

The Effects of Shifting Tax Regimes

An International Examination of the REIT Effect

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Abstract

This paper contributes to the stream of literature, which assesses the stock performance effects of financial regulations by analyzing how the introduction of REIT regimes has influenced the return dynamics of listed real estate investment firms internationally. Introducing a tax transparent REIT regime offers real estate investment firms a new trade-off between corporate tax advantages and reduced corporate flexibility regarding their dividend payout policy, capital structure and the span of their corporate activities. In this paper, we document that firms, which transit to a REIT regime experience a decrease in leverage, a mild jump in stock turnover levels, and an increase in dividend payouts. The mandatory payout of earnings as dividends appears to be changing the financial DNA of the firms in our sample. Announcements of dividends become less informative, and the strong reliance on dividends alter the systematic risk of REITs.

JEL: G32, G34, L22

Keywords: financial regulation; REITs; stock performance

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1. Introduction

Over the last few decades, real estate investment firms have been listing on stock markets around the world, creating an asset category – public real estate – that matured into a sum market capitalization that exceeds 1 trillion U.S. dollars, today. Since the turn of the millennium, this public real estate market has experienced a distinct shift in financial regulations. An increasing number of countries has adopted the REIT (Real Estate Investment Trust) standard, a real estate ownership structure with a tax treatment similar to that of mutual funds. A REIT is a pass-through entity, which distributes most of its earnings and capital gains to its shareholders. While it originated in the United States in the early 1960s, various countries in Europe and Asia have decided to adopt this standard in recent years. However, neither the motives behind nor the effects of introducing REIT regimes have been subjects of academic research. It is often assumed that REIT regimes reduce risk because they involve restrictions on dividend payout, firm activities, capital structure, and ownership distributions. Moreover, policymakers claim that the transparency of REIT regimes will attract more retail investors, and increase stock liquidity by attracting more capital flows. Whether REIT standards have had any of these effects on public real estate markets is the focal point of this paper.

There are various reasons for a government to adopt a REIT regime. Improving capital allocation is undoubtedly an important motive; adopting a REIT regime makes a country attractive for investors who want to invest in real estate in a particular geographic market. The REIT status and the absence of corporate taxation also attract capital to REITs, increasing investments in real estate markets. A flourishing onshore quoted property sector boosted by REITs is more likely to invest more over the long term. This is especially important since the property sector is an

important contributor to GDP in almost every country. These are also among the publicly cited reasons in many countries (e.g. HMRC 2006). It also appears that other motives may be present. In France, for instance, companies paid an exit-tax when converting to the REIT status, and this contribution to the public budget appears to have been an influential factor in France (Real Estate Portfolio 2008). In 1960, the U.S. Congress passed the legislation enabling the creation of REITs, but most of today's U.S. REITs originated after the Tax Reform Act of 1986, which allowed REITs to own and actively manage their properties. The most recent adaptation of U.S. REIT legislation, the 1999 REIT Modernization Act, also relaxed the dividend payout-requirement from 95 to 90 percent of earnings. By the end of 2012, the U.S. equity REIT market consisted of around 150 companies, which collectively represent a market capitalization of well over 350 billion U.S. dollars.

In Europe, the Netherlands was one of the first markets to adopt REIT legislation comparable to that of the US. The Dutch 'Fiscale Beleggings Instelling' (FBI) was introduced in 1969 and offers the same trade-off between the corporate tax exemption and a set of binding criteria regarding the dividend payout, capital structure, ownership of stocks, and the span of activities that firms can engage in. Besides the Netherlands, only Belgium, South-Africa and Canada adopted a REIT-regime before the nineties. However, in the aftermath of the Asian financial crisis and spurred by the heightened economic competition that was brought about by China's open door policy, Japan, Singapore and Hong Kong introduced REITs in 2001, 2002, and 2003 respectively, mostly as a tool to enhance the appeal of their markets. In Europe, France started a REIT regime, when introducing their Société d'Investissement Immobilier Côtée (SIIC) in 2003. This French REIT regime imposed conditions that were considered very liberal, especially with respect to shareholder restrictions and dividend payout policy. Eight French investment firms immediately adopted the SIIC status and many more followed rapidly, setting an example for other European markets like Germany and the U.K.

Although the introduction of a REIT-regime is typically succeeded by an increase in the number of listed investment vehicles and the necessary tax settlements, very little is known about the effects this REIT status has on the stock performance of the firms involved. The trade-off between the corporate tax exemption and the set of governing REIT criteria should in theory result in a reduction in the systematic risk of public real estate returns, given that REIT criteria are designed to reduce the free cash flow and leverage effects of listed real estate investment

firms. A formal test of this hypothesis, however, still is lacking. Obviously, it is of great importance to understand the effects of changes in tax legislation on the financial DNA of the firms involved. Knowledge, which is important to all actors in this market; to policymakers who design the legislation of REITs and need to understand the consequences, fund managers who need to consider the corporate transition when the opportunity is offered, and to investors who allocate their resources across the market.

In this paper, we investigate the effects of REIT criteria in the France, Germany, Japan, Singapore, the U.K., and the U.K.¹. In each market, we incorporate the specific of the REIT standards and implementation. In France, Germany and the U.K., we track the performance and balance sheets of firms that were listed well before the REIT standard introduction. Here, the conversion is analyzed as true event study, with pre and post observations. In Japan and Singapore, the introduction of the REIT standard triggered a series of new listings, which does not allow us to benchmark with pre-REIT track records on a firm level. In the U.S., we find that REITs have been coexisting next to a set of REOCs. Besides the voluntary conversions of individual REOCs into a REIT, we also analyze the stock performance of these two listed markets over time. First, we document that REIT introductions lead to noticeable changes in firm characteristics. Second, we show that this is associated with structural breaks, especially in relation to investors' perception of dividend news and the systematic risk of firms that become REITs. This paper is the first that offers international empirical evidence of the stock performance consequences of a tax regime shift.

The paper proceeds as follows. First, we discuss the literature relevant for our investigation. Then, we present our sample and discuss the REIT regimes in fuller detail for each market. In the same section we also discuss method, and thereafter present our empirical analysis. First, we report our findings of REIT regimes on the information content of dividend announcement. We then proceed with an analysis of the transition effect for stock return and risks. The paper concludes with a summary of our main conclusions and the most relevant practical implications.

¹ A more thorough discussion of the local REIT legislation and details of each regime will follow when we discuss the markets in our sample.

2. Literature Review

In this section, we discuss four strands of literature; the finance literature on the performance effects of changes in financial regulations, the literature on dividends, the literature on REIT regimes and, finally, the literature on the performance of REITs. Lessons and insights from all four will be used in our research design, which we will present in the subsequent section.

2.1. Financial Regulations

Research on the performance effects of changes in financial regulations is scarce. There is little doubt that differences in regulatory regimes are important as evidenced e.g. in the literature on law and finance (e.g. La Porta, Lopez-de-Silanes, Shleifer, and Vishny 1998) and that regarding the impact of banking regulation (e.g. Barth, Caprio, and Levine, 2001). The lack of research on financial regulation and risk and return is presumably due to the difficulty involved in testing whether certain performance effects can be attributed directly to a regulatory regime. If, for instance, one witnesses the co-occurrence of a new legislation and a reduction in return volatility, how can one ascertain whether the latter occurred because of the former? This problem is undoubtedly pertinent in relation to traded securities, which are affected by a plethora of factors ranging from macroeconomic developments over technological changes to factors, which are idiosyncratic to the security in question. One means of circumventing this identification issue is to include an adequate set of control variables. An example is Avgouleas and Degiannakis (2008) who analyze the effects of the Financial Instruments Markets Directive (FIMD) on liquidity. The authors note that measures of liquidity such as trading volume generally increase over time, and any study, which compares pre- and post-regulation volume, is therefore likely to find a noticeable effect, and they therefore de-trend the series.

While papers on the effects of financial regulation are in scarce supply, there are some which discuss regime shifts due to changes in legislation or institutional setup. Regime shifts have, amongst other things, been studied in relation to IPO underpricing (Ljungqvist and Wilhelm 2003); asset pricing in emerging markets (Garcia and Ghysels 1998); bank capital adequacy requirements (Grullon, Michaely, and Swary 1997); and market structure and stock volatility (Stoll and Whaley 1990). There are also a number of studies, which analyze the effects of accounting regulation on stock price volatility (e.g. Bushee, Matsumoto, and Miller 2004).

Perhaps the studies which most resemble this paper are those which investigate whether exchange listings affect performance. More specifically, these examine whether the parameters in models of expected returns change following an exchange listing of a stock; the general hypothesis is that betas, or systematic risk, should decline following such listings because market participants perceive listed stocks as less risky than their OTC counterparts. The empirical evidence, however, does not provide strong support for this hypothesis (Prakash, Parhhizgari, and Perrit 1989).

2.2. Dividend Literature

One direct way in which the REIT standard might affect stock performance is through the sudden shift in the dividend payout policy. Dividend payout policy has been at the heart of the finance literature for many decades, and the REIT effect may be considered here as a natural experiment of an exogenous shock in dividend policy. Literature on dividend payout policy is diverse and home to conflicting beliefs regarding the importance of dividends. Lintner (1956) conducted a classic study on how U.S. managers went about making dividend decisions. He sampled 600 listed, well-established industrial companies, and interviewed managers from 28 of these firms. His results showed that managers believed that they needed a tangible financial indicator to justify a change in dividend. He developed and empirically tested a straightforward mathematical model in which the change in dividends is a function of a target payout ratio, the earnings per share, and previous dividends payments. Using actual dividend data series, he showed that managers stabilize dividends with gradual sustainable increases whenever possible. Gordon (1959) argued in his growth model that investors' required rate of return would increase with the retention of earnings and subsequent increased investment. Paying out low dividends enabled firms to invest the retained earnings and thereby strengthen the future stream of dividends. Gordon, however, felt that the greater uncertainty associated with the increased investment relative to the safety of the dividend, would overshadow this effect, and thereby low dividend payouts would decrease value. Both the early work of Lintner (1956) and Gordon (1959) imply that dividend payout policy matters, a view that was soon to be challenged.

The seminal work of Miller and Modigliani (1961) provided a more rigorous theoretical framework for analyzing payout policy. Their work shows that in perfect capital markets and as long as the firm's investment policy does not change, altering the mix of retained earnings and

payout will not have any effect on firm value. Over the past five decades, the dividend payout literature has attempted to reconcile Miller and Modigliani's dividend irrelevance theorem with the notion that dividend payout policy matters a lot to managers and markets. So far, five imperfections have been identified as potential explanations; taxes, asymmetric information, incomplete contracts, institutional constraints, and transaction costs².

In our research framework, we concentrate on asymmetric information and incomplete contracts. If managers know more than outside shareholders, dividend payments may convey information on expected future earnings, or about the cost of capital. This would lead us to expect that markets react positively to the announcements of increases in dividend payouts and negatively to the announcement of a dividend decrease. Event studies by Pettit (1972), Charest (1978), Aharony and Swary (1980) and Michaely, Thaler and Womack (1995) have all reported event study results that correspond with this notion. Moreover, results also show that the immediate price reaction is in fact related to the magnitude of the change in dividend. In all these studies, the U.S. common stock market served as sample. In this market firms have complete control over their dividend payout policy. In accordance with Bhattacharya (1979), dividend can then be used as ex-ante signal of future cash-flows, assuming firm management can properly assess corporate earnings for the years to come. In fact, a separate strand of literature tested this important condition for the dividend signaling claim; whether indeed dividend changes and future earnings move in the same direction. After analyzing the flow of dividends and earnings for a sample of 310 firms, Watts (1979) concluded that the information content in dividends is actually fairly small, a result which was later supported by evidence of Gonedes (1978) and Penman (1983). Hence, it seems that although stock prices tend to react to changes in dividend payments, this reaction is perhaps not due to future cash-flow related information that is disclosed during the announcement of new dividends.

So far, event studies have focused on the interaction between payout announcements and stock price reactions for firms that are able to determine the payout level autonomously³. Instead, in our study we analyze the matter of dividend payout policy for listed real estate firms that during

² For a full review of the dividend payout policy literature, we refer to Allen and Michaely (2003)

³ Aharony et al. (1988) examined the dividend announcement effect of utility stocks for which the earnings generation process is constrained by the "fair" rate of return rule. Despite the constraint, they found strong and positive price reactions to dividend increases, indicating that these dividend increases by regulated utility firms conveyed information regarding management's expectations on future earnings

the sample period have adopted the REIT standard. REIT regulations strip away the discretion to an appropriate payout rate from firm management, by enforcing a minimum payout of 90 percent of taxable income. This drastic change in the institutional settings enables us to verify whether stock price reactions to dividend announcements indeed reflect implicit signals from corporate management in future earnings. Since, the post-REIT dividends reflect regulations and current earnings more than signals regarding the future cash flows, we expect immediate stock price reactions to be less related.

Dividend policy among REITs has been researched on various occasions during the past two decades. Wang et al (1993) were the first to empirically dividend announcement effects for a sample of REITs. They find evidence to support the hypothesis that REIT dividend policies are at least partially determined by agency costs. For a sample of equity REITs they document a significantly positive stock price reaction of 0.66 percent on the announcement of a dividend increase, while dividend reductions resulted in an immediate stock price decline of 1.90 percent, on average. The authors interpret this result as evidence for the preference of shareholders for high dividend payout policies, since higher dividend strengthen the use of capital markets as a monitoring device for management investment decisions. Bradley et al. (1998) examined the dividend policy for a sample of 75 different U.S. REITs and find evidence for information based explanations for dividend policy. Their empirical results confirm that payout ratios are lower for firms with higher expected cash-flow volatility as measured by leverage, size and property level diversification. Gentry et al. (2003) use the unique implications of the REIT tax regulations to assess the exact impact of dividend taxes on firm valuation, and find that future dividend taxes are capitalized into share prices. Finally, more recently, Hardin and Hill (2008) explore a sample of 121 U.S. equity REITs to examine the determinants of dividend payments. Their results show that REITs incorporate dividend policies that reduce agency costs and substantially minimize the probability that dividend reductions will be required.

2.3. REIT regimes

Within the context of listed real estate markets an analysis of changes in the financial regulations has been called for by several authors, but so far an empirical examination is still absent. Downs (1994) discusses the swift development of US REIT markets, which he refers to as the 'REIT explosion'. He outlines reasons as for why REITs will gain importance as a source of financing

for the underlying commercial real estate market, among which the cyclical unwillingness of traditional institutions to provide sufficient capital to real estate markets and the fact that REITs offer attractive means of owning properties that would appeal to large institutional investors to invest in. After this market view of Downs, Gyourko and Sinai (1999) were among the firsts to analyze the benefits of structuring a company as a REIT compared to a traditional corporation. Especially when shareholders have a tax-exempt status, the transition from a REIT to a traditional structure will damage their return and the value of the portfolio, which eventually would change the shareholder base of the listed real estate markets. Einhorn et al (2001) continue along these lines of research by focusing on the new tax rules that were introduced in 1999 and that enabled corporations to spin-off rental real estate into a REIT, providing corporations with lucrative tax opportunities. Brady and Conlin (2004) offer a discussion of the industry effects that are associated the implementation of a REIT regime. They predominantly focus on the increasing scale-of-economies that can be reaped by larger REITs and on the increasing market power of REITs in the real estate market. According to Brady and Conlin (2004) a large and mature REIT market run by professional portfolio-managers will discipline the development of real estate returns and should even attenuate the boom and bust cycle in real estate.

All of the aforementioned real estate studies relate to the US REIT market. Ooi et al (2006) were among the firsts to address the REIT issue outside the US. In line with the work of Downs (1994) they too find that the credit line that is offered by a mature REIT market to be one of the most important supply-side factors for the surge of REITs in Asia. At the other end of the market, among investors, REITs were considered as a viable alternative to risky stocks and low-yielding bonds. Ooi et al. (2007) also refer to the absence of a preferential tax treatment as one of the key reasons for the slow development of the listed real estate markets in Europe and Asia during the 1990's. Lin (2007) explains that after a prompt economic expansion during the 1980's Taiwan, Hong Kong, South Korea and Singapore build up a strong reputation as the renowned Newly Industrial Countries (NICs) or the four dragons. The combination of an economic downturn during the 1990's and the increased competition of Chinese economy in the Asian region, inspired the NIC's to offer an impulse to their real estate markets, for example by introducing REITs.

2.4. REIT Performance

Numerous papers examine the risk and return characteristics of real estate as an asset class, and many of these focus particularly on REITs. Benjamin, Sirmans, and Zietz (2001) review the literature and identify an impressive body of papers on risk and return, diversification benefits, and inflation hedging. They argue that REITs behave in part as stocks and in part as bonds in the sense that REIT risk premiums are correlated to those of both bonds and stocks.

Systematic risk is a frequent topic in the literature (Chan, Hendershott, and Sanders, 1990; Ling and Naranjo, 1998; Ling, Naranjo, and Ryngaert 2000; Allen, Madura and Springer, 2000). The general finding is that single-factor models are insufficient for explaining real estate returns, but there does not appear to be any consensus about which risk factors to include. Clayton and MacKinnon (2001) assess the correlations between REITS and other asset classes. They not only find that REIT returns are highly sensitive to both stocks (large- and small-cap) and bonds, but that these relationships are time-varying and indicate structural changes. Chui, Titman, and Wei (2003) assess the cross-section of expected REIT returns and also note that there may be a momentum effect in REIT returns, a finding that has recently been confirmed by Derwall et al. (2009). A particularly interesting question for present purposes is whether REIT returns and risk characteristics are stable over time; based on US evidence the answer to this question appears to be in the negative. It appears that performance has changed as a response to changes in market structure. Among these changes, Chui, Titman, and Wei (2003) note, have been changes in management style, ownership structure, legal environment, and information flows. Such strands of research have also been extended to include international evidence. Hoesli and Camilo (2007) analyze the exposure of securitized real estate to stock, bond and direct real estate factors. Interestingly, they note that further research “should attempt to analyze the impact of the institutional setup (and changes in the setup) of real estate securities across countries”.

The effects of structural change in relation to events such as changes in legislation or market structure have, in fact, been studied specifically in REIT markets. Perhaps the earliest example of such a study is Khoo, Hartzell, and Hoesli (1993) who show a decline in equity REIT betas throughout the 1980s. Howe and Jain (2004), in an event study, estimate the wealth effect of the passage of the REIT Modernization Act, which relaxed constraints on REITs. The authors show that the passage of the act is associated with both positive wealth effects and a decrease in systematic risk.

Still, the specific effects of legal REIT requirements such as dividend payout ratios have not been subject to much study; there are, however, sound theoretical arguments for expecting that these requirements are influential. As an example, there is evidence from the mainstream finance literature, which indicates that dividend payout ratios vary inversely with stock volatilities (Baskin 1989). A potential explanation is that high dividend yield stocks pay out earnings earlier than other stocks and therefore are less affected by changes in discount rates. In addition, a stock's value can be decomposed into the value of assets in place and future growth opportunities, the latter of which is likely to be more volatile than the former, and the value of high dividend stocks will mainly consist of their assets in place. Still, there is no agreement on the relationship between dividend payout ratios and stock volatility. Allen and Rachim (1996), for instance, find no evidence of any relationship in their analysis of Australian stocks. Finally, leverage is related to systematic risk, or betas, and if the introduction of a REIT regime leads to a decrease in leverage, a reduction in systematic risk is also to be expected.

Such considerations lead to the question of whether and why one might expect property companies with REIT status to be less risky than their non-REIT counterparts. An essential feature of basically all REIT regimes is that they constrain management, e.g. by mandating that virtually all earnings be paid out as dividends. This clearly deprives managers of opportunities to expropriate shareholder funds by engaging in empire building activities (Jensen and Meckling 1976). As noted in the introduction, an important motive behind the creation of REIT regimes is to attract additional capital to traded real estate markets. It is also well-known from the asset pricing literature (Pastor and Stambaugh 2003) that illiquid assets have an associated risk premium. The upshot is improvements in liquidity due to the introduction of REIT regime might lower the required returns of investors and thereby increase the inflow of capital to REITs.

3. Data and Markets

While REIT markets share important institutional details across virtually all countries, there are also important differences. As an example, REITs are required to be exchange-listed in most countries, but not in the U.S. or Japan. The other key attributes that differ between REIT regimes are the permitted activities, leverage limits, distribution and ownership structure. In most cases, REITs are meant to hold real estate for the purpose of generating property rental income. This is

reflected in activity requirements. These can be quite liberal, as is the case in France, or very stringent (e.g. in Britain). Most regimes will look require the company to hold at least 75% of the portfolio in income generating real estate. Other operational activities are restricted and/or subject to taxation. This is particularly true for real estate development. To avoid unequal competition between (tax paying) developers and REITs, developments are either prohibited or only permitted within the context of the investment portfolio. In the US, development is only permitted through a so-called TRS (Taxable REIT Subsidiary).

In a number of REIT regimes leverage ceilings have been imposed to protect individual investors from the volatility that leverage introduces. Even though the availability and pricing of debt finance often are the key determinants of the amount of leverage a company can take, the ceiling levels do impact the decisions of companies, particularly if real estate prices are falling. Singapore has the most stringent leverage ceiling, with a 35% debt to assets maximum.

All REIT regimes require companies to distribute a significant portion of the earnings. As the REIT itself usually is not subjected to corporate taxation, passing through distribution is important to ensure taxation at the shareholder level. Among the six markets in this study, the required payout is in a tight range between 85-90% of (eligible) earnings. Finally, the ownership requirements of the REIT regimes vary. The purpose of imposing ownership requirements is to safeguard liquidity, as well as to manage potential tax implications arising from the pass-through of earnings in the form of dividends. Some countries such as Japan also have strict requirements as for the minimum amount of shareholders – in Japan the figure is no less than 4,000 shareholders as compared to 100 shareholders in the U.S. In Britain and Germany, no shareholder can hold more than 10% of the shares in the REIT. In Table 1, we summarize the most relevant requirements for the sample of markets discussed in this paper.

insert Table 1 around here

Both in seniority and size the U.S. REIT market dominates all others. Already in 1960 the US adopted a REIT regime, which during the mid-nineties fuelled the development of this financial sector, which by the end of 2012 matured into a market with around 200 firms and a sum

aggregate market value of 450 billion U.S. dollars. The other markets in our sample can be considered as late followers in the REIT adoption, with Japan introducing its REIT system in 1997 and the UK being the last to follow in 2007. The adoption rate varies across markets; in the UK, for instance, almost exactly half of the listed real estate companies adopted the REIT standard at or soon after January 1st 2007 (REITA 2008). Whereas in a market like France, in contrast, the shift from non-REIT to REIT status has been gradual since the regime's inception in 2003. Each year a number of firms, typically about ten, has since adopted the regime. However, it is worth noticing that the regime itself has undergone changes over time (and one therefore frequently encounters not only the term SIIC, but also SIIC2, SIIC3, and SIIC4). The Japanese REIT market differs still further: Unlike in the UK, where we typically observe that publicly listed property companies adopt a REIT status, Japanese REITs tend to have this status from inception. That is, these companies do not exist as listed non-REIT property companies before becoming REITs. Another important distinction is the difference in management. Whereas the overwhelming majority of European and American REITs are managed internally, the Asian REITs are externally managed (i.e. through an external sponsor acting as the fund manager).

In our analysis, we study both the REITs and the non-REITs in each market empirically. Data on prices, volumes, and so forth for this study has been obtained from Datastream Advance and the CRSP Ziman Database. Balance sheet items on firm level are collected through Thomson's Worldscope and Reuters. The identification of REITs in different countries, however, has largely been done using information compiled by REIT associations such as REITA for the UK or ARES in Japan.

In Table 2, we present an overview of our sample of firms that made the switch to the REIT regime. Here, we find various noteworthy patterns. First, we document that the transition into a REIT is associated with an increase in dividend yields in five out of six markets. Only in Germany, we find no pervasive REIT effect on dividend yields, but this is likely due to sample limitations and a contemporaneous increase in stock prices, which reduces yields. This change in dividend yields obviously results directly from the REIT regulations that impose higher payout rates. Hence, we also examined other firm characteristics that are less directly linked to the regulative design of REITs, but are more in line with the policy motives of debt restrictions, the distribution of stockholdings, and stock liquidity. Regarding the debt ratios, we find a mild increase of debt in all markets. These increases ranged between a modest 0,02% in Japan to 8,69%

in the U.K. It appears that the adoption of the REIT standard offers firms an easier access to leverage. Regarding stock ownership and stock trading, we document mixed results. For stock trading, we find an increase in turnover rates (daily trading volumes over the numbers of shares outstanding) in all markets. These increases are modest in France, and the U.K., but large and significant in Japan and Germany. Regarding the distribution of stock ownership, we find a decrease in the fraction of closely held shares – the illiquid stocks in hands of insiders and blockholders – France and the U.S., but in the other four markets we report an increase in stock concentration. Especially in Germany it seems that converting into a REIT reduces the availability of stocks to some retail investors.

insert Figure 1 and Table 2 around here

To better grasp these outcomes, we also performed a separate, not reported, analysis for the U.K. firms that have not adopted the REIT regime, and over the same time period these firms increased their leverage ratios. When comparing these two groups of firms, the REIT-adopters versus the non-REITs, we also discovered significant differences in the average firm size. In the U.K. the REIT regimes was predominantly adopted by the largest real estate investment firm in the market. This difference might also be driving the results regarding the leverage ratios, given that small firms have less access to the equity market when in need for additional financing. Besides a reduction in leverage, Table 2 also shows an increase in dividend yields across the sample. Given that the dividend payout requirement is central to all REIT regimes, this is only to be expected. After the firm turns into a REIT it starts paying out more of its profits as dividends, and the dividend yield increases. Finally, with respect to stock market liquidity, we also observe a mild increase in the turnover ratios around the date that firms adopt the REIT regime. Being a REIT increases the appeal of an investment firm to (foreign) investors, which might eventually result in more intensive trading. The results of Table 2 support this notion, since turnover ratios increased substantially⁴.

⁴ For a more elaborate discussion on the international dynamics of liquidity ratios of listed we refer to Brounen et al. (2009)

4. Model and Methods

Whether the introduction of REIT regimes affects the properties of listed real estate companies is a multifaceted problem. We first test whether the change in dividend payout policy is in fact noticed by investors we start our empirical analysis with an event study of announcement of changes in dividends. In the absence of a REIT standard, firms have complete authority over setting the most appropriate payout of earnings. Under these conditions, increasing and reducing dividends can effectively signal managerial expectations about the corporate prospects. Hence, we expect that as soon as the REIT standard is implemented and the firms in our sample lose their ability to set dividend payout themselves, stock price reactions to the announcements of dividends will weaken

It has been argued that such a regime may impact the risk and return of these companies as well as other characteristics including the liquidity of the market. We will empirically track a wide variety of both firm characteristics and stock performance indicators to document all changes that might be related to the changes in the associating tax laws. Given the nature of the REIT criteria, as presented in Table 1 and discussed in the previous section of this paper, we rationalize that an adoption of the REIT status typically requires a real estate investment firm to increase its dividend payout, reduce its debt ratio and increase the freefloat of its shares. Increase in dividend payouts and reductions in debt levels should for different reasons reduce the systematic risk of a firm.

Assuming that financial market are efficient, we assume that the stock returns generated after the transition into the REIT-status adjust to the new systematic risk loading.

In order to test these hypotheses, one first needs to specify a model of expected returns and then test for parameter constancy of that model. We start our analysis by simply relating the individual stock performance to that of the overall stock market. Such a model can be described via the following equation:

$$E(r_{i,t} - r_{f,t}) = \alpha_i + \beta_{1,i} E(r_{market,t} - r_{f,t}), \quad (1)$$

where $r_{i,t}$ denotes the return to security i , $r_{market,t}$ the return to the stock market, and $r_{f,t}$ the risk-free rate. We use (1) as our benchmark model, but for purposes of ensuring robustness we also test more elaborate models, such as a two-factor model, which includes a real estate factor. For a motivation of this approach see for example Clayton and MacKinnon (2003), and Hoesli and Camilo (2007).⁵ The two factor model that we estimated can be written as:

$$E r_{i,t} - r_{f,t} = \alpha_i + \beta_{1,i} E r_{market,t} - r_{f,t} + \beta_{2,i} E r_{realestate,t} - r_{f,t} , \quad (2)$$

Where $r_{realestate,t}$ is the return on a real estate index. We chose for the indices provides by Global property research. It turned out that the real estate return indices have a correlations with the total market indices of around ranging from 0.20 (Germany) to 0.88 (Singapore). Although this may indicate that for some countries multicollinearity may be an issue for the interpretation of the individual regression coefficients, the Chow break point test that we employ in this paper, is not affected as it is constructed from the sums of squared errors, which are not affected by multicollinearity.

There are various possible tests or procedures which may be employed to investigate structural change (parameter constancy) in linear regression models. The most well-known of these is undoubtedly the Chow test. Bleaney (1990) examines the relative power of various tests when the break data is known, and finds that the Chow test, which is designed to detect differences in coefficients for two subsets of the data, performs relatively better in terms of power than the CUSUM test. The Chow test, due to Chow (1960), involves partitioning the data into two subsamples 1 and 2 with n_1 and n_2 observations respectively (both n_1 and n_2 must, of course, each be larger than the k explanatory variables in the regression model). The partitioning of the dependent and independent variables can be written as:

$$y = [y_1, y_2]^T \text{ and } X = [X_1, X_2]^T. \quad (3)$$

⁵ In order to investigate skewness effects, models with quadratic terms akin to that suggested by Kraus and Litzenberg (1976) could be tested.

One can then obtain the following stacked regression model:

$$[y_1, y_2]^T = [X_1, X_2]^T\beta + [O, X_2]^T\gamma + u, u \sim N(0, \sigma^2 I) \quad (4)$$

The null hypothesis of interest is being γ a zero vector, in which case the above is equivalent to the restricted model:

$$y = X\beta + u \quad (5)$$

The null hypothesis of k zero restrictions in (3) can then be tested using an F-test with $(k, n - 2k)$ degrees of freedom.

5. Empirical results

We now turn to the results of our empirical analysis of the effects that REIT regimes may have had on the performance of listed real estate investment companies. Our findings are reported in two sections. First, we analyze the stock price reactions to the announcements of changes in dividend. Using standard event study methodology, we examine whether investors indeed react less to the news of changing dividends, once dividend payout policy is reduced to the outcome of binding condition of the REIT regime. Next, we investigate whether the risk and return parameters of standard asset pricing models have changed due to the adoption of the REIT regime in 5 countries: Japan, the UK, Germany France and Singapore.

5.1. Dividend Announcements

We start our empirical analysis by investigating the stock price reactions to the announcements of changes in dividends. In the literature, signaling models predict that a change in dividend is considered as indicator of future cash flows. Hence, an increase (decrease) in dividends is typically associated with an increase (decrease) in stock prices, and the extent to which prices

react are a function of the magnitude of the change in dividend. In our three international samples we have collected 3,254 announcements of changes in dividends – 1,037 increases and 2,217 decreases, 1,717 for the US, 1,188 for the UK and 349 for our Japanese sample.

We identify REIT regimes as a result of exogenous changes in the tax laws for real estate investment vehicles. Given the nature of REIT criteria, as presented in Table 1, and discussed in the previous section of this paper, we rationalize that an adoption of the REIT status requires a real estate investment firm to increase its dividend payout. We examine the effects of this change in the dividend regime by splitting our samples into REIT versus pre-REIT subgroups. In Japan, the REIT regime was introduced in 2001. We track for each firm the date on which they have adopted the REIT standard. In the period before this adoption, the pre-REIT era, these firms could determine their dividend payout autonomously. In this period, we therefore expect stockholders to react to changes in dividends in line with the predictions of the signaling models. Cutting or increasing dividends were conscience decisions by firm management during the pre-REIT period. After real estate investment firms convert to a REIT, dividend payout policy becomes a straightforward reflection of current earnings. The REIT standard requires the payout (at least 90 percent), hence firms can no longer signal their faith in future cash flows by adjusting dividend payments. For the UK firms, the REIT standard became available only in 2007, which explains why our REIT sample in dividend announcements is limited in size. For the U.S. the REIT standard has been around since 1960. Instead of tracking the dividend history of firms back to before 1960, we compare the dividend announcements of U.S. REITs since 1990 with a control sample of real estate operating companies (REOCs). A REOC is similar to a REIT, except that a REOC will reinvest its earnings into the business, rather than distributing them as dividends to unit holders like REITs do. Also, REOCs are more flexible than REITs in terms of what type of real estate investments they can make. Because real estate operating companies reinvest earnings rather than distribute dividends to unit holders, they do not get the same benefits of lower corporate taxation that are a common characteristic of REITs. Investors in an REOC seek capital gains rather than passive cash flows. Given that REOC management can freely determine the amount of dividend paid to their stockholders, we expect that the price reaction to their dividend announcements are more pronounced.

Our event study results in table 3 show the average abnormal event returns for our different subsamples. Starting with the pre-REITs and REOCs, we find that the announcements of

increases in dividend were indeed followed by an immediate increase in stock prices. In all three samples, the U.S. REOCs and the UK and Japanese Pre-REITs, we document a significant price increase during the event day. For dividend decreases the results are less pervasive. Although we find the expected negative stock price reaction on the event day in each of the three markets, these results lack statistical significance. In all cases, we also find that the price reactions, measured as cumulative abnormal returns, are most pronounced among the subset of the largest dividend changes. It seems that in the pre-REIT period, stockholders responded to dividend news in line with the predictions of signaling models.

insert Table 3 around here

When we repeat this event study for the sample of 2,098 announcements of changes in dividends that occurred after a REIT regime was in place, we find different results. For the U.S. and U.K. samples announced increases in dividend are still succeeded by an immediate and significant positive price reaction. For the Japanese sample, on the other hand, dividend increases appear to trigger a negative and insignificant price reaction instead. When REITs announce to cut dividends stock price do not respond significantly. In two cases, the U.S. and Japan, stock prices increased in the advent of dividend cuts. Furthermore, we no longer find any consistence variations in price reactions across subsets of mild versus significant dividend cuts and increases once the REIT standard applies. It seems that investors indeed have become more indifferent. Overall, it seems that after REIT standards are in place, dividends matter less to shareholders. Price reactions become insignificant and no longer move in the same direction as dividends.

These results are in line with the predictions of the signaling models in the literature. Dividend announcements of listed real estate investment firms matter to their stockholders, but much more so when the dividend payout decision is made by firm management. As soon as the adopted REIT regulations prescribe the dividend policy, stock price reaction to changes in dividends weaken are become inconsistent with the change in dividend.

5.2. Parameter stability.

As second step of our analysis, we estimate standard single-factor asset pricing models for each firm in our international sample, for the period December 1989-May 2013. In figure 2, we plot the monthly total return indices of the REIT-converting firms (C) versus the firms that decide not to convert (NC) for each market. In Germany, Japan and the UK, it appears that converting firms returns have been more stable over time. This is true both pre and post the REIT conversion, which raises the question whether this difference in risk is due to the REIT conversion at all. To test this, we specify an asset pricing model to test for a structural break at the moment the REIT regime has been adopted in the local stock market. By means of the Chow test we then formally test whether the parameters of stock outperformance – alpha - and systematic risk – beta – have changed significantly after the regime shift. The results of this exercise are reported in Table 4.

insert Figure 2 and Table 4 around here

The results in Panel A are mixed. Regarding the alpha of the firms in our sample, we hardly find any pervasive changes, especially not in the UK where most alpha's seem to have decreased after the REIT regime was adopted for the standard CAPM model. In case of adding a real estate factor to the model, most of the alphas have increased. This shows that the results are sensitive to the risk corrections applied. Given that the set of requirements that associate the REIT regime across nations is designed to decrease risk (increase dividend payout, restrict use of debt) rather than to change the stock outperformance, we would expect to find more compelling results when examining the stability of the betas in our sample. Table 3 shows this is indeed the case. For almost all countries the betas seem to have decreased after introduction of a REIT regime. This is especially the case when corrections for the model with the real estate factor included (Equation 2). It seems that if the REIT regime changes the performance of listed real estate firms, it is most likely to be a risk effect. We also test the joint stability of the two parameters in a more formal statistical test, the Chow test, and find that at 95 percent confidence level a large number of significant structural breaks occurred for all countries, except Japan. Adding the real estate factor to the simple CAPM regressions (Eq. 2), leads to a higher percentage of significant break detections in the relation between REIT returns and their explanatory variables.

6. Conclusions

In this paper, we examine if and how the set of financial regulations that associate the REIT regime, alter the financial DNA of listed real estate. Introducing a tax transparent REIT standard offers real estate investment firms a new trade-off between tax advantages and reduced corporate flexibility with respect to dividend payout policy, capital structure and the span of their activities. We track these firm characteristics during the transition into the REIT era, and assess the extent to which the set of REIT criteria is noticeable when analyzing the stock performance of the firms in our sample.

Our results show us that firms, which transit to a REIT regime, experience a mild jump in stock turnover levels and an increase in dividend payouts. This mandatory payout of earnings as dividends appears to be noticed by the stock investor community. Announcements of dividends become less informative, and the strong reliance on dividends alter the systematic risk of REITs. We find statistical proof for a structural break in the risk and return of listed real estate firms during the conversion into a REIT in 46% of cases. In 58% of REIT conversions, we document a decrease in beta, and in 63% alpha's increase.

All this, shows that the international introduction of REIT standards, has changed the DNA of listed real estate. The design of the regime has effectively decreased the systemic risk of listed real estate firms, and increased the stock turnover in all markets. The increased stock liquidity, however, is not due to the capital flow from retail investors. This is one aim of regulators that has not been achieved.

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Table 1| REIT Regime Details

Country	Listing required	Real estate assets	Development ceiling	Leverage ceiling	Earnings distribution minimum	Ownership structure	Conversion costs / exit tax
<i>France</i>	Yes	Financial leases <50%	20% of book value	None	85%	No shareholder may own >60%; 15% must be held by shareholders holding <2%	16.5% taxation on unrealized gains payable in four years.
<i>Germany</i>	Yes	75%	<25%	55% ??60% fixed	90%	No shareholder may own >10%, 25% float is required	Acquisitions between 2007 and 2009 are subject to taxation on 50% of capital gains if seller has held the asset for at least 5 years.
<i>Japan</i>	No	Qualified assets only	0%	None	90%	>1,000 shareholders; Top-10 shareholders must be <75%	Not applicable.
<i>Singapore</i>	Yes	75%	<10%, for investment portfolio only	35% but in case of published credit rating 60%	90%	25% of shares need to be held by at least 500 public unit holders, subject to size	Not applicable.
<i>UK</i>	Yes	75% (concentration rules apply)	Permitted on own account, subject to taxation if sold within 3 years.	Financing costs <1.25 times property profits	90%	No shareholder may own >10%	2% of market value of assets. Company may elect payment in four annual installments.
<i>USA</i>	No	75%	25% through taxable REIT subsidiary (TRS)	None	90%	>100 shareholders; top-5 shareholders must be <50%	All (un)realized gains before electing status must be distributed (corporate taxes apply) unless assets are held for ten years after conversion.

Table 2| Changing Firm Statistics

This table provides an overview of the dividend yield, debt ratios, stock turnover, and stock distribution of listed real estate investments vehicles before and after the transition to the REIT regime. The statistics are three year averages before and after the conversion date, which is specified for each firm individually.

	France n=25	Germany n=3	Japan n=17	Singapore n=12	UK n=12	US n=3
Dividend yield						
<i>Pre-REIT conversion</i>	3,72%	2,66%	3,82%	2,65%	2,64%	6,28%
	2,1%	1,8%	2,9%	2,1%	1,7%	4,7%
<i>Post-REIT conversion</i>	4,56%	1,96%	3,58%	3,56%	7,33%	5,99%
	2,3%	1,2%	2,5%	2,6%	8,3%	5,2%
<i>Difference</i>	0,84%	-0,70%	-0,23%	0,91%	4,68%	-0,28%
	2,5%	-0,8%	1,1%	2,4%	8,2%	2,6%
Debt ratio						
<i>Pre-REIT conversion</i>	28,25%	11,63%	29,91%	31,78%	34,33%	47,16%
	19,8%	9,5%	9,9%	16,6%	15,2%	16,1%
<i>Post-REIT conversion</i>	33,48%	13,79%	29,94%	31,24%	43,03%	50,85%
	19,8%	6,2%	10,6%	19,1%	20,6%	13,5%
<i>Difference</i>	5,23%	2,16%	0,02%	-0,54%	8,69%	3,69%
	10,2%	7,4%	5,8%	16,4%	25,5%	10,8%
Volume turnover						
<i>Pre-REIT conversion</i>	1,75%	2,00%	6,32%	3,45%	3,13%	1,79%
	1,9%	1,8%	3,4%	3,2%	1,7%	1,1%
<i>Post-REIT conversion</i>	1,85%	3,74%	8,63%	4,22%	3,43%	3,52%
	2,5%	4,3%	4,6%	3,3%	2,7%	3,2%
<i>Difference</i>	0,10%	1,75%	2,31%	0,77%	0,43%	1,73%
	1,3%	3,8%	3,1%	2,7%	1,4%	2,8%
% closely held shares						
<i>Pre-REIT conversion</i>	54,32%	48,59%	29,75%	61,78%	29,97%	35,26%
	26,1%	33,8%	19,2%	20,6%	23,9%	35,1%
<i>Post-REIT conversion</i>	52,30%	67,79%	31,29%	69,89%	35,62%	24,92%
	25,1%	37,2%	19,9%	19,9%	23,6%	35,8%
<i>Difference</i>	-2,03%	19,20%	1,55%	8,11%	3,20%	-10,34%
	18,0%	22,3%	10,0%	14,7%	22,1%	22,7%

Table 3 | Price reactions to dividend announcements

In this table, we present the results of our event study on the announcement effect of dividend declarations. Here, day 0 represents the day on which firm management has announced the new dividend payment. We report the abnormal daily stock return for a window of 5 days before and after the event day, and the t-statistic indicating whether this daily abnormal return differs from zero. We report our results separately for the announcement of decreases and increases in dividend (compared to the previous dividend payment). For the U.S., we compare results for our REIT sample with a sample of Real Estate Operating Companies (REOCs), listed real estate investment companies which are not exempt from paying corporate taxes and can set their dividend payout rates independently.

	US		REOCs		REITs			
	Div. decreases (n=20)		Div. increases (n=35)		Div. decreases (n=260)		Div. increases (n=1402)	
	MAR	t-stat	MAR	t-stat	MAR	t-stat	MAR	t-stat
-3	-0.18%	-0.292	-0.55%	-1.367	-0.04%	-0.240	-0.06%	-1.387
-2	0.78%	1.285	-0.50%	-1.226	-0.40%	-2.231	-0.07%	-1.402
-1	0.41%	0.669	0.84%	2.062	-0.23%	-1.303	-0.04%	-0.928
0	-0.24%	-0.399	0.62%	1.823	0.17%	0.942	0.23%	4.995
+1	0.80%	1.308	1.23%	3.025	-0.09%	-0.476	0.23%	4.954
+2	0.13%	0.220	-0.42%	-1.031	-0.19%	-1.044	0.08%	1.763
+3	0.50%	0.827	0.25%	0.610	0.19%	1.085	0.12%	2.492
	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat
(-1,0)	0.16%	0.191	1.46%	4.034	-0.06%	-0.255	0.19%	2.876
> 25%	0.08%	0.131	1.86%	4.254	-0.08%	-0.392	0.21%	2.765
	UK		Pre-REITs		REITs			
	Div. decreases (n=511)		Div. increases (n=536)		Div. decreases (n=70)		Div. increases (n=71)	
	MAR	t-stat	MAR	t-stat	MAR	t-stat	MAR	t-stat
-3	0.11%	1.835	0.12%	1.935	-0.46%	-1.012	0.35%	1.200
-2	0.03%	0.634	0.03%	0.506	0.25%	0.673	0.38%	1.297
-1	0.10%	1.641	0.08%	1.087	-0.18%	-0.472	-0.03%	-0.095
0	-0.33%	-2.614	0.95%	6.087	-0.84%	-1.438	1.19%	2.210
+1	0.00%	-0.057	0.07%	0.632	0.12%	0.295	0.23%	0.731
+2	-0.03%	-0.514	0.08%	0.810	-0.31%	-0.822	-0.59%	-1.333
+3	-0.16%	-2.589	0.11%	1.258	0.18%	0.463	0.00%	0.008
	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat
(-1,0)	-0.32%	-2.888	0.98%	6.114	-1.02%	-1.651	1.14%	1.989
> 25%	-0.44%	-3.485	1.13%	7.884	-0.74%	-0.853	1.61%	2.067
	Japan		Pre-REITs		REITs			
	Div. decreases (n=21)		Div. increases (=23)		Div. decreases (n=155)		Div. increases (n=150)	
	MAR	t-stat	MAR	t-stat	MAR	t-stat	MAR	t-stat
-3	-0.50%	-0.728	0.14%	0.297	0.33%	1.587	0.44%	2.530
-2	0.82%	1.786	0.49%	0.529	-0.07%	-0.274	-0.14%	-0.933
-1	0.18%	0.403	-0.19%	-0.430	0.25%	0.983	-0.22%	-1.778
0	-0.07%	-0.125	0.67%	1.995	0.21%	0.880	-0.15%	-1.023
+1	0.35%	0.771	0.36%	0.493	-0.26%	-0.945	0.13%	0.761
+2	-0.01%	-0.042	0.48%	0.944	-0.30%	-1.276	-0.05%	-0.326
+3	-0.38%	-0.995	-0.29%	-0.989	-0.13%	-0.578	0.13%	0.768
	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat
(-1,0)	0.07%	0.081	0.30%	0.279	0.10%	0.356	-0.64%	-1.022
> 25%	-0.38%	-0.472	1.02%	0.842	0.17%	0.477	-0.75%	-0.961

Table 4| Chow Test of CAPM Parameter Stability

This table provides results on the single-and two-factor market model parameters (see equations (1) and (2) in the text), and the output of the Chow-test that tests for a structural break in these parameters around the local introduction of REIT regimes for 5 countries (Japan, UK, . In each panel we present the results for individual firm regressions. Here we exhibit the alphas and beta's, both before and after the transition into the REIT regime. The Chow-tests indicate whether both alphas and betas have changed significantly during the regime shift.

Japan				
	1-factor		2-factor	
	<i>before</i>	<i>after</i>	<i>before</i>	<i>After</i>
Alpha				
<i>Mean</i>	-0.007	0.006	-0.014	0.002
<i>Stdev</i>	0.026	0.004	0.025	0.005
<i>Increased / total</i>	5	10	7	10
Beta (market)				
<i>Mean</i>	1.180	1.311	0.354	0.237
<i>Stdev</i>	0.371	0.515	0.529	0.384
<i>Decreased / total</i>	4	10	5	10
Beta (EPRA)				
<i>Mean</i>			0.754	0.942
<i>Stdev</i>			0.531	0.416
<i>Decreased / total</i>			4	10
Chow-test				
<i>p-value <0.05 / percentage</i>	1	10%	3	30%
UK				
	1-factor		2-factor	
	<i>before</i>	<i>after</i>	<i>before</i>	<i>After</i>
Alpha				
<i>Mean</i>	0.005	-0.017	0.004	-0.009
<i>Stdev</i>	0.008	0.020	0.009	0.020
<i>Increased / total</i>	1	53	39	53
Beta (market)				
<i>Mean</i>	0.654	1.146	0.341	0.382
<i>Stdev</i>	0.385	0.728	0.387	0.607
<i>Decreased / total</i>	9	53	42	53
Beta (EPRA)				
<i>Mean</i>			0.418	0.715
<i>Stdev</i>			0.494	0.571
<i>Decreased / total</i>			13	53
Chow-test				
<i>p-value <0.05 / percentage</i>	21	40%	23	43%

Table 4| Chow Test of CAPM Parameter Stability (continued)

France				
	1-factor		2-factor	
	<i>before</i>	<i>after</i>	<i>before</i>	<i>After</i>
Alpha				
<i>Mean</i>	0.003	0.003	-0.003	-0.002
<i>Stdev</i>	0.014	0.009	0.017	0.008
<i>Increased / total</i>	13	17	7	17
Beta (market)				
<i>Mean</i>	0.296	0.744	0.137	0.141
<i>Stdev</i>	0.391	0.371	0.576	0.290
<i>Decreased / total</i>	2	17	6	17
Beta (EPRA)				
<i>Mean</i>			0.799	0.745
<i>Stdev</i>			0.624	0.375
<i>Decreased / total</i>			7	17
Chow-test				
<i>p-value <0.05 / percentage</i>	11	65%	7	41%
Germany				
	1-factor		2-factor	
	<i>before</i>	<i>after</i>	<i>before</i>	<i>After</i>
Alpha				
<i>Mean</i>	0.000	-0.018	-0.001	-0.004
<i>Stdev</i>	0.017	0.020	0.018	0.017
<i>Increased / total</i>	3	13	6	13
Beta (market)				
<i>Mean</i>	0.677	0.843	0.645	0.282
<i>Stdev</i>	0.476	0.443	0.584	0.333
<i>Decreased / total</i>	5	13	9	13
Beta (EPRA)				
<i>Mean</i>			1.814	8.513
<i>Stdev</i>			6.982	4.731
<i>Decreased / total</i>			3	13
Chow-test				
<i>p-value <0.05 / percentage</i>	4	31%	6	46%
Singapore				
	1-factor		2-factor	
	<i>before</i>	<i>after</i>	<i>before</i>	<i>After</i>
Alpha				
<i>Mean</i>	-0.011	0.003	-0.008	0.001
<i>Stdev</i>	0.017	0.004	0.010	0.004
<i>Increased / total</i>	11	13	11	13
Beta (market)				
<i>Mean</i>	1.517	1.090	0.463	0.367
<i>Stdev</i>	0.248	0.312	0.423	0.392
<i>Decreased / total</i>	13	13	7	13
Beta (EPRA)				
<i>Mean</i>			0.729	0.692
<i>Stdev</i>			0.380	0.391
<i>Decreased / total</i>			8	13
Chow-test				
<i>p-value <0.05 / percentage</i>	8	62%	9	69%

Figure 1| Changing Firm Statistics

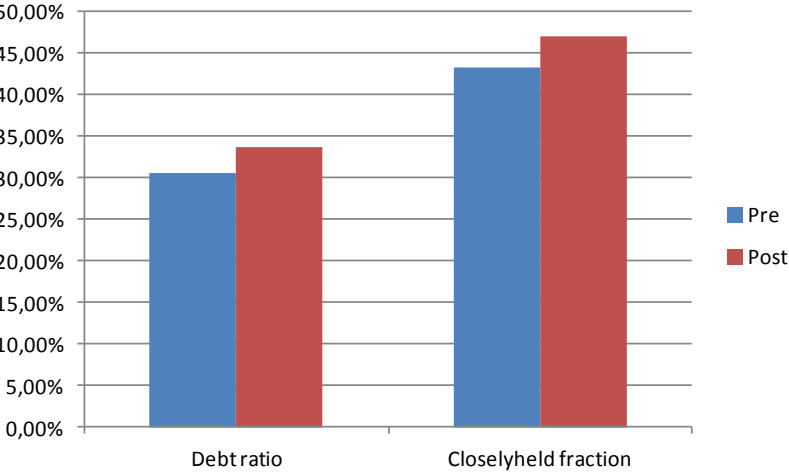
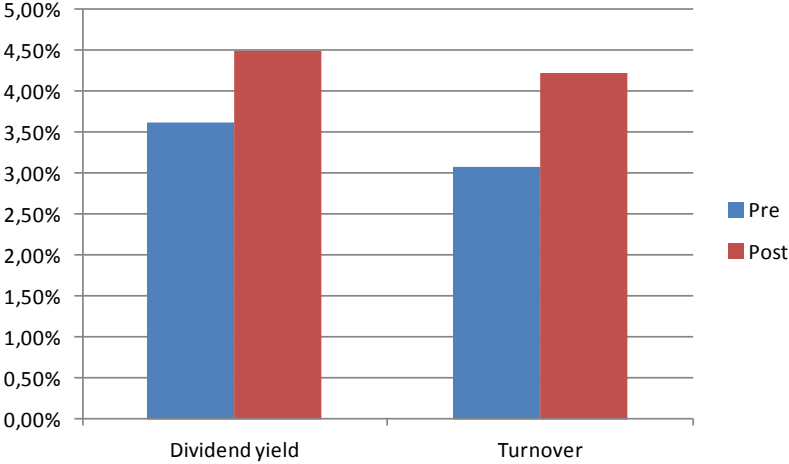


Figure 2 | Stock Performance of REIT Converters versus Non-Converters

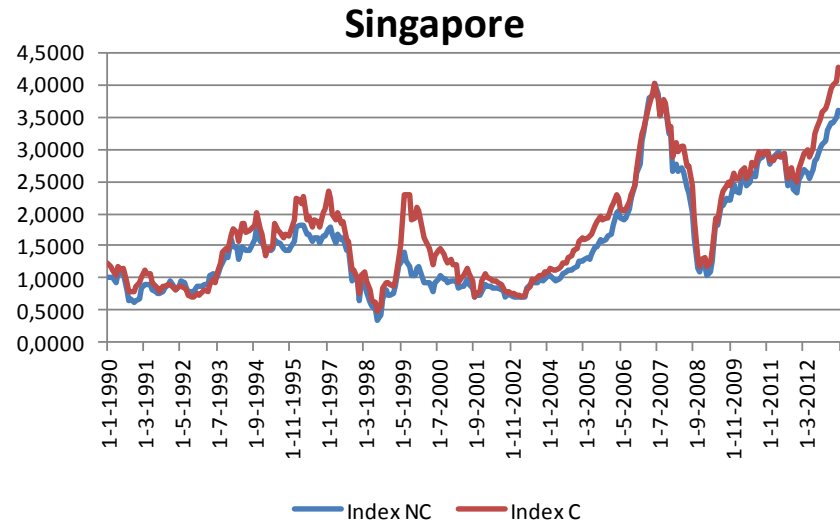
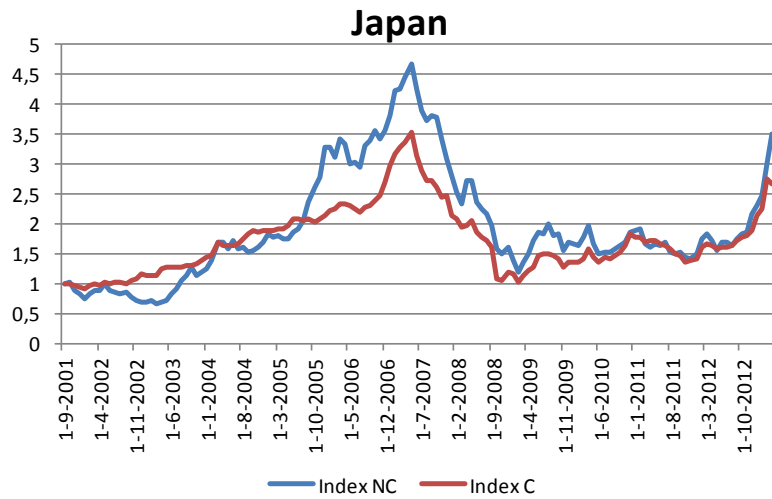
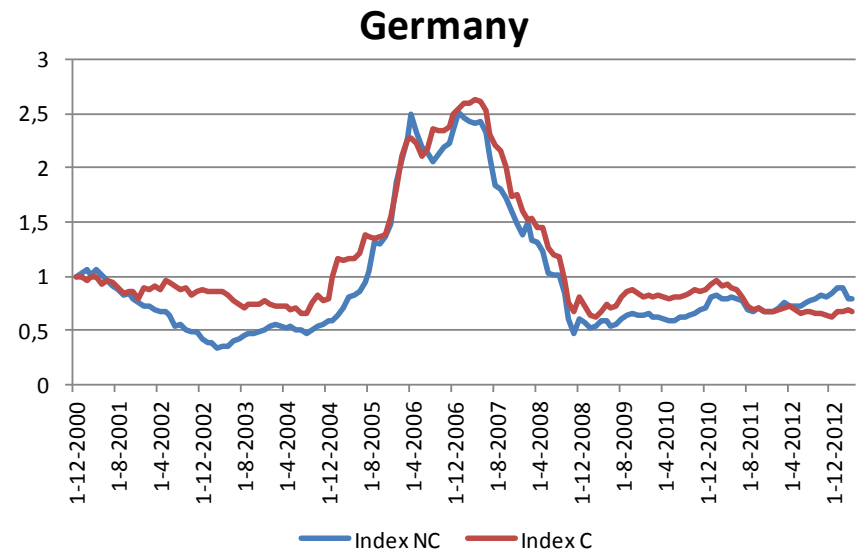
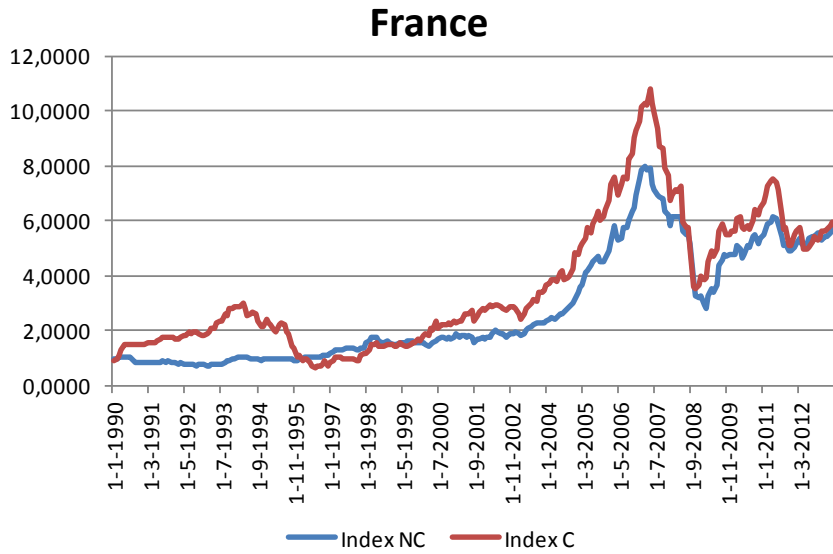


Figure 2| Stock Performance of REIT Converters versus Non-Converters (continued)

