions (REITs reverting back to REOCs). The authors conclude that their empirical evidence is consistent with REOCs trading off the tax benefits and reduced agency costs of the REIT structure against the associated constraints on investment and dividend policy. However, they provide no direct evidence about what factors influence the conversion decision. Ling et al. (2020) examine the value implications of REIT conversions and deconversions, and find a positive announcement effect related to conversions. They also identify tax rates and the dividend yield as factors in the 29 U.S. REIT conversions in their sample.

This study contributes to the literature by providing the most comprehensive analysis to date of the factors that impact a REOC's decision to adopt a REIT structure, as well as which barriers prevent REIT conversions. Our empirical analysis is based on 215 REOCs across 13 countries, of which 80 converted to REITs over the January 1999 – December 2018 period. This global setting enables us to capitalize on substantial cross-country heterogeneity with respect to tax incentives and local REIT regime requirements. We also analyze the managerial motivations behind REIT conversions, such as undervalued share prices, peer-following behavior, and compensation-related incentives.

We first empirically analyze the REOC-to-REIT conversion decision using a panel logit model. The dependent variable is binary, and indicates whether a REOC converts to a REIT in a given period. Since we are interested in the circumstances surrounding the decision, we consider the time lag between the decision and conversion dates. Carlock and Wilkin (2018) argue that the entire conversion process can take up to 18 months. We also account for the fact that the conversion decision precedes initiation of the process, so we lag all explanatory variables by two years. This structure maximizes R-squared, although our results are robust to shorter and longer lag structures. We use heteroscedasticity and autocorrelation robust standard errors to estimate the regression results. All model specifications control for the extent to which a REOC has fulfilled the regulatory REIT requirements in its country.

We document that the tax benefit appears to be a motivator for REIT conversions. The higher



the pre-conversion tax rate paid by a REOC, the higher its probability of adopting the REIT structure. On the other hand, the estimated taxation of hidden reserves triggered by a potential conversion is associated with significantly lower conversion probabilities. It is therefore a clear barrier for some conversions. These findings contribute to the literature by providing direct evidence for the hypothesis that the REIT–conversion decision is a cost-benefit trade-off.

Note further that our regression results reveal a negative relationship between the REIT–conversion decision and a REOC’s NAV spread. The NAV spread can be interpreted as the degree of over- or undervaluation relative to a firm’s intrinsic value as approximated by its NAV. NAV discounts are associated with higher conversion probabilities. This suggests that REOCs may attempt to achieve a more favorable public market valuation by converting to a REIT. In contrast, NAV premiums may signal affirmation of a REOC’s current business strategy, which could be hindered by the constraints associated with converting to a REIT.

Turning to market dynamics, we find that REOCs are more likely to convert to REITs when the share of existing REITs in a country is higher. REIT conversions are also more likely to occur following recent conversions by other REOCs in the same country. Both results suggest herd-like behavior in the REIT–conversion decision.

Lastly, we explore the role of managerial incentives in the conversion decision. Empire-building CEOs may be disincentivized to a certain extent from conducting conversions. This is due to constraints on reinvestment options as REITs in all countries, such as, e.g., requirements to distribute large portions of income to shareholders. REITs are thus prohibited from reinvesting earnings to increase company size, to which CEO base salaries are potentially linked. This requirement may be less of a concern if the CEO’s remuneration is connected to the degree of shareholder value creation, rather than to firm size. We provide evidence that higher equity-based compensation, in the presence of NAV discounts, leads to an even stronger tendency to convert to a REIT structure.

Our research is relevant for many market participants in the listed real estate sector. As the direct beneficiaries, REOC investors have a major interest in understanding conversion determi-



nants. Financial market regulators will also be interested in the circumstances under which REIT regimes can reach high levels of adoption. Because we account for differences in national REIT regimes, regulators can draw upon the international experience to identify critical factors for the adoption rate of REIT regimes. Note that, in additional country-level Poisson regressions, we find that easing REIT criteria is associated with significantly more conversions in subsequent periods. This suggests that REIT regime reforms may incentivize conversions if REITs fail to gain traction in a country. Finally, governments and tax authorities are interested in the factors explaining the adoption rates of REIT regimes. From a fiscal perspective, REITs promise a potentially reliable tax income stream resulting from the taxation of dividends at an individual investor level. In contrast, the tax income stream from REOCs may be higher overall, but more volatile and postponed to future fiscal periods as REOCs typically make use of the option to retain earnings and accumulate hidden reserves.

The remainder of this article is organized as follows. The next section reviews the related literature, and develops testable implications about the REIT–conversion decision. Section 3 introduces our data and methodology, while the empirical results are in Section 4. The final Section offers our conclusions.

## **2. Related Literature and Hypotheses**

### *2.1. Cost-Benefit Trade-Off*

Listed real estate companies in countries with REIT regimes can opt to convert to a REIT structure. The question for REOCs is whether they should sacrifice flexibility in investment allocation and profit policy to gain tax-exemption at a company level, as well as other select benefits. The answer may depend on each country’s regulatory restrictiveness, market sentiment, the actions of peers, and firm-specific factors. In this subsection, we first address the direct implications of REIT conversions, in particular, the tax benefits and the direct tax costs.

Gyourko and Sinai (1999) provide a detailed discussion of the benefits and costs of REITs in general. They highlight the substantial tax savings as a key advantage. Damodaran et al. (1997) ex-



amine organizational form changes for real estate corporations, business trusts, MLPs, and REITs, and compare pre- and post-transition financial characteristics. The authors conclude that firms seem to trade the (dis)advantages of looser and tighter regimes against each other, conditional on their distress level. Their findings indicate taxes are a factor in organizational form changes.

While tax savings are the clearest motivator for REIT conversions, the degree of the advantage differs among individual REITs. REOCs in countries with higher corporate tax rates may have a stronger incentive to convert than those in countries with relatively low tax rates. Among REOCs within the same country, there can be further differences. For example, some REOCs use substantial levels of financial leverage to maximize their interest tax shield and minimize their income tax burden, whereas other REOCs choose more conservative financial structures. Chiang et al. (2018) also point out differences in organizational requirements, tax treatments, and external financing practices across the REIT sector. Gyourko and Sinai (1999) argue that REITs also benefit from not having to follow inefficient capital structures in order to generate large deductible tax shields and the associated hiring costs for consultants, attorneys, and accountants. In turn, we argue that the REIT-conversion decision may be driven by the effective firm-specific income tax rate.

Depending on the regulatory regime, there may be direct costs triggered by the REIT-conversion process. Many REIT regimes require taxation of unrealized capital gains in the property portfolio as a part of the conversion process (see, for example, Mueller, 2010 and Brounen et al., 2013). Another example comes from the U.K., which, until 2012, imposed a 2% conversion charge on the gross market value of assets. Depending on firm-specific circumstances, the costs can serve as a barrier for REIT conversions. Together, we formulate our first pair of hypotheses, as follows:

### **Hypothesis 1 (H1): Cost-Benefit Trade-Off**

**Hypothesis 1a:** *The REIT-conversion decision is positively correlated with a REOC's effective income tax rate.*

*and*

**Hypothesis 1b:** *The REIT-conversion decision is negatively correlated with the direct costs associated with the conversion (e.g., taxation of unrealized capital gains).*



## 2.2. Market Valuation

REITs and REOCs derive the vast majority of their value from the real estate assets on their balance sheets. This makes them arguably easier to value than most non-real estate companies. To this end, financial analysts that cover REITs and REOCs commonly use the NAV, which can be thought of as a "sum of the parts" valuation. At least in theory, there are few reasons why the price of a REOC would deviate substantially from the market value of its real estate and other assets less debt. In fact, Patel et al. (2009) provide evidence that temporary share price deviations from the NAV tend to revert back to a long-term mean. And Woltering et al. (2018) find that an investment strategy of buying REITs and REOCs with the highest NAV discounts, while shorting those trading at the highest premiums, can produce significant abnormal returns.

We note that shareholders and the management of individual REITs trading at substantial NAV discounts may find little consolation in the literature's observation that substantial deviations of share prices from NAV tend to be temporary. Consistent with this idea, Downs et al. (2019) find that U.S. REITs are more likely to be targeted by activist investor campaigns when their share prices are low relative to NAV.

The literature also suggests that REIT status can have a positive impact on price-to-NAV ratio. Rehkugler et al. (2012) and Bond and James (2004) find that REITs tend to trade at higher price-to-NAV ratios than REOCs. Moreover, Damodaran et al. (2005) and Piao et al. (2017) document positive cumulative abnormal returns of REOCs following REIT-conversion announcements. Beracha et al. (2019) observe efficiency gains among U.S. REITs in the 2010–2017 period and report a reward through market valuation of 4% annually. Together, these findings suggest that REOCs may achieve a more favorable market valuation, and therefore decrease potential NAV discounts, by converting to REITs. However, the opposite may be true for REOCs that trade at significant premiums to NAV, because they have fewer incentives to initiate potentially costly changes of their organizational forms. More importantly, the constraints associated with REIT structures may restrict this successful business strategy that has thus far been positively perceived by the market. Consequently, we posit that REOCs trading at a high price-to-NAV would be less inclined to convert. Hypothesis 2 reflects the potential impact of a REOC's stock market valuation



on the REIT–conversion decision:

**Hypothesis 2 (H2):** *The REIT–conversion decision is negatively correlated with a REOC’s NAV spread.*

### 2.3. Herd Behavior

In addition to company-specific factors, the REIT–conversion decision may also be influenced by marketwide trends. For example, the academic literature documents various forms of herding behavior among market participants. According to Wylie (2005), herding occurs when a group of economic agents do not act solely on their own private information, but instead rely on the choices of other members of their group or peers. Choi and Sias (2009) find strong evidence of herding among institutional investors, who tend to follow each other into and out of certain investment sectors. Venezia et al. (2011) examine herding in the context of individual stock holdings, and provide evidence for it among both institutional and private investors.

The REIT–conversion decision, likewise, may be a function of peer group behavior. For example, when a REIT regime is first introduced in a country, decision makers are likely to observe the actions of their peers before moving ahead on their own. As soon as several REOCs in a country have converted, the decision makers of the remaining REOCs may feel compelled to convert as well. Consistent with this idea, Roth and Kapsar (2016) identify market trends, corporate structure, and the regulatory environment as three of the twelve key areas of focus for REIT managers. Accordingly, our third hypothesis reflects the potential impact of herd behavior on the REIT–conversion decision:

**Hypothesis 3 (H3):** *The REIT–conversion decision is positively correlated with prior conversion decisions by industry peers.*

### 2.4. Managerial Motivation

Note that a REIT conversion may be in the best interest of shareholders, but the decision is made by the REOC’s management. Whether they tend to act in the best interest of investors may



be a question of how interests are aligned. The literature documents a variety of potential conflicts of interest between management and shareholders (see, for example, Jensen and Meckling, 1976 and Chiang et al., 2018). In the context of the REIT–conversion decision, a conflict can arise from the structural constraints the REIT structure imposes on management’s discretion to use cash flows. Ghosh and Sirmans (2005) find that management compensation in the REIT sector tends to be linked to firm size. This creates an incentive for so-called empire-building behavior, i.e., a tendency to retain earnings and increase assets under management, rather than distributing cash flows to investors (Graff, 2001).

The literature also documents that appropriate incentive structures lead to an alignment of interests between management and shareholders. A prominent solution to motivate managers is to link their personal wealth to operating efficiency. This can be achieved by tying bonus payments to performance criteria. Another approach is equity-based compensation, which ties the manager’s wealth to that of shareholders. Ghosh and Sirmans (2005) find that equity-based compensation positively impacts measures such as return on assets, capital, and equity. Consistent with this idea, Damodaran et al. (2005) find that the average insider stock ownership of executives from firms that have changed to stricter organizational forms is 25.6%. In contrast, it is only 2.5% for firms that have changed to looser structures. In order to test whether and how managerial incentives impact the REIT–conversion decision, we formulate our fourth hypothesis as follows:

**Hypothesis 4 (H4):** *The REIT–conversion decision is positively correlated with the level of equity-based compensation of key executives.*

### 3. Data and Methodology

#### 3.1. Sample of REIT Conversions

To ensure that the REOCs in our sample are actually potential candidates for REIT conversions, we base our empirical analysis on constituents of the FTSE EPRA/NAREIT Developed Real Estate Index between January 1999 and December 2018. The index includes listed real estate companies that derive at least 75% of total EBITDA from relevant real estate activities, which are defined



as the ownership, trading, or development of income-producing real estate. Financing, construction, and property management of real estate are not included under relevant activities. Note that EPRA has minimum free-float market capitalization requirements. Because our sample is based on historic index constituents that are updated on a monthly basis, it is free from survivorship bias (EPRA, 2018).

In total, our sample is comprised of 215 listed REOCs across 13 countries with REIT regimes: Belgium, Canada, France, Germany, Italy, Netherlands, South Africa, Spain, the U.K., the U.S., Japan, Hong Kong, and Singapore. Although South Africa is an emerging market, we include it as Africa's most developed country, and because of its significant number of REIT conversions. Australia is not part of our sample because there are no REOCs during our sample period. Ten of the thirteen countries have at least one REIT conversion. The exceptions are Japan, Hong Kong, and Singapore. However, we include REOCs from these countries as counterfactuals, from which we hope to gain information about why they did not convert.<sup>1</sup>

We identify conversion events by tracking both the IPO date and the REIT-conversion date. In the case of U.S. companies, this information comes from CRSP share code changes. For all other countries, we use the S&P Global Market Intelligence database. We carefully screen company reports to complement the data. In total, we observe 90 REIT conversions. Since we lag all explanatory variables in our main set of tests by 24 months, we lose ten conversions. We end up with a total of 80 REIT conversions.

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Insert Table 1 about here

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<sup>1</sup>The identification strategy aims to achieve a suitable counterfactual group among the representative property firms gathered by EPRA/NAREIT. Nadauld (2009) analyzes property companies participating in the creation of a REIT on a global scale. The author collects a sample from various sources and reports of limited evidence or even counter-intuitive results. Therefore, it is a prime goal for this paper to utilize a proper counterfactual by using only self-converting listed property companies fulfilling the EPRA rules and by requiring 24 months of listing (as in Ooi et al., 2007). In the end, the sample comprises converted and never-converted listed real estate companies. For the Asian Markets, we investigate spin-offs documented by EPRA and found only 3 relevant events in which an established REOC has created a new REIT. Therefore, we decided to keep a clearly defined counterfactual setting and consequently excluded those firms. Moreover, deselecting the REIT structure occurs very infrequently on an international scale and is not the focus of the current study.



Table 1 shows the distributions of REOCs, REITs, and REIT conversions by country and in aggregate. The first column reports the overall number of REOCs, followed by the number that did not convert (column 2), and the number that converted during our sample period (column 3). Column 4 reports the overall number of REITs, including conversions. We note that 41.9% of all REOCs in our sample converted during the sample period. Furthermore, we observe a strong dispersion in REIT conversions across individual countries. In Belgium, Canada, and the Netherlands, all REOCs converted. The vast majority of REOCs in France, Italy, South Africa, and the U.S. also converted. In contrast, few or no conversions took place in the other countries.

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Insert Figure 1 about here

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Figure 1 shows the number of REIT conversions by country and year. The graph reveals rather continuous conversion activity throughout the sample period. Consistent with Hypothesis 3, the figure also shows that country-level REIT conversions tend to occur in clusters. For example, between 2003 and 2006, we observe a high level of conversions in France. U.K. conversions occurred in two waves between 2007 and 2010, as well as between 2013 and 2018. South African conversions are clustered between 2013 and 2014. REIT conversions in the U.S. and Canada tend to be more evenly distributed.

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Insert Figure 2 about here

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Figure 2 shows the aggregate number of REOCs (red bars) and converted REITs (blue bars) over our sample period. Despite the steady increase in the number of conversions, a substantial number of potentially eligible REOCs refrained from converting.

### 3.2. Research Design and Variable Definitions

Our primary objective in this paper is to study the determinants of REOC-to-REIT conversions. Our dependent variable is binary. It equals one if REOC  $i$  from country  $j$  converts to a REIT in quarter  $t$  and is zero in all previous quarters. Once a REOC converts to a REIT, it leaves our



sample. This allows us to estimate the likelihood of conversion, rather than explaining the REIT structure. Our approach is consistent with Lewis et al. (2011), who measure the adoption of clean technology in a farming context. Our panel logit model, shown in Equation 1, estimates the impact of the explanatory variables on REIT–conversion probability<sup>2</sup>:

$$\begin{aligned}
\text{Conversion}_{i,j,t} = & \alpha_0 \\
& + \beta_1 \text{Effective Tax Rate}_{i,t-8} + \beta_2 \text{Exit Tax Costs}_{i,t-8} \\
& + \beta_3 \text{NAV Spread}_{i,t-8} \\
& + \beta_4 \text{REIT Market Share}_{j,t-8} + \beta_5 \text{Previous Conversions}_{j,t-1} \\
& + \beta_6 \text{Cash Compensation}_{i,t-8} + \beta_7 \text{Equity Compensation}_{i,t-8} \\
& + \beta_8 \text{NAV Spread}_{i,t-8} \times \text{Equity Compensation}_{i,t-8} \\
& + \beta_9 \text{Asset Test}_{i,t-8} + \beta_{10} \text{Distribution Test}_{i,t-8} \\
& + \beta_{11} \text{Gearing Test}_{i,t-8} + \beta_{12} \text{Ownership Restrictions}_{j,t-8} \\
& + \beta_{13} \text{Size}_{i,t-8} + \epsilon_{i,j,t}
\end{aligned} \tag{1}$$

Carlock and Wilkin (2018) posit that the entire conversion process lasts from 12 to 18 months. Since we are interested in explaining the REIT–conversion decision, rather than the conversion date, we lag our explanatory variables by at least 6 quarters. An assessment of the trade-offs precedes initiation of the conversion process. Thus, to mitigate endogeneity concerns, we lag all explanatory variables, except Previous Conversions, by two years.<sup>3</sup> In additional robustness tests reported in Table A2 in the Appendix, we use shorter time lags and find qualitatively similar results.

Next, we use company-specific and sectorwide variables to model the REIT–conversion decision. First, we examine whether and to what extent the decision is driven by a cost-benefit trade-off (Hypothesis 1). Prior studies have found that corporate taxation is the major benefit associated with the REIT structure for shareholders (see, for example, Gyourko and Sinai, 1999). Holding all else equal, REOCs with higher tax rates should be more inclined to convert than those with lower

<sup>2</sup>Appendix Table A1 summarizes the expected empirical implications.

<sup>3</sup>REOCs generally track the activities of their market competitors. Consequently, this variable captures the information on recent REOC-to-REIT conversions over the past two years.



rates (Hypothesis 1a). REOCs' actual tax rates are not only impacted by their countrywide corporate income tax rates, but also by local community tax rates and company-specific factors such as loss carryovers and other deductible tax easements. Therefore, we use the individual REOC's effective tax rate as a proxy for the tax advantage. We calculate this measure as income tax expense divided by total pre-tax income (obtained from Refinitive's Thomson Reuters Datastream database).

Subsequently, we account for the costs associated with a REIT conversion - a potential barrier to adopting the REIT structure (Hypothesis 1b). Conversion costs can be split into 1) the one-time costs of aligning the company with REIT qualification requirements, and 2) any ongoing costs for additional REIT corporate compliance requirements. Because we cannot directly observe hypothetical current and future expected costs, we focus on the potentially significant conversion costs. For example, all countries, except Singapore, Hong Kong, and South Africa, require an "exit tax" on the hidden reserves that can result from the difference between current market values of properties and their balance sheet values. The U.K. does not require an exit tax, but applied a conversion charge prior to 2012. Holding all else equal, REOCs with a higher exit tax should be less inclined to adopt the REIT framework. We approximate exit tax costs by multiplying a REOC's price-to-book ratio (or price-to-NAV ratio in the case of U.S. REITs) by its effective tax rate. The underlying rationale is that hidden reserves are captured by a relatively high market valuation. For example, the NAV can be a lagged measure of true fundamental value in rapidly rising or falling real estate markets because properties are only reappraised every twelve months. Thus, the stock market valuation may reflect the impact of future reappraisals.<sup>4</sup>

Hypothesis 2 tests whether undervalued REOCs use REIT conversions to reduce structural NAV discounts, which are relative discounts due to the organizational form. In contrast, REOCs trading at NAV premiums should show lower probabilities of conversion because they lack the market valuation incentive to change their organizational form. We calculate the NAV spread to

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<sup>4</sup>Brähler and Schmidt (2014) show properties reported under IFRS accounting standards contain 20% hidden reserves on average. We believe the market's assessment is a good proxy for the difference between the true market value and the reported value.



measure the impact of market valuation on a REOC's REIT-conversion probability as follows:

$$NAV\ Spread_{i,t} = \frac{Market\ Value\ of\ Equity_{i,t}}{NAV_{i,t}} - 1 \quad (2)$$

All of our sample countries, except the U.S., use NAV marked-to-market (IFRS versus GAAP). Under IFRS accounting, property values are based on regularly updated appraisal values, so the book value of equity is a good proxy for NAV. In contrast, U.S. REOCs report according to U.S. GAAP accounting, where property values are reported on the balance sheet by historical costs less cumulatively depreciated acquisition costs. Consequently, the book value of equity is not a good proxy for NAV for U.S. REOCs. For this reason, we calculate U.S. REOC NAVs from S&P Global Market Intelligence data (formerly SNL Financial). Specifically, we average the NAV estimates generated across financial analysts for each REOC as that REOC's proxy NAV.

We use two proxies to test for the presence of peer-following behavior in the REIT-conversion decision (Hypothesis 3). First, we test whether a higher share of REITs in a country increases the REOC's likelihood of following its peers. We measure the share of converted REITs in terms of total market capitalization relative to the combined market capitalization of converted REITs and REOCs in each country (*REIT Market Share<sub>j,t-8</sub>*). Second, we calculate the rolling sum of REIT conversions in a country over the prior 24 months in order to test for peer-following behavior among REOC executives, or "REIT waves" (*Previous Conversions<sub>j,t-1</sub>*). An alternative explanation of our herding proxies is that these variables capture an advantageous policy environment or business cycle for REIT conversions.

We then test for the role of managerial incentives in the REIT-conversion decision (Hypothesis 4) with remuneration data from S&P Capital IQ. We hypothesize that empire-building executives are less inclined to convert to REIT because REIT regulations imply giving up flexibility to maximize firm size. We use the cash compensation of key executives to proxy for a compensation



structure that may incentivize empire-building behavior. Kim and Wiley (2019) and Graff (2001) document that cash remuneration of key executives and firm size are positively correlated. This provides an incentive for executives to maximize their future earnings by increasing firm size.<sup>5</sup> We follow Pennathur and Shelor (2002) and Alshammari (2004), and define cash remuneration as the sum of base salary, bonuses, and other cash payments per fiscal year. We then normalize cash compensation using the firm's enterprise value.

In contrast, key executives may be more inclined to strive for becoming a REIT when their compensation is equity-based, and thus more aligned with the interests of shareholders. The agency-conflict-reducing mechanism of linking compensation to stock performance is well-documented (see, for example Ghosh and Sirmans, 2005 and Damodaran et al., 2005). Following Pennathur and Shelor (2002) and Price et al. (2015), we use the natural logarithm of equity compensation, which includes stocks, grants, and awards paid and credited, but excludes options. We expect a positive impact of equity-based compensation on REIT-conversion probability. Moreover, we include an interaction term between equity compensation and a REOC's NAV spread to test whether conversions are more likely to occur under the combined presence of NAV discounts and higher degrees of equity-based compensation. Our rationale for this test is that, when the discount to NAV is higher, key executives have more reasons to expect to benefit from share price appreciation, and in turn to earn more equity-based compensation.

We control for the degree to which REOCs have already fulfilled country-specific REIT criteria as a determinant. Our reasoning here is that a conversion may be more likely if a REOC is already poised to fulfill the legal requirements. At the same time, we also need to control for the fact that REOCs that are further from fulfilling the criteria are more likely to have a lower probability of adopting the REIT structure, regardless of their situation in our hypotheses. We note that a challenge with using our international dataset is that the REIT qualification criteria differ across

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<sup>5</sup>According to Hope and Thomas (2008) and Jensen (1986), a major motivation for empire building are executives striving for cash compensation and status. As a consequence, they may take actions that are at odds with the maximization of shareholder value (Hall, 1999). We focus our attention on this behavior as opposed to lesser, competing theories.



countries. To achieve comparability across countries, we measure the degree to which a REOC has already fulfilled the criterion relative to the country-specific REIT regulation ratio. If a country has no particular rule about a specific REIT criterion, the corresponding variable is set to zero, which implies no lack of fulfillment on the criterion. Country-specific regulation ratios are time-varying because the REIT requirements can change over time, which happened in several instances. Equation 3 shows the sample calculation for the so-called “asset tests”, according to which a REIT’s qualifying assets must represent a minimum fraction of its total assets. For example, at least 75% of a German REIT’s assets must be invested in real estate. In the U.S., qualifying assets may include real estate, cash, cash items, and government bonds. The variable  $Asset\ Test_{j,t-8}$  represents the percentage deviation of a REOC’s qualifying assets relative to its respective country-specific regulation ratio:

$$Asset\ Test_{i,t} = \frac{Qualifying\ Assets\ Ratio_{i,t} - National\ Regulation\ Ratio_{j,t}}{National\ Regulation\ Ratio_{j,t}} \quad (3)$$

For the “distribution tests”, REITs are similarly required to fulfill country-specific ratios for dividend distributions relative to taxable income. As in Equation 3, we measure an individual REOC’s current deviation from the country-specific required ratio. The “gearing test” also measures the deviation of a REOC’s financial leverage from the country-specific regulation. We capture any prevailing rules of ownership restrictions using an indicator variable that equals one if country  $j$  exhibits certain ownership rules at time  $t$  for minimum free-float or block-holding limits. An example from the U.S. is the “five or fewer” rule (see, for example, Downs et al., 2019 and Chiang et al. (2018)).

Our final control variable is firm size, as larger firms may benefit from economies of scale and scope during the REIT–conversion process. For example, their relative costs for obtaining and maintaining REIT status may be lower. We measure firm size as the natural logarithm of a REOC’s total market capitalization.



### 3.3. Summary Statistics

Table 2 provides descriptive statistics for our explanatory variables around REIT-conversion dates. The first set of descriptive statistics is for REOCs that convert to REITs. Values are measured 24 months before the official adoption of the REIT structure, and thus reflect the approximate point in time of the REIT-conversion decision. The second set shows the descriptive statistics for the same firms 24 months after conversion. The third and final set is for non-converting REOCs. To ensure comparability, the respective numbers are stacked and averaged over the REIT-conversion dates.<sup>6</sup>

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Insert Table 2 about here

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The average effective tax rate of REOCs 24 months prior to their REIT conversion is 21.73%. Two years after conversion, this percentage drops to 6.12%. Note that the post-conversion effective tax is not zero, however. This is because REITs may face taxation on earnings that are not distributed, or be penalized for not meeting REIT criteria in the form of taxes. REOCs that do not convert tend to have a lower average effective tax rate (17.15%), indicating that the REIT tax structure may offer a lower incentive to use this benefit (Hypothesis 1a).

Our proxy for exit tax costs for REOCs 24 months before conversion is  $-0.06$ . This suggests that converting REOCs on average do not seem to possess significant hidden reserves that would be taxed in the case of a conversion. Once a REOC converts to a REIT, it can no longer be taxed for its hidden reserves, so the number drops to zero. On the other hand, REOCs that do not convert have significantly higher exit tax costs on average. This observation is consistent with cost-based barriers to REIT conversions (Hypothesis 1b).

Converting REOCs trade at NAV premiums. Lending support to Hypothesis 2, we find that, post-conversion, the average NAV spread significantly increases (31% vs. 56%). REOCs that do

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<sup>6</sup>Consistent with Ke (2015), we winsorize the NAV spread at 5% and 95% levels to remove outliers. In addition, REIT test variables and management compensation measures are winsorized at the 1% and 99% levels.



not convert tend to trade close to their NAVs. Hence, they have a market valuation-based incentive to change their organizational form. However, the fact that REITs trade at higher positive levels of NAV spreads is also documented by Rehkugler et al. (2012) and Bond and James (2004).

Before conversion to a REIT, average *REIT Market Share* per country in our sample is 32.26%. At the corresponding conversion dates, it increases to 59.18% for REOCs that do not convert. Average REIT market share increases substantially two years after REIT conversion (71.31%). By the time of the REIT–conversion decision, there are on average 1.11 prior REIT conversions in the same country. Two years after conversion, this number has increased to 4.45. For non-converting REOCs, it is 2.97.

Cash-based compensation relative to enterprise value shrinks on average after conversion (2.57 vs. 0.74). In contrast, equity-based compensation of key executives almost doubles. Non-converting REOCs obtain relatively low levels of cash- and equity-based compensation on average compared to those that convert.

Moreover, prior to conversion, converting REOCs are substantially closer to fulfilling the financial requirements associated with obtaining a REIT structure than non-converting REOCs. This suggests it is important to control for these factors in testing our hypotheses. The asset test measures a REOC's percentage deviation from the minimum required ratio of real estate and other qualifying assets relative to total assets in its country. And converting REOCs are substantially closer to fulfilling the asset test than non-converting REOCs (−2.86% vs. −11.15%). The same holds for the distribution test, where converting REOCs are −9% below the requirement versus −60.65% for non-converting REOCs. Moreover, prior to conversion, converting REOCs pass the gearing test, as their leverage ratios are on average 8% below the maximum ratio in their countries. In contrast, non-converting REOCs exhibit, on average, a leverage of 1% below the maximum leverage ratio.

Also prior to conversion, 54% of converting REOCs are located in countries where the REIT structure is subject to ownership restrictions. REOCs that do not convert tend to be more exposed



to ownership restrictions (97%). Thus, this factor may be a barrier to REIT conversions. The descriptive statistics for our final control variable, *Size*, are relatively similar for REIT converters versus non-converters.

Appendix Table A3 provides the correlation matrix of the explanatory variables. All correlation estimates are well below the threshold of 0.8, suggesting multicollinearity should not be a concern.

## 4. Empirical Results

### 4.1. *Company-Specific Determinants and Market Dynamics*

Our empirical results regarding a REOC's conversion decision are organized into several subsections. In this subsection, we test our first three hypotheses using the full sample of 4,603 observations. The respective panel logit regression results are in Table 3. The model (i) results in the first column focus on the set of control variables. The subsequent models (ii) – (iv) successively introduce the variables used to test Hypotheses 1 – 3. All regression results are estimated controlling for panel-specific heteroscedasticity and autocorrelation. We also control for the introduction of REIT regimes with an indicator variable that equals one in the two years following the introduction of a REIT regime in a country.<sup>7</sup>

Our empirical conclusions concerning the hypotheses are based on the statistical significance of the coefficients in model (iv), our main model. As proposed in Downs et al. (2017), we analyze the economic implications graphically, again based on the model (iv) results. Figures 3 – 7 show how REIT-conversion probabilities change as a function of the respective explanatory variables, while all other explanatory variables are held constant at their pre-conversion means (as shown in Table 2).

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<sup>7</sup>An anonymous referee has suggested that the presentation of our results would benefit from considering business cycles and alternative linear model specifications. To address these concerns, we perform robustness checks using linear probability models where we control for country, individual and year fixed effects. The results are remarkably robust and therefore not reported but they are available from the authors upon request.



Before analyzing the tax, managerial, and other incentives and barriers to obtaining the REIT structure, we first focus on our control variables. They measure the extent to which a REOC has already fulfilled the criteria for REIT status. Model (i) reveals that the coefficient on  $AssetTest_{i,t-8}$  is positive and statistically different from zero. Hence, a REOC whose share of real estate assets exceeds the minimum for REITs in its country has a higher conversion probability than those below the threshold. Similarly, the coefficient on  $DistributionTest_{i,t-8}$  is positive and significant. This suggests that REOCs that exceed the minimum share of real estate-related income distributions also obtain a higher conversion probability.<sup>8</sup> In contrast, the coefficient on  $GearingTest_{i,t-8}$  is not statistically different from zero. Thus, we find no evidence that restrictions on the extent to which REITs can use financial leverage pose any substantial barrier to REIT conversions. On the other hand, the coefficient on the  $OwnershipRestrictions_{j,t-8}$  variable is negative and significant, suggesting that major limitations on concentrations of shareholders are a barrier to REIT conversions in those countries. The impact of our control variables that capture formal REIT criteria are all robust across different model specifications except for Asset Test, which is only significant in model (i). Our final control variable is REOC size, which we use to capture potential scale economies in the REIT–conversion decision. The impact of  $Size_{i,t-8}$  is not statistically different from zero in models (ii) – (iv).

Model (ii) introduces the explanatory variables used to test whether and to what extent the REIT–conversion decision is a cost-benefit trade-off. The coefficient on  $EffectiveTaxRate_{i,t-8}$  is positive and statistically different from zero. REOCs with higher effective tax rates are more inclined to convert. This finding supports the tax benefit argument for REIT conversion (Hypothesis 1a). Ling et al. (2020) also address some determinants of REIT conversions. Using a sample of 29 U.S. REIT conversions, they find that non-REITs with high income tax ratios are more likely to convert. Figure 3 shows that the REIT–conversion probability increases from 1% to 1.5% as the effective pre-conversion tax rate increases from 15% to 40%. Model (ii) introduces  $ExitTaxCosts_{i,t-8}$ , an-

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<sup>8</sup>Appendix Table A4 provides a direct comparison of our logit regression results using the distribution test versus an approximate regulatory payout rule based on the dividend yield (Ling et al., 2020). Importantly, the distribution test yields superior results in an international context.



other proxy for the costs associated with REIT conversions. Consistent with Hypothesis 1b, the coefficient is negative and statistically significant. Figure 4 shows that the conversion probability substantially decreases as the exit taxes rise. In summary, our results are consistent with the notion that the REIT–conversion decision is a cost-benefit trade-off.<sup>9</sup>

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Insert Table 3 about here

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Model (iii) introduces  $NAV\ Spread_{i,t-8}$  to test whether a REOC’s stock market valuation relative to its fundamental value has an impact on REIT conversions. Consistent with Hypothesis 2, the coefficient on  $NAV\ Spread_{i,t-8}$  is negative and significant at the 5% and 1% levels. The larger the NAV discount, the higher the REIT–conversion probability. Figure 5 shows that REOCs trading at a NAV discount of 30% have a conversion probability of 3%, whereas this probability drops more than sixfold for REOCs trading at a 30% premium to NAV. Our results are consistent with the hypothesis that the REIT–conversion decision is driven by a desire to achieve a more favorable market valuation, as well as by tax considerations. In fact, REOCs may attract new investors when adopting the REIT structure and the additional demand for shares could help trigger more favorable market valuations. Investors’ attraction to REITs even during crisis periods is well documented (see, for example, Devos et al., 2013). Eichholtz and Kok (2007) also note that the introduction of REIT structures tends to increase capital flows to the real estate sector. And comparable evidence is provided by Banerjee et al. (2016), who find that companies that choose to go public early in hot IPO markets do so in order to strengthen their corporate identity and open up more fully for new investors.

Model (iv) completes the analysis by introducing two variables that proxy for the impact of herding or peer-following behavior in the REIT–conversion decision (Hypothesis 3). The first,  $REIT\ Market\ Share_{j,t-8}$ , measures the share of converted REITs in a country. As the market share of REITs increases, remaining REOCs may be more inclined to follow their industry peers and

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<sup>9</sup>We incorporate initial costs of conversion measured by exit taxes triggered by a necessary taxation upon the realization of hidden reserves. The results remain robust if we extend these costs by the conversion charge of 2% applied in the U.K.



convert. Consistent with this hypothesis, the coefficient on  $REIT\ Market\ Share_{j,t-8}$  is positive and statistically significant. In an additional test, using the proportion of all REITs for a shorter time period, we find qualitatively similar results (unreported). Figure 6 shows that the conversion probability is only 1% for REIT market shares of 10% – 20%. In contrast, for high REIT market shares of 70% – 90%, that percentage increases to between 3% – 4%. REOC executives may be more inclined to convert when they observe their peers doing so. Accordingly, our second proxy for the impact of herding is the rolling sum of REIT conversions in the same country over the prior two years. Consistent with Hypothesis 3, the coefficient on  $Previous\ Conversions_{j,t-1}$  is positive and significant across all model specifications. Figure 7 shows the conversion probability is approximately 0.5% when there are zero conversions by other REOCs in the same country in the prior 24 months. This probability doubles to 1% with two prior conversions, and again to 2% with four prior conversions. Taking both results together, we assume a higher acceptance of the national REIT regime among the existing listed property companies captures the policy environment and facilitates the individual decision-making towards conversion.<sup>10</sup>

#### 4.2. Managerial Incentives

Table 4 extends the previous subsection’s analysis to test for the impact of managerial incentives on the REIT–conversion decision. In particular, we introduce the cash and equity compensation of key executives to proxy for their incentive structures. The compensation measures are calculated across a rolling two-year window in order to smooth period volatility in the remuneration structure. We include the variables with a time lag of two years.

Relative to Table 3, the number of observations in this analysis decreases by about one-quarter to 3,431. This decrease is due to the fact that compensation structures are not available for all REOCs in our sample. To ensure comparability, we rerun the regression of Table 3, model (iv), applying it this time to our smaller subsample. The respective regression results shown in Table 4, model (i), are qualitatively and quantitatively robust compared to the full sample results. All

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<sup>10</sup>Leary and Roberts (2014) state that it is challenging to disentangle peer mimicking behaviors from the country-wide unobserved factors that simultaneously drive firm behaviors within the same industry, i.e., disentangling rational and behavioral motives is beyond the scope of the current study.



major explanatory variables maintain their signs and statistical significance.

Since cash compensation can be linked to empire-building behavior, we examine whether it is negatively correlated with REIT conversions. Our reasoning is that the REIT structure limits the freedom of key executives to retain earnings and grow firm size organically. Table 4, model (ii), shows that the coefficient on *Cash Compensation*<sub>*i,t-8*</sub> is not statistically different from zero. Table 4, model (iii), introduces *Equity Compensation*<sub>*i,t-8*</sub> as an additional variable to test whether an alignment of interests between management and shareholders through this mechanism increases the REIT–conversion probability (Hypothesis 4). It is not statistically different from zero.

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Insert Table 4 about here

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In a scenario where compensation is highly equity-based, and a REOC trades at a substantial discount to NAV, executives may have an incentive to convert. Conversion can trigger an increase in their wealth through the stock compensation channel. Accordingly, REIT conversions may be more likely under the combined presence of a NAV discount and a high degree of equity-based compensation. For this reason, we include an interaction term between equity compensation and the NAV spread in Table 4, model (iv), which is negative and statistically significant. The negative coefficient indicates that REIT conversions are more likely under the combined presence of high NAV discounts (negative NAV spreads) and a high degree of high equity-based compensation. This result, which is arguably a stronger test than considering either cash or equity compensation without the NAV spread interaction effect, provides strong evidence in favor of Hypothesis 4.<sup>11</sup>

Because the interpretation of interaction terms in non-linear models is not straightforward, we follow Greene (2010) and use graphical illustrations to analyze the economic implications. Figure 8 shows how the REIT–conversion probability changes for different combinations of NAV

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<sup>11</sup>We calculate the measures for cash- and equity-based compensation based on the literature (Price et al., 2015, Pennathur and Shelor, 2002). Similarly, we find the share of equity to total compensation is significant at the 5% level. The regression results for the share of equity-based compensation are available from the authors upon request.



discounts, ranging from 0% to 50%, as well as for equity-based compensations  $\pm 2$  standard deviations around the mean. The resulting probability is illustrated in color. As shown in the legends to the right of the graphs, green denotes relatively high conversion probabilities above 20%, while red denotes conversion probabilities below 4%. Moreover, the left-hand (right-hand) graph shows the level (share) of equity-based compensation relative to total compensation. The higher the level and share of equity-based compensation for REOC executives, and the lower the NAV spread, the higher the REIT–conversion probability. Both graphs reveal that combinations of high equity-based compensation and high NAV discounts are associated with REIT–conversion probabilities of up to 49%. The graph on the right-hand side also shows that it is not only the absolute amount of equity-based compensation, but also the relative share, that drives REIT conversions. The evidence in Figure 8 supports Hypotheses 2 and 4.

#### 4.3. *Spillover and Reform Effects*

We are also interested in potential spillover effects across countries, as well as the effect of REIT regulatory reforms within countries. In this subsection, we examine the number of REOC-to-REIT conversions at the country level. Consequently, we replace the binary endogenous variable, which captures the conversion decision, with a count data variable to denote the number of conversions per country. We model country-level REIT conversions using a Poisson regression framework that accommodates count variable regressions. Our results are estimated using fixed effects and standard errors clustered at the country level. The results are robust even if the underlying Poisson distribution is arbitrarily misspecified and serial correlation is present (Wooldridge, 2005). The model we use is in Equation 4:



$$\begin{aligned}
\text{Conversions}_{j,t} = & \alpha_0 \\
& + \beta_1 \text{Tax Rate}_{j,t-8} \\
& + \beta_2 \text{NAV Spread}_{j,t-8} \\
& + \beta_3 \text{REIT Market Share}_{j,t-8} \\
& + \beta_4 \text{Previous Conversions}_{j,t-1} \\
& + \beta_5 \text{Spillover}_{j,t-8} \\
& + \beta_6 \text{Reform}_{j,t-8} \\
& + \epsilon_{j,t}
\end{aligned} \tag{4}$$

Our country-level model builds on Equation 1. We follow Khorana and Servaes (1999), and replace company-specific variables with country-level averages. For example, *Tax Rate* represents the cross-sectional mean of the effective tax rate of all firms in country  $j$  during quarter  $t$ . Likewise, *NAV Spread* is country-level NAV spread in quarter  $t$ . *REIT Market Share* and number of *Previous Conversions* have already been defined at a country level. *Spillover* measures the number of REIT conversions globally less the number of conversions for respective country  $j$ . Since we expect market participants to track each other's activity, we incorporate the number of global conversions in this way. A similar approach is used in Diebold and Yilmaz (2009) as a country-to-country approach across time. Finally, *Reform* is a dichotomous variable that equals one if regulatory REIT requirements in country  $j$  have eased over the prior 12 months. Several reforms have been established in each country since their respective REIT regime introductions. Because it is not always possible to clearly determine whether a reform makes a regime more attractive for participants, we define a reform variable that equals one only if the reform change clearly facilitates conversion for domiciled companies. For example, Spain abolished leverage limits, and the U.K. ceased charging 2% of the gross market value of properties for converting.

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Insert Table 5 about here

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Table 5 reports the regression results for the spillover and reform effects analysis. Model (i) builds on the Table 3 results, this time focusing on country-level. The coefficient on  $\text{Tax Rate}_{j,t-8}$



is positive and significant across all three models, (i) – (iii). Consistent with Hypothesis 1a, higher corporate tax rates are associated with a higher number of conversions. This result suggests the REIT structure is particularly attractive to REOCs in countries with higher corporate tax rates. Moreover, the coefficient on country-level  $NAV\ Spread_{j,t-8}$  is again negative and significant. Thus, the lower the stock market valuation of REITs in general in a country, the higher the probability of REOC-to-REIT conversions. This result is consistent with Hypothesis 2. While the coefficient on  $REIT\ Market\ Share_{j,t-8}$  is no longer significant at a country level, the positive and significant coefficient on  $Previous\ Conversions_{j,t-1}$  is consistent with Hypothesis 3. Prior conversions in the same country significantly influence the number of country-level REIT conversions.

Model (ii) introduces the variable  $Spillover_{j,t-8}$ . The coefficient is positive and statistically significant. This implies that the number of REIT conversions in a country has a positive impact on REIT conversions in other countries. Thus, “REIT waves” can spill over to other countries. The effect remains significant in model (iii).

Model (iii) includes the variable  $Reform_{j,t-8}$ , which captures the presence of any easing in countries’ regulatory requirements. The coefficient is positive and statistically significant. We interpret this to suggest that an easing of regulatory requirements in obtaining and maintaining REIT status is associated with an increase in REOC-to-REIT conversions.

## 5. Conclusion

The fact that such a large percentage of REOCs do not opt for conversion to REITs seems puzzling. Prior studies have documented the benefits of REIT conversion, and described the cost-benefit trade-offs. These prior studies have speculated that the tax benefits of a REIT structure are the primary reason for REOCs to convert. But, to date, no study has provided a comprehensive examination of the factors that influence conversion.

Our study addresses this gap in the literature by examining several specific hypotheses regarding REOC-to-REIT conversion. By exploring the determinants using international data, we



are able to capture cross-country and country-specific effects. We construct a unique dataset of listed property companies over the January 1999 – December 2018 period. We analyze 215 REOCs, of which 80 converted to REITs and 125 did not. Our analysis identifies a number of economically and statistically significant incentives and barriers that we show drive the REIT–conversion decision.

Capitalizing on a high degree of heterogeneity in corporate income tax rates across time and countries, we document that REIT–conversion probability is linked to the extent of tax benefits. This result is not surprising, but substantial tax savings alone are not sufficient to trigger a conversion. We also show that high restructuring costs are associated with lower conversion probabilities. Together, these results are consistent with our hypothesis that the REIT–conversion decision is a cost-benefit trade-off.

Our findings also support the hypothesis that the REIT–conversion decision is impacted by peer-following behavior. If a national REIT regime is well established and accepted among market participants, as measured by a high REIT market share, the likelihood of conversions increases. Moreover, REOCs are more likely to convert if peers in the same country have converted. And country-level results provide evidence of spillover effects from REIT conversions in other countries.

We confirm our hypothesis that managerial incentives can have a positive impact on the REIT–conversion decision. While neither of our remuneration measures is statistically significant on its own, we find a negative and statistically significant impact for the interaction between equity-based compensation and the NAV spread. Specifically, in the presence of a lower NAV spread, the alignment of interests between management and shareholders via equity-based compensation leads to higher REIT–conversion probabilities. We document up to a 30% higher likelihood of REIT conversions for high levels of equity-based compensation. In other words, REIT conversions seem to be motivated by the personal incentive structures of REOC executives when they seek to enhance their wealth through a REIT conversion.



Finally, our country-level results also suggest that REOCs are incentivized to higher levels of REIT regime adoption following the easing of regulatory restrictions. This result may be of particular interest to regulators, taxing authorities, and policymakers, because, arguably, REIT conversion generates higher and more stable tax revenues.



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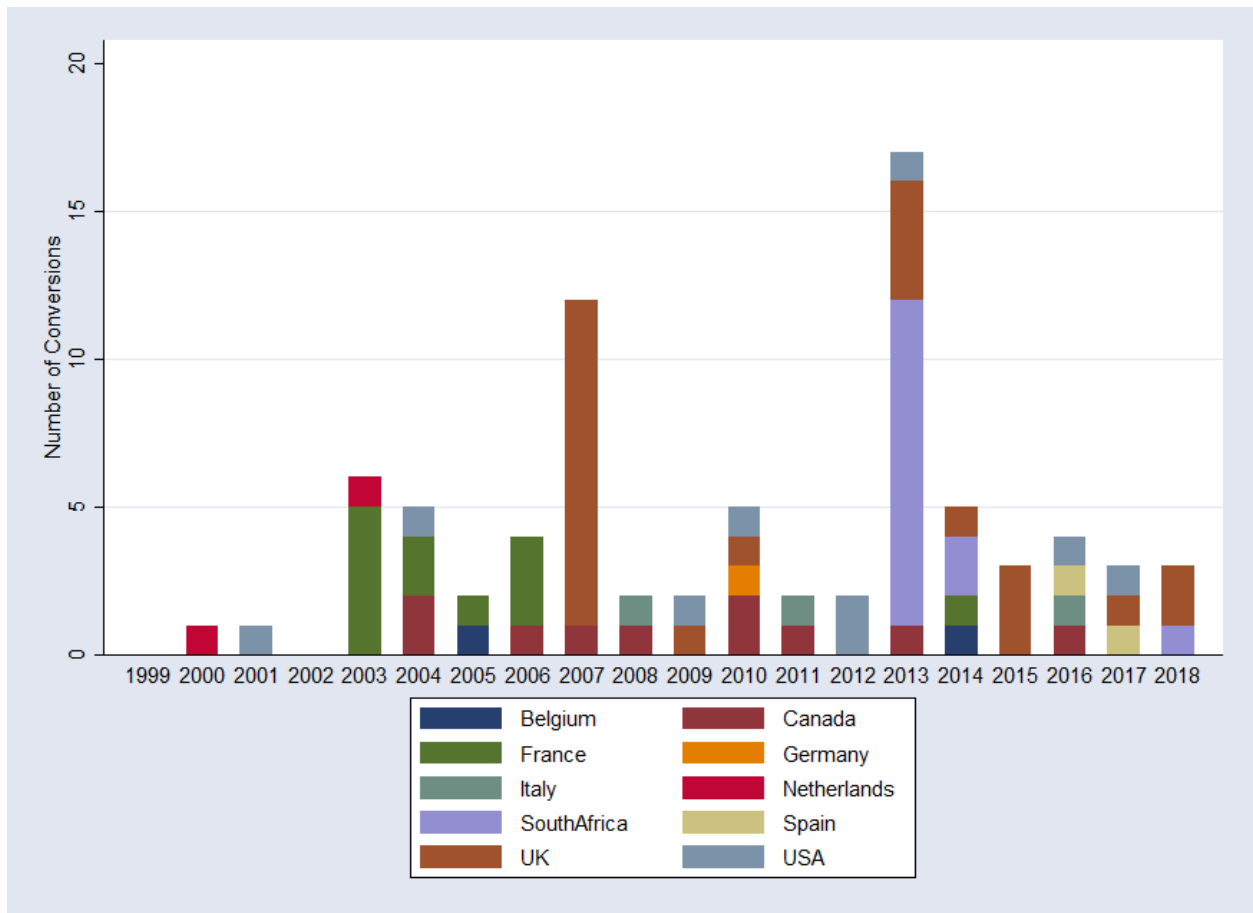
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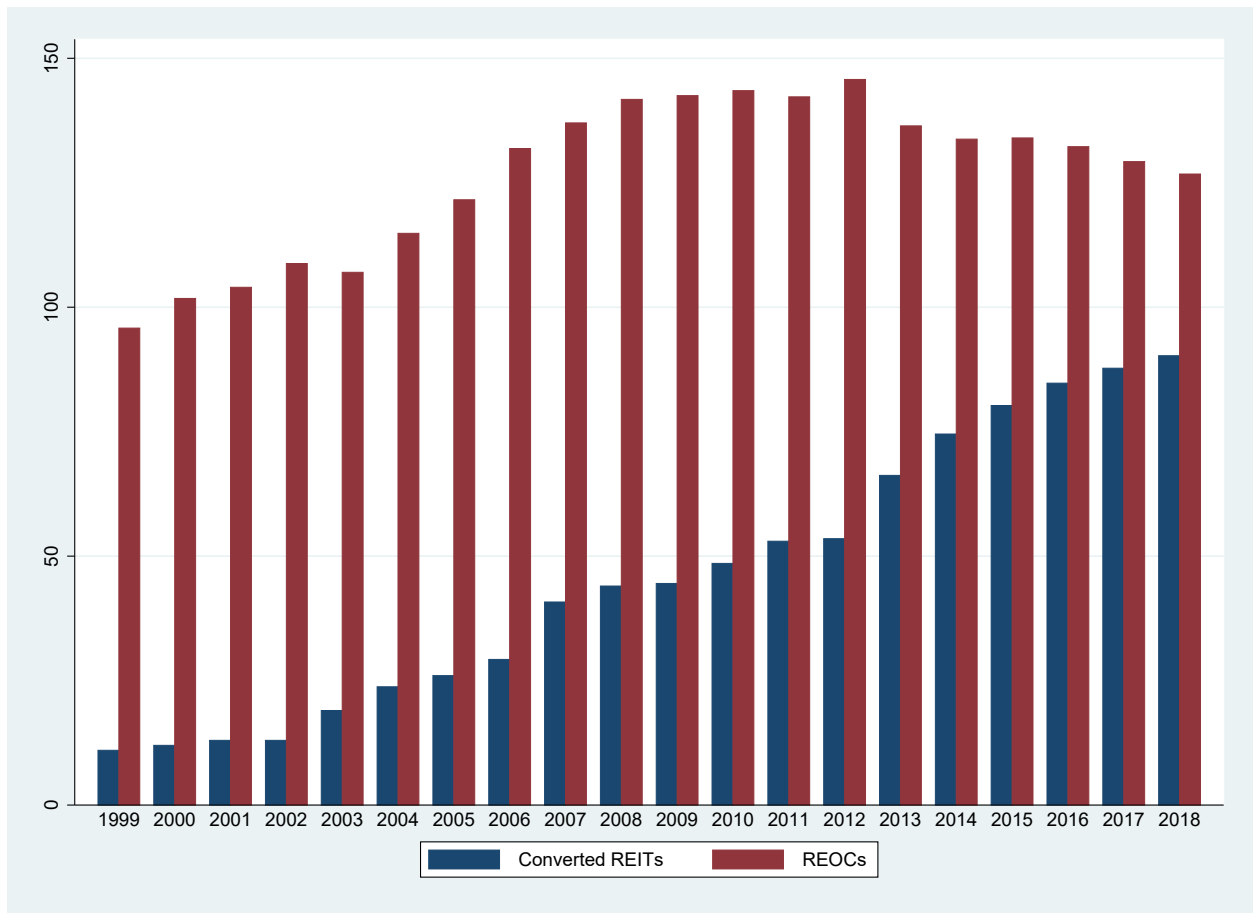
Figure 1: REIT Conversions, By Country, Over Time



*Note:* This figure shows the number of country-level REOC-to-REIT conversions per year over our 1999 – 2018 sample period.



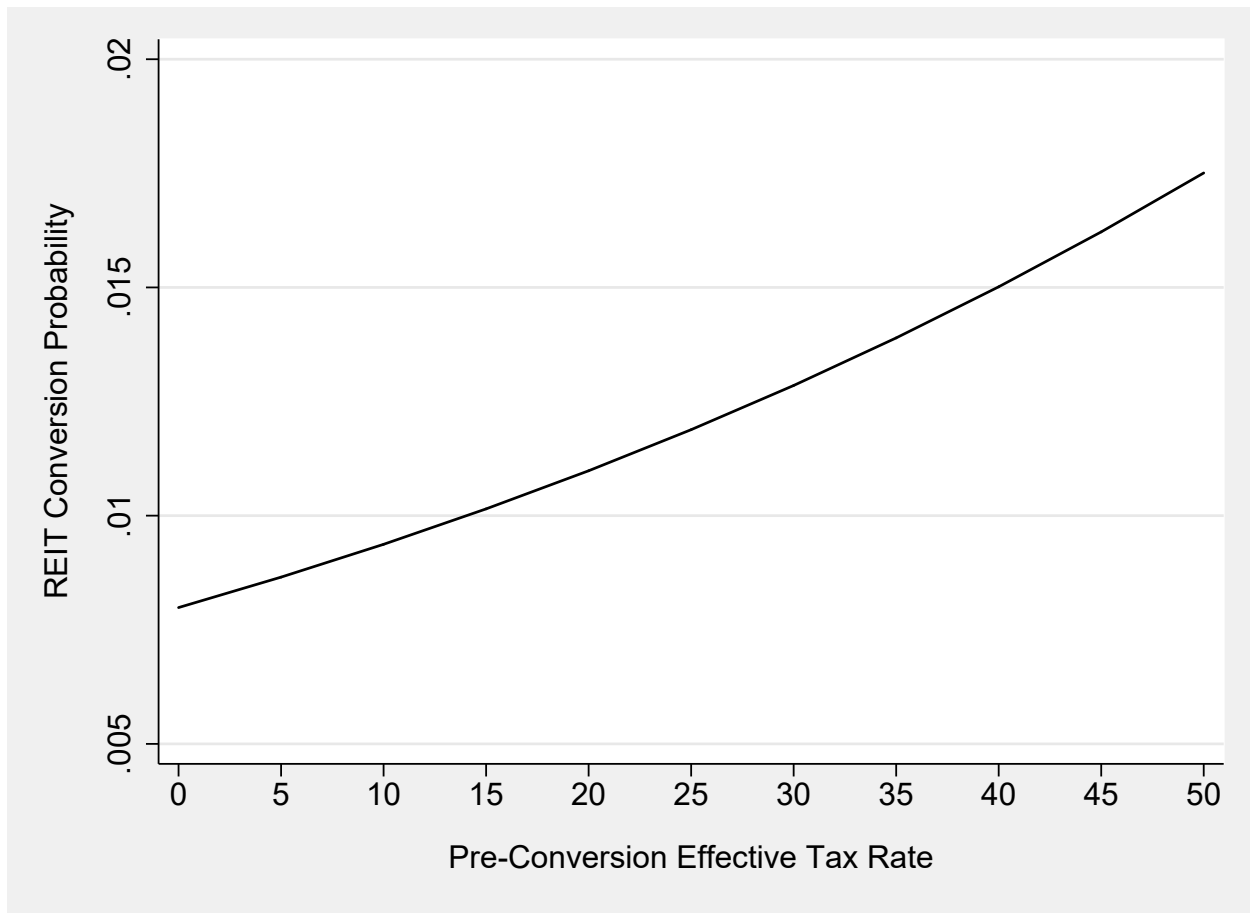
Figure 2: Number of Listed Real Estate Companies Over Time



*Note:* This figure shows the aggregate number of REOCs (red bars) and converted REITs (blue bars) per year over our 1999 – 2018 sample period.



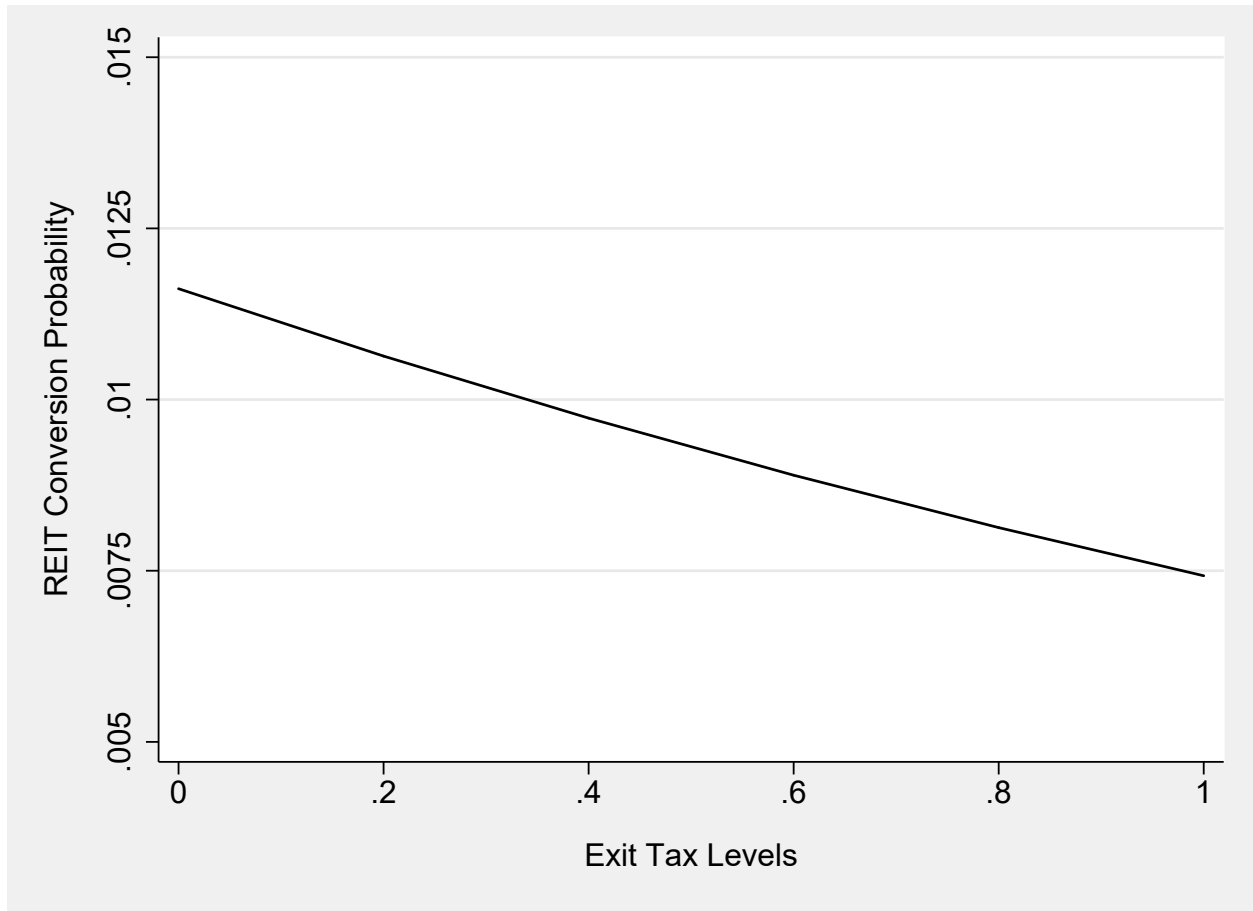
Figure 3: Marginal Effects of Company Effective Tax Rates



*Note:* This figure shows how the REIT–conversion probability changes as a function of company-specific effective tax rate. The predicted probabilities are based on the regression results in Table 3, model (iv), where all other explanatory variables are held constant at their pre-conversion means, as shown in Table 2.



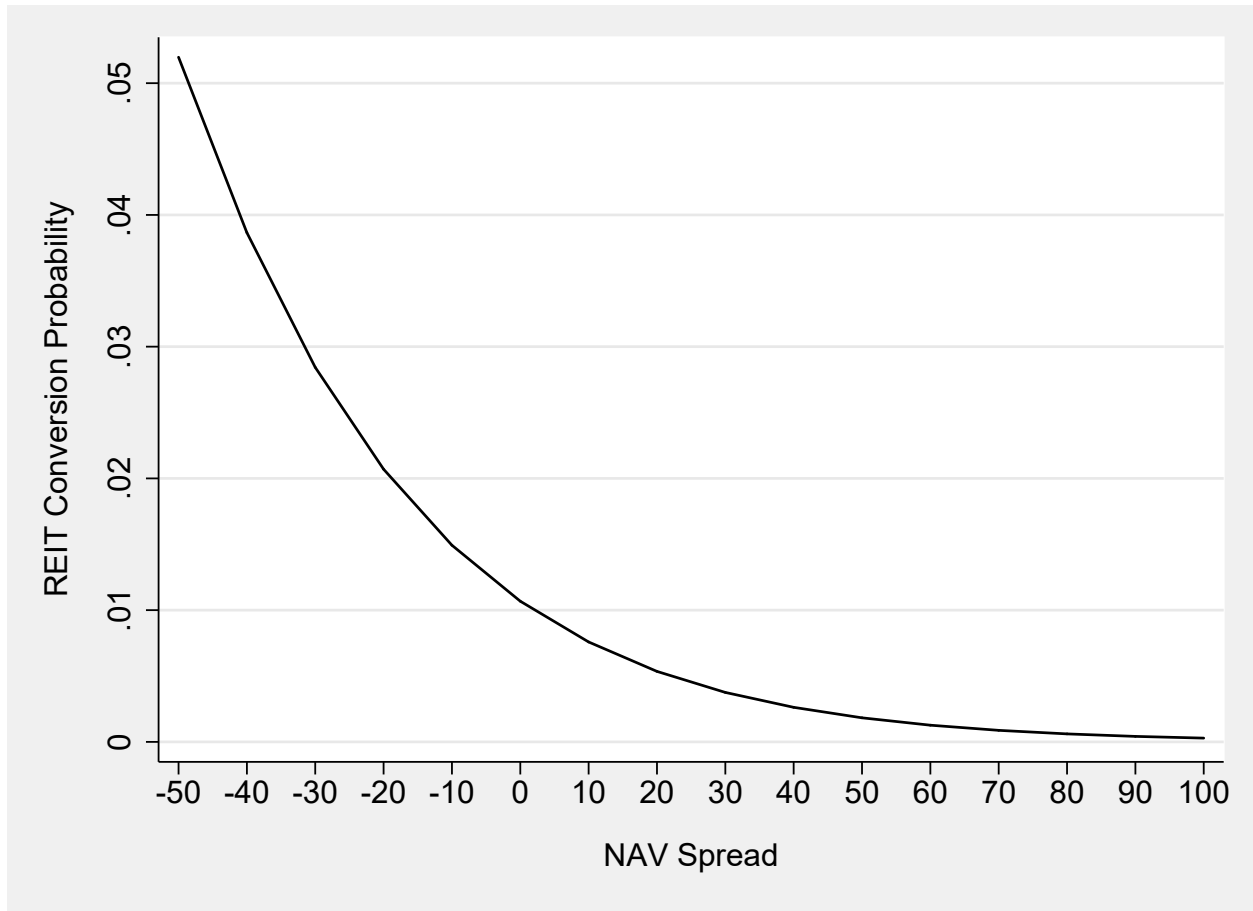
Figure 4: Marginal Effects of Exit Tax Costs



*Note:* This figure shows how the REIT–conversion probability changes as a function of company-specific exit taxes. The predicted probabilities are based on the regression results in Table 3, model (iv), where all other explanatory variables are held constant at their pre-conversion means, as shown in Table 2.



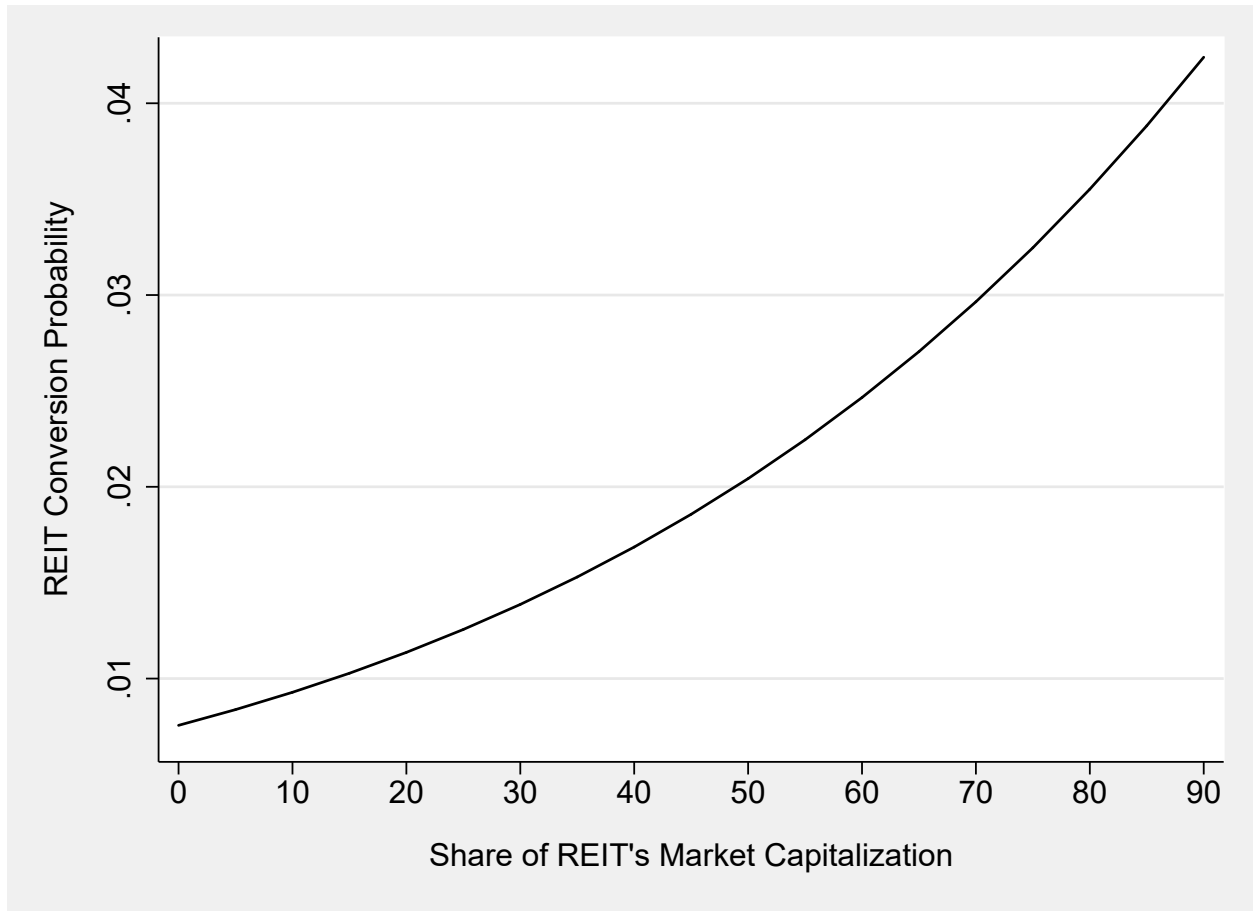
Figure 5: Marginal Effects of NAV Spreads



*Note:* This figure shows how the REIT–conversion probability changes as a function of company-specific net asset value (NAV) spreads. The predicted probabilities are based on the regression results in Table 3, model (iv), where all other explanatory variables are held constant at their pre-conversion means, as shown in Table 2.



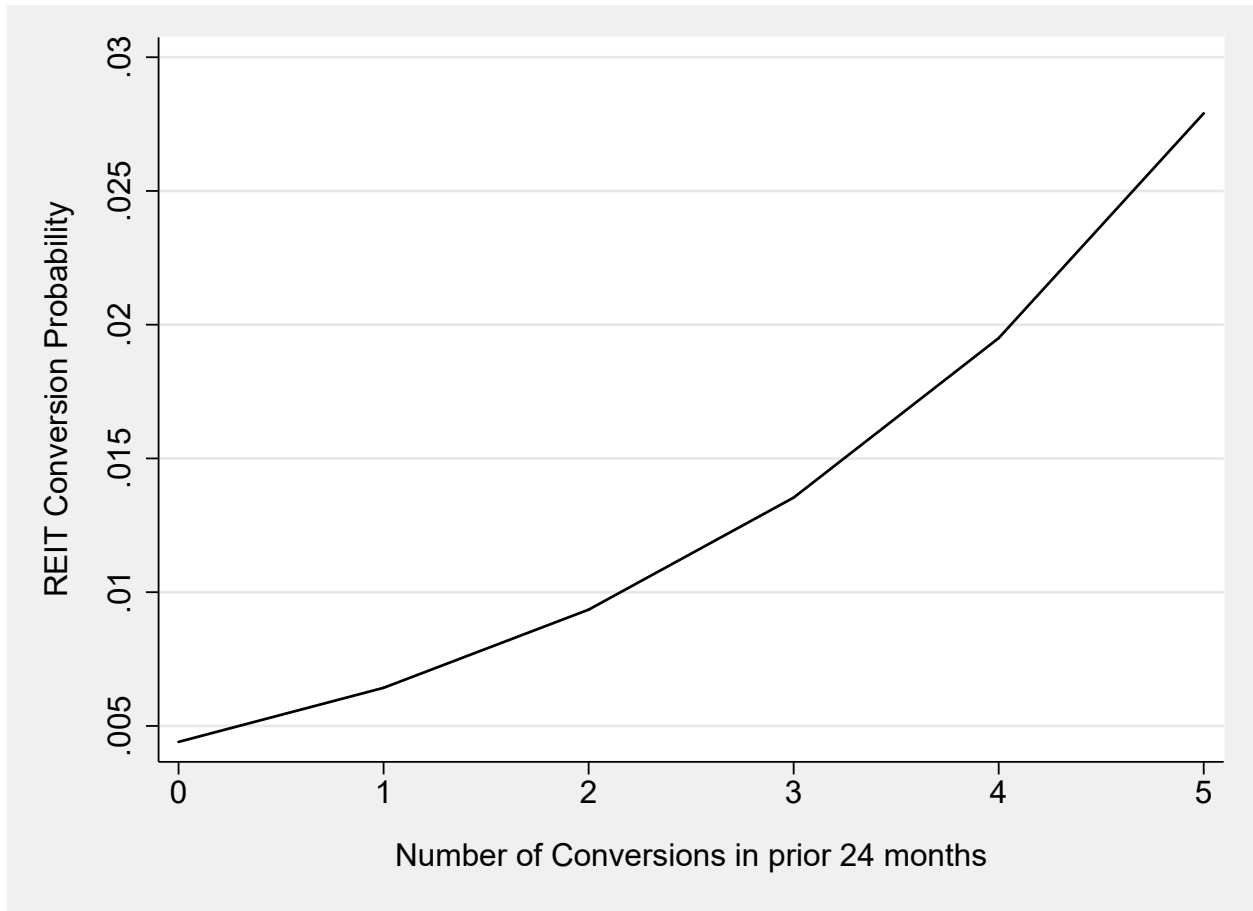
Figure 6: Marginal Effects of REIT Market Share



*Note:* This figure shows how the REIT–conversion probability changes as a function of REIT market share in country  $j$ . The predicted probabilities are based on the regression results in Table 3, model (iv), where all other explanatory variables are held constant at their pre-conversion means, as shown in Table 2.



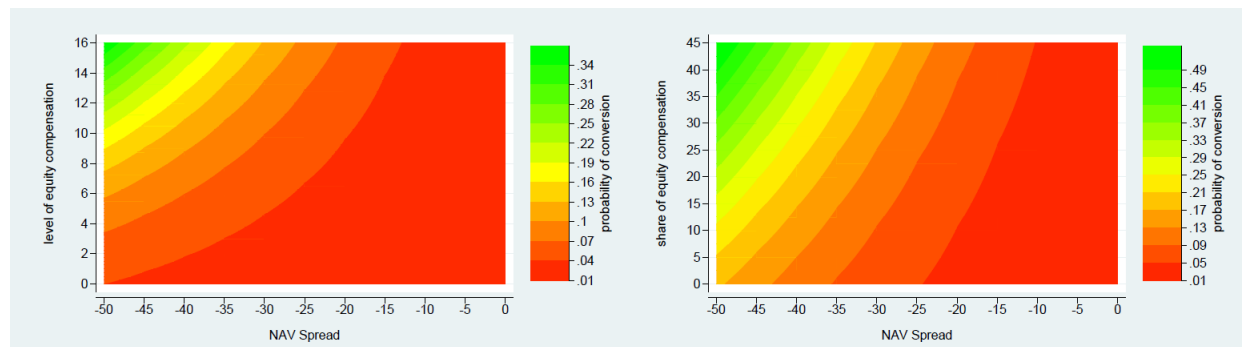
Figure 7: Marginal Effects of Previous Conversions



*Note:* This figure shows how the REIT–conversion probability changes as a function of previous REIT conversions that occurred within 24 months in the same country,  $j$ . The predicted probabilities are based on the regression results in Table 3, model (iv), where all other explanatory variables are held constant at their pre-conversion means, as shown in Table 2.



Figure 8: Interaction Effect of the NAV Spread and Equity-Based Compensation



*Note:* This figure shows how the REIT–conversion probability changes for a range of combinations of NAV spreads and equity-based compensation. The predicted probabilities are based on the regression results in Table 4, model (iv), where all other explanatory variables are held constant at their pre-conversion means, as shown in Table 2. The resulting REIT conversion probability is illustrated in color. The left-hand graph is based on the level of equity compensation; the right-hand graph is based on the share of equity-based compensation relative to total compensation.



Table 1: Distribution of the Listed Real Estate Companies (REOCs and REITs

Country	REOCs		REITs	
	<i>overall</i>	<i>never converted</i>	<i>converted</i>	<i>overall</i>
Belgium	3	0	3	9
Canada	10	0	10	37
France	14	2	12	16
Germany	18	17	1	3
Italy	4	1	3	3
Netherlands	3	0	3	8
South Africa	17	3	14	20
Spain	6	4	2	4
UK	83	59	24	39
USA	20	1	18	222
Japan	9	9	0	54
Hong Kong	22	22	0	13
Singapore	7	7	0	12
Total	215	125	90	440

*Note:* This table shows the distribution of REOCs, REITs, and REIT conversions by country and in aggregate over the January 1999 – December 2018 sample period. The first column gives the overall number of REOCs, which is split up into those that never convert (column 2) and those which converted to REITs during our sample period (column 3). Column 4 gives the overall number of REITs, including converted REOCs.



Table 2: Sample Characteristics

	REOCs before REIT Conversion				REOCs after REIT Conversion				REOCs w/o REIT Conversion			
	mean	sd	p25	p75	mean	sd	p25	p75	mean	sd	p25	p75
<i>Tax Cost-Benefit Trade-Off</i>												
Effective Tax Rate [%]	21.73	15.19	7.22	33.01	6.12	8.64	0.25	9.50	17.15	20.46	3.03	24.41
Exit tax costs [level]	-0.06	0.88	0.00	0.23	0.00	0.00	0.00	0.00	0.16	0.21	0.03	0.22
<i>Market Valuation</i>												
NAV Spread [%]	30.62	131.60	-16	30.5	56.28	216.90	-20	11	4.26	108.71	-42.08	8.86
<i>Herd Behavior</i>												
REIT Market Share [%]	32.26	34.82	0.00	62.45	71.31	21.69	54.77	90.58	59.18	7.69	59.76	59.76
Previous Conversions [level]	1.11	1.89	0	2	4.45	3.90	1	7	2.97	0.63	3.14	3.14
<i>Executive's Incentives</i>												
Cash Compensation [level]	2.57	11.18	0.14	1.43	0.74	1.45	0.12	0.98	1.36	1.90	.13	1.66
Equity Compensation [level]	3.36	5.53	0.00	8.45	6.27	6.70	0.00	13.47	2.22	3.91	0.00	4.09
Share of Equity Compensation [%]	3.52	7.97	0.00	1.69	9.27	12.99	0.00	15.52	2.72	6.74	0.00	1.22
<i>Control Variables</i>												
Asset Test [%]	-2.86	30.18	-9.40	17.20	3.18	23.44	-.34	17.70	-11.15	36.96	-32.19	20.54
Distribution Test [%]	-9.00	83.47	-78.54	26.16	15.34	81.09	-30.79	44.03	-60.65	47.90	-100.00	-31.4956
Gearing Test [%]	-7.99	18.73	0	0	-8.34	17.03	0	0	-.76	8.43	0	0
Ownership Restrictions [level]	0.54	0.50	0	1	0.61	0.49	0	1	0.97	0.17	1	1
Size [level]	14.22	1.59	13.18	15.55	14.79	1.34	13.76	15.89	13.27	1.05	12.41	14.00

*Note:* This table provides descriptive statistics on our explanatory variables around REIT-conversion dates. The first set shows descriptive statistics only for REOCs that later converted to REITs exactly 24 months before their official adoption of the REIT structure. The second set shows descriptive statistics for the same companies, but twenty-four months post-REIT conversion. The third and final set of descriptive statistics is for REOCs that did not convert. The respective numbers are averaged over all technical REIT-conversion dates. Detailed variable definitions are in section 3.2.



Table 3: Logit Estimation Results of REOC-to-REIT Conversion Likelihood

	model i	model ii	model iii	model iv
<i>Cost Benefit Trade-Off</i>				
Effective Tax Rate		0.014** (0.006)	0.013** (0.007)	0.016** (0.007)
Exit Tax Costs		-0.359*** (0.101)	-0.552*** (0.167)	-0.564*** (0.161)
<i>Market Valuation</i>				
NAV Spread			-0.064** (0.028)	-0.048*** (0.018)
<i>Herd Behavior</i>				
REIT Market Share				0.033*** (0.007)
Previous Conversions				0.400*** (0.066)
<i>Control Variables</i>				
Asset Test	0.012** (0.006)	0.011 (0.007)	0.011 (0.007)	0.011 (0.007)
Distribution Test	0.004*** (0.001)	0.004** (0.002)	0.004** (0.002)	0.004** (0.002)
Gearing Test	0.003 (0.004)	-0.003 (0.006)	-0.003 (0.006)	-0.004 (0.009)
Ownership Restrictions	-1.091*** (0.306)	-1.364*** (0.389)	-1.405*** (0.396)	-1.926*** (0.475)
Size	-0.247*** (0.068)	-0.120 (0.086)	-0.126 (0.088)	-0.010 (0.110)
Constant	-0.217 (1.048)	-2.938** (1.370)	-2.799** (1.405)	-5.448*** (1.902)
Observations	4603	4603	4603	4603
Pseudo $R^2$	0.165	0.251	0.261	0.303

*Note:* This table shows the panel logit regression results of a REOC's decision to convert to a REIT. The unit of observation is the operating status in each quarter. The dependent variable equals one if REOC  $i$  from country  $j$  converts to a REIT in quarter  $t$ , and zero in all previous quarters. Explanatory variables are the company-specific *Effective Tax Rate*, *Exit Taxes* triggered by uncovering hidden reserves and *NAV Spreads*, as well as country-level *REIT Market Share* and number of *Previous REOC-to-REIT Conversions* in the same country. Control variables are country-specific *REIT criteria* and company *Size*. All independent variables are lagged by two years. The regression results are estimated controlling for a REIT regime introduction indicator variable, and using panel-specific heteroscedasticity and autocorrelation robust standard errors clustered at the company level (in parentheses). \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.



Table 4: Extended Logit Estimation Results of REOC-to-REIT Conversion Likelihood

	model i	model ii	model iii	model iv
<i>Cost Benefit Trade-Off</i>				
Effective Tax Rate	0.024*** (0.008)	0.024*** (0.008)	0.024*** (0.008)	0.026*** (0.008)
Exit Tax Costs	-0.833*** (0.259)	-0.832*** (0.260)	-0.883*** (0.269)	-0.833*** (0.309)
<i>Market Valuation</i>				
NAV Spread	-0.193* (0.102)	-0.193* (0.102)	-0.216** (0.105)	-0.158 (0.120)
<i>Herd Behavior</i>				
REIT Market Share	0.032*** (0.009)	0.031*** (0.009)	0.031*** (0.009)	0.032*** (0.009)
Previous Conversions	0.394*** (0.073)	0.393*** (0.073)	0.394*** (0.072)	0.399*** (0.075)
<i>Executive's Incentives</i>				
Cash Compensation		-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Equity Compensation			0.031 (0.034)	0.020 (0.032)
NAV Spread $\times$ Equity Compensation				-0.036*** (0.012)
<i>Control Variables</i>				
Asset Test	0.013 (0.008)	0.013 (0.008)	0.014 (0.009)	0.014 (0.009)
Distribution Test	0.005** (0.002)	0.005** (0.002)	0.005** (0.002)	0.004* (0.002)
Gearing Test	0.000 (0.010)	0.000 (0.010)	-0.000 (0.010)	-0.003 (0.010)
Ownership Restrictions	-1.804*** (0.694)	-1.796** (0.704)	-1.819*** (0.689)	-1.644** (0.675)
Size	0.127 (0.145)	0.130 (0.151)	0.116 (0.152)	0.143 (0.158)
Constant	-7.440*** (2.566)	-7.480*** (2.627)	-7.353*** (2.625)	-7.985*** (2.780)
Observations	3431	3431	3431	3431
Pseudo $R^2$	0.258	0.258	0.260	0.272

*Note:* This table shows panel logit regression results for a REOC's decision to convert to a REIT, including the impact of managerial incentives. The unit of observation is the operating status of each REOC in each quarter. The dependent variable equals one if REOC  $i$  from country  $j$  converts to a REIT in quarter  $t$ , and zero in all previous quarters. Explanatory variables are company-specific *Effective Tax Rate*, *Exit Taxes*, triggered by uncovering hidden reserves and *NAV spreads*; country-level *REIT Market Share*; number of *Previous REOC-to-REIT Conversions* in the same country; and *Cash- and Equity-Based Compensation* of each REOC's key executives. Control variables are country-specific *REIT criteria* and company *Size*. The regression results are estimated controlling for a REIT regime introduction indicator variable, and using panel-specific heteroscedasticity and autocorrelation robust standard errors clustered at the company level (in parentheses). \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.



Table 5: Spillover and Reform Effect on REOC-to-REIT Conversions

	model i	model ii	model iii
Tax Rate	0.129*** (0.040)	0.126*** (0.042)	0.124*** (0.044)
NAV Spread	-0.046*** (0.009)	-0.048*** (0.009)	-0.049*** (0.009)
REIT Market Share	-0.006 (0.004)	-0.007 (0.005)	-0.008 (0.006)
Previous Conversions	0.303*** (0.025)	0.303*** (0.026)	0.302*** (0.027)
Spillover		0.107** (0.052)	0.099* (0.052)
Reform Easement			0.735* (0.422)
Observations	630	630	630

*Note:* This table reports fixed effects Poisson regression results that explain the number of REOC-to-REIT conversions at a country level. The unit of observation is the number of conversions in each country  $j$  at each quarter  $t$ . *Tax Rate* is the cross-sectional mean of the effective tax rate of all firms in country  $j$ . *NAV Spread* is the country-level NAV spread in quarter  $t$ . *REIT Market Share* is the share of converted REITs in terms of total market capitalization relative to the combined market capitalization of converted REITs and REOCs in a country. *Previous Conversions* are the rolling sum of REOC-to-REIT conversions in a country over the prior 24 months. *Spillover* measures the number of global REIT conversions less the number of conversions in respective country  $j$ . *Reform* is a dichotomous variable that equals one if the regulatory REIT requirements in country  $j$  have eased over the prior 12 months. The regression results are estimated using panel-specific heteroscedasticity and autocorrelation robust standard errors clustered at the country level (in parentheses). \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.



## Appendix

Table A1: Empirical Implications on the Likelihood of REIT Conversion

Proxy / Hypothesis	H1	H2	H3	H4	Controls
Effective Tax Rate	increase				
Exit Tax Costs	decrease				
NAV Spread		decrease			
REIT Market Share			increase		
Previous Conversions			increase		
Cash Compensation				decrease	
Equity Compensation				increase	
Asset Test					increase
Distribution Test					increase
Gearing Test					decrease
Ownership Restriction					decrease
Size					increase

*Note:* This table summarizes the major empirical implications of the explanatory factors along our Hypotheses.



Table A2: Robustness Test on Different Lag Choices

	model i	model ii	model iii
<i>Cost Benefit Trade-Off</i>			
Effective Tax Rate	0.021*** (0.007)	0.022*** (0.008)	0.026*** (0.008)
Exit Tax Costs	-0.518** (0.224)	-0.633*** (0.214)	-0.833*** (0.312)
<i>Market Valuation</i>			
NAV Spread	-0.097 (0.061)	-0.038 (0.082)	-0.158 (0.121)
<i>Herd Behavior</i>			
REIT Market Share	0.023*** (0.006)	0.036*** (0.009)	0.032*** (0.009)
Previous Conversions	0.369*** (0.053)	0.446*** (0.078)	0.399*** (0.075)
<i>Executive's Incentives</i>			
Cash Compensation	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Equity Compensation	-0.021 (0.033)	0.012 (0.031)	0.020 (0.032)
NAV Spread $\times$ Equity Compensation	0.002 (0.012)	-0.025*** (0.009)	-0.037*** (0.013)
Observations	3639	3535	3431
Control Variables	YES	YES	YES
Pseudo $R^2$	0.268	0.278	0.272

*Note:* This table shows panel logit regression results for a REOC's conversion decision for different time lags between the decision date and actual conversion date, including the impact of managerial incentives. The unit of observation is the operating status of each REOC each quarter. The dependent variable equals one if REOC  $i$  from country  $j$  converts to a REIT in quarter  $t$ , and zero in all previous quarters. Explanatory variables are company-specific *Effective Tax Rate*, *Exit Taxes*, triggered by uncovering hidden reserves and *NAV Spreads*; country-level *REIT Market Share*; number of *Previous REOC-to-REIT Conversions* in the same country; and *Cash- and Equity-Based Compensation* of each REOC's key executives. Control variables are country-specific *REIT criteria* and company *Size*. Each column refers to a lag length. Column (1) reports results with all independent variables lagged by six quarters. Columns (2) and (3) increase the lag length by one quarter, respectively. The regression results are estimated controlling for a REIT regime introduction indicator variable, and using panel-specific heteroscedasticity and autocorrelation robust standard errors clustered at the company level (in parentheses). \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.



Table A3: Cross-Correlation Matrix of Explanatory Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Effective Tax Rate	1.000											
(2) Exit Tax Costs	0.242	1.000										
(3) NAV Spread	-0.123	0.298	1.000									
(4) Previous Conversions	-0.294	-0.083	0.015	1.000								
(5) REIT Market Share	-0.388	-0.271	0.214	0.388	1.000							
(6) Cash Compensation	0.029	-0.067	-0.036	0.112	0.069	1.000						
(7) Equity Compensation	0.134	-0.062	0.241	-0.222	0.036	0.067	1.000					
(8) Asset Test	-0.338	-0.052	0.173	0.098	0.245	-0.013	0.021	1.000				
(9) Distribution Test	-0.439	-0.270	0.314	0.066	0.451	-0.056	0.217	0.362	1.000			
(10) Gearing Test	0.080	0.018	0.056	0.174	0.282	0.067	0.059	-0.040	0.033	1.000		
(11) Ownership Restrictions	-0.018	0.100	-0.398	0.143	0.188	0.092	-0.026	0.148	-0.095	0.427	1.000	
(12) Size	0.161	0.065	0.044	-0.456	-0.422	-0.196	0.179	-0.121	-0.025	-0.303	-0.536	1.000

*Note:* This table contains the correlation coefficients of quarterly data over our 1999 – 2018 sample period. Detailed variable definitions are in section 3.2.



Table A4: Logit Estimation Results on Distribution Test vs. Dividend Yield

	Regulatory REIT criteria		Full model	
	model i	model ii	model iii	model iv
<i>Control Variables</i>				
Distribution Test	0.003*** (0.001)		0.004** (0.002)	0.003* (0.002)
Dividend Yield	0.037 (0.038)	0.040 (0.030)		0.063 (0.060)
Asset Test	0.010** (0.004)	0.011*** (0.004)	0.011 (0.007)	0.011 (0.007)
Gearing Test	0.004 (0.004)	0.004 (0.004)	-0.004 (0.009)	-0.004 (0.009)
Ownership Restrictions	-0.955*** (0.279)	-1.132*** (0.275)	-1.926*** (0.475)	-1.822*** (0.506)
Size	-0.221*** (0.058)	-0.219*** (0.057)	-0.010 (0.110)	0.009 (0.116)
<i>Cost Benefit Trade-Off</i>				
Effective Tax Rate			0.016** (0.007)	0.019*** (0.007)
Exit Tax Costs			-0.564*** (0.161)	-0.512*** (0.149)
<i>Market Valuation</i>				
NAV Spread			-0.048*** (0.018)	-0.046** (0.016)
<i>Herd Behavior</i>				
REIT Market Share			0.033*** (0.007)	0.035*** (0.007)
Previous Conversions			0.400*** (0.066)	0.400*** (0.066)
Constant	-0.607 (0.899)	-0.631 (0.888)	-5.448*** (1.902)	-6.107*** (2.148)
Observations	4603	4603	4603	4603
Pseudo R <sup>2</sup>	0.165	0.160	0.303	0.305

*Note:* This table provides a direct comparison of our logit regression results using *Distribution Test* versus the approximate regulatory payout rule by *Dividend Yield* (Ling et al., 2020). The panel logit models estimate a REOC's decision to convert to a REIT. The unit of observation is the operating status each quarter. The dependent variable equals one if REOC  $i$  from country  $j$  converts to a REIT in quarter  $t$ , and zero in all previous quarters. Explanatory variables are the company-specific *Effective Tax Rate*, *Exit Taxes*, triggered by uncovering hidden reserves and *NAV Spreads*, as well as country-level *REIT Market Share* and number of *Previous REOC-to-REIT Conversions* in the same country. Control variables are the remaining country-specific *REIT criteria* and company *Size*. The regression results are estimated controlling for a REIT regime introduction indicator variable, and using panel-specific heteroscedasticity and autocorrelation robust standard errors clustered at the company level (in parentheses). \*\*\*, \*\*, and \* are significant at the 1%, 5%, and 10% levels, respectively.