REITs as Lessees

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Abstract

Operating leases of REITs primarily take the form of sale-leaseback transactions and are largely ignored as an alternative source of financing in the REIT financing literature. This study examines the determinants of operating lease intensity of REITs. Using a sample of 172 unique REITs that report non-missing operating lease information between 1990 and 2017, we document that, consistent with existing corporate leasing research, operating lease intensity tends to be higher for REITs that are smaller, have lower leverage, and have better investment opportunities. However, contrary to corporate leasing studies, tax liabilities are found to positively relate to operating lease intensity of REITs. We argue that this is caused by the potential tax benefits the lessee receives from sale-leaseback transactions. In addition, financial distress and contracting costs have no significant effect on the tendency to lease. Lastly, we document that REITs use leasing as a substitute to debt financing.

Key words: REITs financing, sale-leaseback, operating lease, debt and lease substitutability.

1. Introduction

The unique regulatory environment faced by real estate investment trusts (REITs) makes their financing choices a particularly interesting topic in REITs research. Specifically, the SEC requires REITs to distribute 90 percent of their taxable income to shareholders annually[1], in the form of dividends. Hence, they primarily rely on external sources of funding for their investments and asset acquisitions (Ooi, Ong, and Li, 2010). The conventional wisdom in the REIT financing literature is that the funding choices of REITs are limited to debt and equity (Feng, Ghosh, and Sirmans, 2007). In contrast, the corporate finance literature recognizes operating leases as an important alternative source of off-balance sheet external financing.[2] Evidence of their importance for industrial firms is provided by Graham, Lemmon, and Schallheim (1998), who find that operating leases account for approximately 41% of their fixed claims during the period of 1981-1992. This importance has not diminished over time, as in 2015, the average U.S. Compustat firm had an operating lease intensity of about 44% (Devos and Li, 2018). This literature finds several firm characteristics to be determinants of the lease-vs.-buy decision, including, tax liabilities, financial contracting factors, and agency cost factors. (Devos and Li, 2018; Devos and Rahman, 2014; Graham et al., 1998; Mehran, Taggart, and Yermack, 1999; Sharpe and Nguyen, 1995; Robicheaux, Fu, and Ligon, 2008).

For REITs, operating leases predominantly take the form of sale-leaseback (SLB) transactions, where the buyer (lessor) purchases a physical facility, which will continued to be

[1] The minimum distribution requirement for REITs was 95% between 1981 and 1999.
[2] Operating leases act as a de facto source of financing where a firm records an rental expense without recording the associated assets and liabilities (or equity) on their balance sheets.

used by the seller (lessee) of the facility. SLBs have become a popular means of financing due to the ability of the lessee to effectively borrow 100% of the purchase price (Elayan, Meyer and Li, 2006). In fact, it is not uncommon for a REIT to be the lessee and use leases as a funding source. For example, Alexander's Inc.'s 2007 annual 10-K discloses their tenant status under long-term leases, ranging from 12 to 21 years, and identifies these rental commitments as operating leases.[3] They report their 2007 rent expense as $908,000, along with their prior 2 years' rent expense and a forecast of their minimum future rental commitments for the following five years. Those future forecasts range from $795,000 to $803,000 per year. Alexander Inc. is not alone in this role as lessee. Between 1990 and 2017, 172 unique REITs in the COMPUSTAT database reported non-missing operating lease expenses. Moreover, among our sample REITs that use operating leases as a source of financing, the average size of operating lease expenses forecasted for the next five years equals approximately 7.96% of the REITs' long-term fixed claims. Studies on SLBs provide evidence of the wealth effects on both the lessor and the lessee (Fisher, 2004; Elayan et al., 2006; Slovin, Sushka and Polonchek, 1990), and the effects on property prices (Sirmans and Slade, 2010). Through the documented wealth effects, these studies suggest that the ability of financing and potential tax benefits can be the motives behind SLBs.

Although studies on corporate leasing document the existence of a wide range of lease determinants, their effects have not been examined in the REIT environment. However, a more thorough understanding of the motives behind REIT leasing is important for three reasons. First, as an alternative source of financing, leasing provides REITs with potentially significant financial flexibility, which is highly valued by shareholders (Riddiough and Steiner, 2017). And confirmed

[3] Alexander Inc. reports their role as a lessee in note 9 of their 2007 financial statements. These statements can be found at https://www.sec.gov/Archives/edgar/data/3499/000000349908000003/alx_10k-022408.htm

by our sample, the use of operating lease by REITs is common and of significant size. Second, REITs face unique regulatory environment, which can potentially alter the effects of the leasing determinants documented in the corporate leasing literature. Third, FASB recently issued Accounting Standards Updates (ASU), which will take effect in December 2019, and requires the lessee to recognize both the assets and liabilities of operating leases with lease terms more than 12 months (FASB, 2016). This regulation change effectively disqualifies long-term operating leases as off-balance sheet financing, which can alter the effects of firm characteristics on the decision of leasing. A solid understanding of the current determinants of REIT leasing facilitates future research on the effects of this regulation change. Therefore, this study attempts to bridge the gap in the REIT financing literature by documenting the existence and determinants of REIT leasing. Specifically, we examine the determinants of operating leases in REITs using a sample of REITs that report non-missing information on rental commitments in COMPUSTAT between 1990 and 2017.

We find that not all traditional determinants of leasing identified in corporate leasing studies have the same effects for REITs. On the one hand, consistent with the corporate leasing research, operating lease intensity of REITs tends to be negatively related to size and leverage, and positively related to growth opportunities. On the other hand, although there is some evidence that measures of financial distress positively affect operating lease intensity, the effects do not seem to be as strong as documented in corporate leasing studies. We also show that REIT leasing is positively associated with tax liabilities. This evidence is inconsistent with the argument in the corporate leasing literature that, since comparing to owning the asset, leasing forgoes the tax benefits from depreciation; it should be favored by firms with lower tax burdens (Graham, 2003). We attribute this this different finding to the unique features of the REIT leasing transactions. To

be specific, unlike operating leases examined in the corporate leasing literature, operating leases among REITs primarily involves real estate properties, in the form of SLBs. The unique features of SLBs may offer net tax benefits to the lessee. In particular, Slovin et al. (1990) suggests that, in SLBs, the lessee may be able to deduct the full fair market value of the property in the form of rental expense. In addition, if the property value has appreciated at the time of the sale, the rental expense will, in effect, allow the lessee to depreciate the property based on its market value, instead of the lower historical cost. Therefore, SLBs can result in an overall reduction in the present value of expected taxes, which makes them more attractive to REITs with higher tax burdens.

In existing corporate leasing research, the effects of taxes on the leasing decision has also sparked a debate on whether debt and leasing are substitutes or complements. In a similar spirit, we also examine the balance of debt usage and lease usage among REITs. Although we obtain results which suggest that operating lease intensity is negatively related to leverage, this relation can be endogenous, because leverage and leasing policy can be simultaneously determined. To address this concern, we adopt a simultaneous equations method, and find evidence of substitution, as in periods of a leverage decrease, operating leases tend to increase, and vice versa.

Our study contributes to the REIT financing literature by providing a comprehensive analysis of the determinants of REITs leasing. Existing studies of REITs' financing primarily focus on the choice between debt and equity (Borochin, Glascock, Lu-Andrews, and Yang, 2016; Brown and Riddiough, 2003; Ertugrul and Giambona, 2011), and the liability structure of REITs (Hardin and Wu, 2010). The only studies on REITs leasing focus on the wealth effects of SLBs. But the broad range of lease determinants identified in corporate leasing research are not formally examined for REITs. On the one hand, part of our results replicate the evidence presented in the corporate leasing literature of some determinants of lease intensity, such as firm size and financial

contracting factors. On the other hand, we document unique evidence on the positive relation between tax liabilities and REIT leasing. In addition, existing literature documents mixed evidence on the effect of growth opportunities on leasing activity, and the relation between debt and leasing. By examining a special form of business entity (i.e., REITs), we also provide additional evidence to these inconclusive debates. Last but not least, the results documented in our study also provide a basis for future research on the effects of the upcoming changes in lease accounting as mandated by FASB.

The rest of the study is organized as follows. Section 2 reviews related literature and develops our research questions. Section 3 reports the data, sample and variable construction. Section 4 presents the empirical results and Section 5 concludes.

2. Literature Review and Research Questions

2.1 Financing Decisions of REITs

A major topic of discussion in the existing REIT financing literature is the choice between debt and equity. Prior research examines whether established capital structure theories apply to REITs, given the unique regulatory restrictions they face. This literature predominately compares the market timing, trade-off (modern balancing), and pecking order theories. Boudry, Kallberg, and Liu (2010) find evidence that supports the market timing theory for the period from 1997 to 2006, as they find REITs are more likely to issue equity when there is a lower cost in the public market comparing to the private market and when there are large price increases. They also find some support for the trade-off theory because REITs are less likely to issue debt if there are high expected bankruptcy costs. However, they find that pecking order theory does not apply to REITs.

They attribute this to the lower levels of information asymmetry, since REITs tend to be fairly transparent. Harrison, Panasian, and Seiler (2011) find a REIT's stock price to its net asset value ratio is negatively related to leverage, which is consistent with market timing theory. In addition, they find that REITs leverage is positively related to asset tangibility and negatively related to market-to-book ratio and profitability, which is consistent with the trade-off theory. Again, they find no support for the pecking order theory. Brown and Riddiough (2003) find that REITs use public debt to target their long-term leverage ratio. They interpret this as a lack of support for the trade-off theory, because the tax exemption that REITs receive would suggests that REITs should employ little or no debt. They also find no evidence consistent with the pecking order theory. Feng et al. (2007) document persistently higher leverage in REITs with historically higher market-to-book ratios which is inconsistent with both the trade-off and the market timing theories. However, these findings are not consistent with the dynamic pecking theory either, given the low information asymmetry of REITs and the dividend payout requirement. These authors conclude that REIT financing is a puzzle, in terms of what theories drive their financing decisions. However, they speculate they may be driven by the benefits of debt monitoring, where debt acts as a substitute to other monitoring mechanisms for REITs, such as the market for corporate control, which is considered weaker for REITs.

This weak corporate control may help explain the findings of other studies that argue that ownership structure is also a determinant of REIT leverage. For example, Ghosh, Giambona, Harding, and Sirmans (2011) find that entrenched REIT CEOs use less leverage. Ghosh, Harding, Sezer, and Sirmans (2008) show that managerial option holdings are positively related to the likelihood of a stock repurchase announcement. Ooi (2000) also argues that REITs capital structure is determined by ownership structure based on the finding that REITs that are closely held by

management prefer to issue debt over equity, while those that have large equity shares prefer to issue equity, which is consistent with the pecking order theory.[4] Similar to Ooi's findings, Capozza and Seguin (2003) find that if there is low inside ownership, REITs prefer debt; and if there are high levels of inside ownership, REITs prefer to issue equity. Morri and Cristanziani (2009) test the pecking order theory and the trade-off theory for a European REIT sample and find no significant explanatory power of ownership structure on leverage. However, this may be due to the decreased influence of large blockholders for European REITs. In addition, asset liquidity and management signaling are also found to explain REITs capital structure decisions (Brau and Holmes, 2006; Giambona, Harding, and Sirmans, 2008).

More related to our study, a different stream of studies on REIT financing focuses on the choice between different types of liabilities in regards to their capital structure. For instance, Wu and Riddiough (2005) show that REITs use their bank lines of credit as a substitute for cash, and their use increases with asset growth. They also find that REITs investments are positively related to the amount of bank lines of credit drawn in the same period. Credit lines appear to serve as a form of short-term financing, and as a way to gain access to better forms of bank capital. Hardin and Wu (2010) document that REITs with bank relationships are more likely to obtain long-term debt ratings, issue public debt, use less secured debt and have lower leverage. In addition, Giambona et al. (2008) find that REITs specializing in the most liquid assets tend to use more leverage and longer maturities. Their study also shows that REITs use leverage and debt maturities as substitutes.

[4] Ooi (2000) also finds support for the market timing theory since he finds that REITs are more likely to issue equity when there is a strong market performance, and for the trade-off theory since REITs appear to also weigh debt versus equity according to a target level of debt.

2.2 Corporate Leasing

Although the REIT financing literature documents rich, albeit conflicting, evidence of the financing patterns of REITs, the focus overwhelmingly lies on the debt versus equity decision. In contrast, the corporate finance literature highlights leasing as a possible source of external capital. Corporate leasing studies identify several important determinants of the corporate leasing decision: taxes, financial contracting factors, and agency cost factors.

The earliest strand of research on corporate leasing examines the effects of taxes. Leasing and debt are similar in that both interest on debt and lease payments are tax deductible. However, when a firm borrows capital and acquires the ownership of an asset, it derives additional tax benefits from the depreciation of the asset. Because of the difference in tax effects, lease financing can displace other forms of debt (Franks and Hodges, 1978; Miller and Upton, 1976; Myers, Dill, and Bautista, 1976). In particular, since a lease contract does not give the lessee the ownership of the asset, it transfers the tax benefits of depreciation to the lessor, who may place higher value on tax savings. This group of studies argues that tax liability is negatively related to corporate leasing activity. This argument is supported by empirical evidence. For example, Graham et al. (1998) find that tax rates are positively related to the use of debt, and negatively related to the use of leases. Higher lease intensity is also found to be positively associated with the presence of tax loss carryforwards (Barclay and Smith, 1995; Sharpe and Nguyen, 1995)

Somewhat related to the tax argument, a number of papers examine the relation between lease and debt financing. On the one hand, since both leasing and borrowing commit a firm to fixed payments, they should be substitutes. On the other hand, as leasing transfers the tax benefits

from the lessee to the lessor, it increases the marginal value of tax savings to the lessee, which, in turn, encourages the lessee to increase leverage. Therefore, leasing and debt financing may also exhibit a complementary relation (Lewis and Schallheim, 1992). Empirical evidence concerning the relation between leasing and debt is mixed. Whereas Ang and Peterson (1984), Bowman (1980), and Finucane (1988) find evidence of complementarity, Bayless and Diltz (1986), Krishnan and Moyer (1994), Mukherjee (1991), and Yan (2006) document a substitute relation between leasing and borrowing.

A next strand of the corporate leasing literature examines the determinants of leasing from a financial contracting perspective. Specifically, the two firm characteristics that may influence the buy vs. lease decision are ownership structure and the investment opportunities set (Mehran, Taggart, and Yermack, 1999). With regard to ownership structure, whereas both debt and leasing represent shareholders' liabilities, leasing allows the lessee to avoid the risk in the asset's residual value. And since managers tend to avoid risk as their ownership increases, higher managerial ownership should be associated with higher lease intensity. Mehran et al. (1999) provide empirical evidence supporting this argument. Second, the nature of a firm's investment opportunities can also influence the corporate leasing decision, through their effects on the conflicts between shareholders and debt holders. As Myers (1977) suggests, debt can cause an underinvestment problem, and thus firms with greater growth opportunities should limit the use of debt. Meanwhile, Smith and Warner (1979) argue that the senior legal standing of leases can alleviate the underinvestment problem by limiting the wealth transfer from shareholders to bondholders. Therefore, lease intensity should increase with growth opportunities. This argument is supported by Smith and Wakeman (1985). The empirical results regarding the effects of growth opportunities on leases are inconclusive. Whereas Barclay and Smith (1995) find that the market-to-book ratio

is positively related to leasing, Graham et al. (1998) find the opposite. Financial contracting costs are also examined as a determinant of corporate leasing. Specifically, financially constrained firms are found to exhibit higher lease intensity (Eisfeldt and Rampini, 2009; Finucane, 1988; Sharpe and Nguyen, 1995; Krishnan and Moyer, 1994).

The last stream of research in the corporate leasing literature examines the leasing decision from an agency cost perspective. Robicheaux, Fu, and Ligon (2008) argue that leasing reduces the agency cost of debt, and is used along with other agency cost reducing mechanisms. They document a complementary relation between the use of incentive compensation and outside directors, and the tendency to lease. In addition, leasing itself is embedded with agency costs as well, because it imposes costs on the lessor to monitor the use of the leased asset. Consistent with this argument, Devos and Rahman (2014) find that rural firms have lower lease intensity. Also related to the agency cost argument, Devos and Li (2018) argue that operating lease contracts are embedded with real option hedging properties, and they find that CEO risk-taking incentives are negatively related to firms' operating lease intensity.

Operating leases of REITs generally take the form of SLBs. In an SLB, after purchasing a physical property, the buyer (lessor) leases the property back to the original owner/seller (lessee). Typical leasing terms range from 10 to 25 years. From an accounting standpoint, SLBs are treated as operating leases. Therefore, the lessee's lease payments are fully tax deductible. The most important advantage that the lessee receives from these transactions is that 100% of the property price can be borrowed (Elayan et al., 2006). This advantage suggests that a financing motive could be an important determinant REITs leasing. In addition, the lessee can derive potential tax gains from SLBs, because the full fair market value of the property may be deductible in the form of rental expense. In addition, if the property value has appreciated at the time of the sale, the rental

expense effectively allows the lessee to depreciate the property based on its market value rather than the lower historical cost (Slovin et al., 1990).

Studies on SLBs are primarily conducted at the transaction level, majority of which examine their wealth effects. For example, Fisher (2004) documents a positive announcement return for short-term SLB lessees. Elayan et al. (2006) find similar evidence. And, based on the positive market reaction to SLBs, they conclude that the primary motive for SLBs is that they allow REITs to generate tax deductible expenses. Sirman and Slade (2010) investigate the effects of SLBs on property prices, and find that SLBs occur at significantly higher prices than market transactions.

2.3 Research Questions

Although corporate finance research provides ample evidence on the determinants of corporate leasing and the relation between lease and debt financing, this topic has received little attention of REIT financing researchers. Existing studies on REIT leasing predominantly focus on the wealth and price effects of SLB transactions. However, the determinants of leasing found in corporate finance studies are not examined for REITs. There are several reasons why leasing of REITs deserves academic attention. First, as REITs have distinctive financing policies and leverage structures, due to their unique regulatory environment, their leasing decisions may not necessarily be based on the same set of factors as other corporations. Second, REIT leasing is used to finance a very different type of assets. While industrial (or non-financial) firms usually use leases to acquire equipment used in their daily operations, REITs use leasing to finance real estate properties, which are direct income-generating assets for these entities. Third, leasing has different

tax implications for REITs. For one thing, although REITs are still subject to corporate tax on any earnings they retain, the bulk of their earnings are subject to mandatory distribution, and simultaneously exempt from corporate taxes. As a result, the tax advantages of debt over leases may not have the same effect among REITs. In addition, as discussed above, SLBs may generate additional tax benefits to the lessee. Thus, tax liabilities may, in turn, encourage REIT leasing, which is contrary to the conventional belief in corporate finance. Last but not least, the change in lease accounting issued by FASB, which will take effect in December 2019, and requires the lessee to recognize both the assets and liabilities of operating leases with lease terms more than 12 months (FASB, 2016), effectively disqualifies long-term operating leases as off-balance sheet financing, and can alter the effects of firm characteristics on the decision of leasing. Therefore, it is important to have a timely comprehensive understanding of the motive behind REITs leasing, to enable future research on the potential effects of this regulatory change. Between 1990 and 2017, only 244 REIT-year observations report positive capital lease on COMPUSTAT, with an average capital lease intensity of 3.73%. Due to the lack of a larger dataset, this study focuses only on operating leases. We first investigate the determinants of REIT operating leasing intensity. Specifically, we examine whether the effects of tax liabilities and financial contracting factors have the same effects on operating lease intensity among REITs, as for industrial firms as documented in the corporate leasing literature. Second, we examine whether REITs use lease and debt financing as substitutes or complements.

3. Data, Sample, and Variable Construction

3.1 Data and Sample

To construct our sample, we begin with the list of equity real estate investment trusts identified in Feng, Price, and Sirmans (2011). After merging this list of REITs with COMPUSTAT, and deleting observations with missing information on key variables, we obtain a final sample of 1,105 REIT-year observations. This sample consists of 172 unique REITs during the period between 1990 and 2017. In Table 1, we present the time series of the distribution of the sample, the mean and median operating lease intensity, *Opl_fc*, and the mean and median of leverage, *Lev*, as defined in the next section. Observed from the time series, the number of REITs engaging in operating leases exhibits an overall upward trend, increasing from 13 REITs in 1990 to 46 REITs in 2017. Whereas the median of *Opl_fc* stays stable at around 1.5% during the sample period, the mean exhibits a reduction overtime, 22.81% in 1990 to 5.89% in 2017. Interestingly, *Lev* evolves in the exact opposite direction as *Opl_fc*, increasing from 43.51% in 1990 to 46.42% in 2017. In periods when *Opl_fc* climbs up, *Lev* goes down, and vice versa. This pattern clearly suggests that REITs tend to use debt and leasing as substitutes. In addition, in periods leading to the known financial crises, such as 2000 to 2001, and 2007 to 2008, leverage seems to rise, consistent with Schularick and Taylor (2012), who find credit growth to be a powerful predictor of financial crises. Consequently, operating lease intensity tends to fall during such periods. The plots representing the table are presented in Figure 1.

[Insert Table 1, Figure 1 here]

3.2 Variable Construction

3.2.1 Measure of Lease Intensity

Current financial accounting rules classify a lease as either a capital lease or an operating lease. Under a capital lease, the underlying asset is capitalized on the lessee's balance sheet, and the associated debt obligation is recorded accordingly. In contrast, an operating lease is treated as a form of off-balance-sheet financing, and is only reported in the income statement as rent expenses (Sharpe and Nguyen, 1995). Because the vast majority of our sample REITs does not report any capital leases, in this study, we measure leasing activity by operating lease intensity. Following Graham et al. (1998), we calculate operating lease intensity (*Opl_fc*), as operating leases divided by a fixed claim deflator, where operating leases are calculated as current rental expense plus the present value of operating lease commitments for the next five years, discounted at 10%, and the fixed claim deflator is the sum of the book value of long-term debt and the present value of operating leases. The 10% discount rate is comparable to average cap rates of 8.03 to 10.42, reported in Boudry, Kallberg, and Liu (2013) for the period from 1996 to 2010.

3.2.2 Other Variables

In the lease determinants analysis, we examine the effects of tax liabilities and financial contracting factors. We construct three measures of tax status. *TaxRate* is calculated as the ratio of total income taxes to the sum of income before extraordinary items and total income taxes (Eisfeldt and Rampini, 2013). Following Sharpe and Nguyen (1995), we construct two indicators of tax loss carryforward. *Ltloss* takes the value of 1 if the value of tax loss carryforward exceeds current

period EBITDA, zero otherwise. *Stloss* takes the value of 1 if the value of tax loss carryforward is greater than zero but less than current period EBITDA, zero otherwise.

The financial contracting factors we consider include financial distress and contracting costs, and investment opportunities. One could include executive ownership as a measure. However, including executive ownership data would reduce our sample size to 295 observations. Therefore, for financial contracting factors, we focus on investment opportunities and financial contracting cost. Nevertheless, when we do control for CEO delta and vega, we obtain similar[5] results. Financial distress and contracting costs are measured by two variables. Sharpe and Nguyen (1995) use a dummy variable for non-dividend paying firms as an indicator of financial distress. However, as REITs distribute majority of their earnings as dividend, this measure may not be appropriate. Instead, we define *Distress* as a dummy variable that takes the value of 1 if a REIT has a reduction in dividend payout in a given year, zero otherwise. We calculate *Earning* as funds from operations divided by total assets, where funds from operations are calculated as net income plus depreciation and amortization minus gain/loss on sale of property (McConnell and Servaes, 1995). Dividend reduction, and lower earnings are indications of financial distress), and thus higher financial contracting costs. We measure investment opportunity by the market-to-book ratio, *MB*. Following Mehran et al. (1999), *MB* is calculated as the ratio of the market value of assets to the book value of assets, where the market value of assets is calculated as the book value of assets minus the book value of common equity, plus the market value of common equity. We also include leverage, *Lev*, calculated as the ratio of long-term debt to total assets (Robicheaux et al., 2008). Including *Lev* in our analysis allows us to examine whether REITs use debt and leasing as complements or substitutes. We control for REIT size with *LogAT*, calculated as the natural

[5] These results are available upon request.

logarithm of total assets. We also include dummy variable *Crisis*, which takes the value of 1 for the period between 2007 and 2009, zero otherwise, to control for the most recent financial crisis. We winsorize the financial and market variables 1% and 99% to avoid extreme outliers.

4. Empirical Results

4.1 Summary Statistics

Table 2 presents the summary statistics of the variables used in our analyses. Sample REITs have a mean operating lease intensity of 7.96%, with a median of 1.24% and a standard deviation of 19.37%. Note that operating leases make up a substantial portion of total fixed claims. Furthermore, the variable of *Opl_fc* only captures firms' rental commitment for the next five years. Typical term operating leases for REITs in the form of SLBs range from 10 to 25 years. Thus, *Opl_fc* potentially underestimates the true operating lease intensity. The mean and median of *LogAT* are 7.3164 and 7.5289, respectively, with a standard deviation of 1.4335. As indicated by *Distress*, 40.45% of the sample REIT-years exhibit a dividend decrease relative to the previous year. *Lev* has a mean of 46.89%, a median of 47.40%, and a standard deviation of 18.92%. It is clear that REITs have significantly higher leverage than non-financial firms. The mean *Earning* of the sample is 2.73%, with a median of 2.48%, and a standard deviation of 4.94%. The mean, median, and standard deviation of *MB* are 1.4076, 1.2931, and 0.4855, respectively. The sample has a mean *TaxRate* of 10.73%. However, based on a the median tax rate of 0%, more than half of the sample REITs do not pay any taxes, which is consistent with the tax exemption that REITs receive. Approximately 61.36% of the sample report a tax loss carryforward exceeding current period EBITDA, and 8.87% report a positive tax loss carryforward below current period EBITDA.

[Insert Table 2 here]

4.2 Correlations

Table 3 presents the Pearson Correlation matrix between the key variables. *Opl_fc* has both statistically and economically significant negative correlations with *LogAT*, and *Lev*, indicating that operating lease intensity appears to be higher for smaller REITs, and REITs tend to use operating leases and debt as substitutes. The correlation between *Opl_fc* and *Distress* is negative and statistically significant, but economically small. In addition, there is no significant correlation between *Opl_fc* and *Earning*. Overall, the correlations do not indicate a strong relation between operating lease intensity and financial distress/contracting costs for REITs. This is contrary to the findings in the corporate leasing studies, which find these indications of financial distress to have a positive impact on lease intensity. As suggested by the positive and significant correlation between *Opl_fc* and *MB*, REITs with better investment opportunities tend to lease more. This is consistent with the argument in the corporate leasing literature that firms with greater growth potential use lease to avoid the underinvestment issue associated with debt financing. There is also evidence that REITs with higher tax liabilities lease more as *Opl_fc* has a positive correlation with *TaxRate* and a negative correlation with *Ltloss*. This presents a second contrast to the conventional wisdom in corporate leasing research that leasing causes the loss of depreciation tax shield, and thus should be favored by firms with lower tax burdens. This difference could be caused by the unique features of operating lease transactions of REITs. Operating leases of REITs primarily involve SLB transactions on real estate properties. As Slovin et al. (1990) suggests, in SLBs, the lessee can potentially receive tax benefits by deducting the full fair market value of the property

in the form of rental expense. Furthermore, in the case of property value appreciation, the rental expense will effectively allow the lessee to depreciate the property based on its market value, instead of the lower historical cost. As a result, SLBs can reduce the present value of expected taxes, making them more attractive to REITs with higher tax burdens. Lastly, we also observe a decrease of lease intensity in REITs during the 2007-2009 financial crisis. However, the economic significance of the correlation coefficient is small. Overall, the correlations suggests a somewhat different story about the determinants of leasing for REITs than for industrial firms.

[Insert Table 3 here]

4.3 Univariate Analysis

To further validate the observed correlation between operating lease intensity and the determinant variables, we first divide our sample into quartiles based on the level of *LogAT*, *Lev*, *Earning*, *MB*, and *TaxRate*, and perform univariate comparisons of *Opl_fc* between the lowest and highest quartiles. Furthermore, we bifurcate the sample based the dummy variables *Distress*, *Ltloss*, *Stloss* and *Crisis*, and compare the levels of *Opl_fc* of the subsamples. The T-test results for the differences in the mean, and the Z-test results for the differences in the median are reported in Table 4. Consistent with the correlation evidence, we observe that operating lease intensity is significantly higher for smaller REITs, and REITs that have lower leverage. The difference in operating lease intensity is also economically significant. In particular, comparing to REITs located in the largest size quartile, average *Opl_fc* is 13.76% higher for REITs located in the smallest size quartile. And comparing to REITs located in the highest leverage quartile, average

Opl_fc of REITs in the lowest leverage quartile is 20.10% higher. Although the mean *Oplfc* is 3.30% higher for REITs with a dividend cut than those without a dividend cut, we do not observe any significant difference in the median operating lease intensity between the two groups. In addition, there is evidence that REITs with higher *Earning* tends to lease more. This, once again, indicates that the effects of financial distress/contracting costs on REITs leasing contradict with the conventional belief that leasing are used more by financially constrained firms as a source of funds. There is strong evidence that REITs with better investment opportunities tend to lease more, as the mean (median) *Oplfc* of the lowest *MB* quartile is 5.05% (0.97%) lower than those of the highest *MB* quartile. Furthermore, we continue to observe that *Opl_fc* is higher in REITs with higher tax liabilities, as the operating lease intensity of the highest tax rate quartile is 5.99% (1.97%) higher than that of the lowest tax rate quartile in its mean (median). Similarly, REITs without large tax loss carryforwards lease 8.52% more, on average, than REITs with large tax loss carryforwards. There is, again, weak evidence that operating lease intensity among REITs are higher during the crisis period. Overall, the univariate test results are consistent with the correlation evidence, and confirm that, in REITs, operating lease intensity tends to decrease with size and leverage, and increase with investment opportunities and tax liabilities. Contrary to the evidence in the corporate leasing literature, financial constraints do not appear to encourage leasing among REITs. In the next section, we investigate whether the findings continue to hold in a multivariate setting.

[Insert Table 4 here]

4.4 Determinants of REITs Leasing

In this section, we investigate the determinants of leasing activities of REITs in a multivariate setting. Specifically, we run the following model similar to Eisfeldt and Rampini (2013).

$$Opl\_fc_{i,t} = \alpha_0 + \alpha_1 LogAT_{i,t} + \alpha_2 Distress_{i,t} + \alpha_3 Lev_{i,t} + \alpha_4 Earning_{i,t} + \alpha_5 MB_{i,t} + \alpha_6 TaxRate_{i,t} + \alpha_7 Ltloss_{i,t} + \alpha_8 Stloss_{i,t} + \alpha_9 Crisis_{i,t} + \varepsilon_{i,t} \quad (1)$$

We run model (1) using both OLS and Tobit regressions. We first regress *Opl_fc* on each key explanatory variable separately, and then on all the explanatory variables jointly. Table 5 reports the OLS results, with heteroscedasticity robust T-statistics. Consistent with previous findings, *Opl_fc* is found to be negatively related to size and leverage. Furthermore, the effects of leverage on operating lease intensity is rather profound, as indicated by column (7) Table 5, a 1% increase in *Leverage* leads to an approximately 0.51% decrease in *Opl_fc*. In addition, the positive and significant coefficients on *MB* indicate that operating lease is positively related to investment opportunities. Confirming the notion that operating leases by REITs/SLBs offer significant potential tax benefits to the lessee, and thus should be favored by REITs with higher tax burdens, the regressions show that operating lease intensity is positively related to tax rate, and negatively related to the existence of large tax loss carryforwards. *Distress* and *Earning* do not have consistently significant coefficients, indicating that financial distress/contracting costs do not have profound effects on REITs leasing. Table 6 reports the Tobit regression results of model 1. We observe very similar effects of REITs' size, leverage, investment opportunity and tax burden on

their operating lease intensity. In addition, consistent with previous analyses, we fail to obtain significant or stable coefficients on *Distress* and *Earning*. To control for unobserved REIT characteristics and time-invariant factors, we add REIT fixed effects and year dummies in model 1. As reported in Table 7, the results remain qualitatively unchanged. Overall, Tables 5, 6 and 7 provides further evidence that leasing activities of REITs decrease with size and leverage, and increase with investment opportunities and tax liabilities.

[Insert Table 5, Table 6, Table 7 here]

4.5 Lease and Debt Financing: Complements or Substitutes?

Another important topic in the corporate leasing literature is the relation between lease and debt financing. The literature extensively debates the issue of whether leasing is used as a substitute or complement to debt, and documents mixed evidence. Our previous analyses show a negative effect of leverage on operating lease intensity, and thus suggests substitutability. However, the effect of debt financing on leasing shown earlier can be endogenous, because leasing policy and leverage policy can be jointly determined. To address this concern and further validate the relation between the two, we adopt a simultaneous equations method. Specifically, we run the following two simultaneous change regressions:

$$\Delta Opl\_fc_{i,t} = \beta_0 + \beta_1 \Delta Leverage_{i,t} + \beta_2 \Delta LogAT_{i,t} + \beta_3 Distress_{i,t} + \beta_4 \Delta Earning_{i,t} + \beta_5 \Delta MB_{i,t} + \beta_6 \Delta TaxRate_{i,t} + \beta 7 Ltloss_{i,t} + \beta_8 Stloss_{i,t} + \beta_9 Crisis_{i,t} + \mu_{i,t} \quad (2)$$

$$\Delta Leverage_{i,t} = \gamma_0 + \gamma_1 \Delta Opl\_fc_{i,t} + \gamma_2 \Delta LogAT_{i,t} + \gamma_3 Distress_{i,t} + \gamma_4 \Delta Earning_{i,t} + \gamma_5 \Delta MB_{i,t} + \gamma_6 \Delta TaxRate_{i,t} + \gamma_7 Ltloss_{i,t} + \gamma_8 Stloss_{i,t} + \gamma_9 Crisis_{i,t} + \sigma_{i,t} \quad (3)$$

where Δ denotes the one year change of all continuous variables. All variables are defined in Section 3.2. The results are presented in Table 8. Consistent with previous results, there is clear evidence of substitutability. Column (1) shows that as *Leverage* increases by 1%, *Opl* decreases by 0.3202%. And Column (2) suggests that a 1% increase in operating lease is associated with a 0.3435% decrease in *Leverage*. Both equations suggest an economically and statistically strong substitution between lease and debt financing, consistent with the findings of Bayless and Diltz (1986), Krishnan and Moyer (1994), Mukherjee (1991), and Yan (2006).

[Insert Table 8 here]

5. Conclusion

This study examines operating leases as an alternative source of financing for REITs. Until now, the primary focus of the existing REIT financing literature has been the choice between debt and equity, and the characteristics of debt financing in REITs. In contrast, leasing has only been sparsely examined for REITs. Although the corporate finance research has found several firm

characteristics that determine corporate leasing, no study has examined whether these determinants have the same effects for REITs. However, operating leases of REITs deserve attention given the unique regulatory environment and features of REITs and SLB transactions. To fill the void in the literature, this study investigates the effects of previously established leasing determinants on the operating lease intensity of REITs. In addition, following the debate on the relation between lease and debt financing, we investigate whether REITs use leases and debt as substitutes or complements.

Using a sample of 172 unique REITs that report non-missing information on rental commitments in COMPUSTAT between 1990 and 2017, we find that not all traditional determinants of leasing identified in the corporate leasing studies have the same effects on REITs leasing. In particular, consistent with the corporate leasing literature, operating lease intensity tends to be higher in REITs that are smaller, or have better investment opportunities. However, we also find that tax liability has a positive effect on REITs operating lease intensity. This finding is interesting and significant because it contradicts with the conventional wisdom that the lessee in an operating lease forgoes the tax shield from depreciation, and thus tends to be firms with lower tax burdens. We posit that the contradictory pattern observed in REITs is caused by the fact that, different from operating leases in manufacturing firms, SLB transactions involve real estate properties, and can potentially offer substantial tax benefits to the lessee. First of all, it allows the lessee to deduct rental expenses up to 100% of the property value, from its taxable income. In addition, in the case of property value appreciation, the rental expenses effectively allow the lessee to depreciate the property based on its market value, instead of the lower historical cost. The second unique pattern we observe in REITs leasing is that financial distress/contracting costs do not exhibit a significant relation with operating lease intensity. Lastly, we extend the discussion on the

relation between leasing and debt financing, and document that REITs use operating leases and debt as substitute sources of financing. Our study provides a comprehensive analysis on the determinants of REITs leasing, and its relation with debt financing. The results highlight the unique motives behind REITs leasing. In addition, given the upcoming change in lease accounting, our study provides a basis for future research on the effects of this regulation change.

Table 1. REITs Distribution by Period

Year	*N*	*Mean Oplfc*	*Median Oplfc*	*Mean Lev*	*Median Lev*
1990	13	0.2281	0.0682	0.4351	0.5130
1991	13	0.2116	0.0379	0.4497	0.4983
1992	13	0.2503	0.0334	0.4131	0.4618
1993	26	0.1221	0.0218	0.4367	0.4629
1994	38	0.0971	0.0134	0.4735	0.4792
1995	42	0.1460	0.0116	0.4779	0.4762
1996	35	0.1450	0.0129	0.4729	0.4521
1997	44	0.0990	0.0135	0.4416	0.4360
1998	53	0.0705	0.0120	0.4397	0.4599
1999	44	0.0669	0.0129	0.4572	0.4616
2000	42	0.1237	0.0130	0.4438	0.4500
2001	41	0.1039	0.0098	0.4721	0.4872
2002	34	0.0846	0.0143	0.4557	0.4797
2003	32	0.0840	0.0105	0.4341	0.4664
2004	50	0.1120	0.0115	0.4396	0.4561
2005	56	0.1036	0.0105	0.4669	0.4870
2006	39	0.0634	0.0095	0.5019	0.5002
2007	38	0.0448	0.0138	0.4923	0.4997
2008	31	0.0424	0.0117	0.5673	0.5489
2009	43	0.0349	0.0128	0.5309	0.5399
2010	47	0.0571	0.0151	0.4468	0.4554
2011	44	0.0456	0.0090	0.4718	0.4643
2012	42	0.0449	0.0108	0.4806	0.4804
2013	47	0.0434	0.0088	0.4925	0.4828
2014	52	0.0306	0.0098	0.4635	0.4431
2015	52	0.0387	0.0089	0.4848	0.4938
2016	48	0.0314	0.0120	0.4680	0.4618
2017	46	0.0589	0.0098	0.4642	0.4589
Total			1,105		

This table reports the annual number of unique REITs, and the means and medians of operating lease intensity and leverage for the sample period between 1990 and 2017. All variables are defined in Section 3.2.

Table 2. Summary Statistics

	N	*Mean*	*Median*	*Std*	*Min*	*25%*	*75%*	*Max*
Opl_fc	1,105	0.0796	0.0124	0.1937	0.0000	0.0054	0.0396	1.0000
LogAT	1,105	7.3164	7.5289	1.4335	3.1756	6.4039	8.3361	10.1362
Distress	1,105	0.4045	0.0000	0.4910	0.0000	0.0000	1.0000	1.0000
Lev	1,105	0.4689	0.4740	0.1892	0.0000	0.3744	0.5900	0.9235
Earning	1,105	0.0273	0.0248	0.0494	-0.1997	0.0059	0.0465	0.1731
MB	1,105	1.4076	1.2931	0.4855	0.6596	1.1056	1.5951	3.6138
TaxRate	1,105	0.1073	0.0000	0.2547	0.0000	0.0000	0.0200	1.0000
Ltloss	1,105	0.6136	1.0000	0.4872	0.0000	0.0000	1.0000	1.0000
Stloss	1,105	0.0887	0.0000	0.2844	0.0000	0.0000	0.0000	1.0000
Crisis	1,105	0.1014	0.0000	0.3019	0.0000	0.0000	0.0000	1.0000

This table reports the summary statistics of key variables over the sample period from 1990 to 2017. All variables are defined in Section 3.2.

Table 3. Correlation Matrix

	Opl_fc	*LogAT*	*Distress*	*Lev*	*Earning*	*MB*	*TaxRate*	*Ltloss*	*Stloss*	*Crisis*
Opl_fc	1.0000									
LogAT	-0.3788***	1.0000								
Distress	-0.0837***	0.0084	1.0000							
Lev	-0.5642***	0.1952***	0.0563*	1.0000						
Earning	0.0304	0.1293***	0.0092	-0.0981***	1.0000					
MB	0.2623***	0.0084	-0.1045***	-0.0445	0.2112***	1.0000				
TaxRate	0.1291***	0.0337	0.0475	-0.0302	-0.0491	0.0091	1.0000			
Ltloss	-0.2143***	0.0042	0.0179	0.0321	-0.1533***	-0.1322***	-0.2354***	1.0000		
Stloss	0.0306	0.1655***	-0.0042	0.0550*	0.2762***	0.1535***	0.1391***	-0.3931***	1.0000	
Crisis	-0.0681**	0.1377***	-0.0080	0.1048***	-0.0143	-0.0763**	0.0754**	-0.0352	0.0851***	1.0000

This table reports the Pearson Correlation between key variables over the sample period from 1990 to 2017. All variables are defined in Section 3.2. ***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.

Table 4. Univariate Analysis

	Opl_fc					
	Mean			*Median*		
Subsample	Lower	Upper	Difference (Lower - Upper)	Lower	Upper	Difference (Lower - Upper)
LogAT	0.1816	0.0440	0.1376***	0.0205	0.0086	0.0119***
			(6.88)			(4.08)
Distriess	0.0929	0.0599	0.0330***	0.0123	0.0124	-0.0001
			(2.98)			(-0.04)
Lev	0.2263	0.0252	0.2010***	0.0516	0.0076	0.0440***
			(9.88)			(10.72)
Earning	0.0801	0.1603	-0.0802***	0.0114	0.0390	-0.0276***
			(-3.93)			(-6.46)
MB	0.0813	0.1318	-0.0505**	0.0106	0.0203	-0.0097***
			(-2.52)			(-5.61)
TaxRate	0.0660	0.1258	-0.0599***	0.0103	0.0300	-0.0197***
			(-4.15)			(7.49)
Ltloss	0.1318	0.0467	0.0852***	0.0203	0.0095	0.0108***
			(6.46)			(7.50)
Stloss	0.0777	0.0986	-0.0209	0.0114	0.0467	-0.0353***
			(-1.54)			(6.57)
Crisis	0.0840	0.0403	0.0437***	0.0123	0.0129	-0.0006
			(5.04)			(-0.69)

This table reports the univariate comparison of the mean and median of operating lease intensity between subsamples divided based on the key explanatory variables. All variables are defined in Section 3.2. T-statistics and Z-scores are reported in parentheses. ***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.

Table 5. Determinants of REIT Leasing- OLS

	Opl_fc						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	0.4662***	0.6004***	0.4557***	0.3072***	0.4646***	0.5071***	0.5082***
	(8.68)	(12.17)	(8.60)	(6.08)	(9.29)	(10.10)	(10.12)
LogAT	-0.0511***	-0.0377***	-0.0526***	-0.0515***	-0.0376***	-0.0380***	-0.0384***
	(-7.71)	(-8.58)	(-7.92)	(-8.45)	(-9.05)	(-9.60)	(-9.66)
Distress	-0.0318***				-0.0107	-0.0120	-0.0117
	(-3.07)				(-1.28)	(-1.46)	(-1.43)
Lev		-0.5218***			-0.5126***	-0.5078***	-0.5099***
		(-12.81)			(-13.27)	(-13.61)	(-13.64)
Earning			0.3169		-0.1358	-0.2051	-0.2029
			(1.37)		(-0.87)	(-1.30)	(-1.28)
MB				0.1059***	0.0985***	0.0909***	0.0918***
				(5.71)	(6.89)	(6.53)	(6.59)
TaxRate						0.0634***	0.0620***
						(3.67)	(3.59)
Ltloss						-0.0595***	-0.0594***
						(-5.65)	(-5.64)
Stloss						0.0091	0.0078
						(0.57)	(0.49)
Crisis							0.0176*
							(1.80)
Adjusted R-squared	0.1484	0.3923	0.1484	0.2125	0.4515	0.4866	0.4869
N	1,105	1,105	1,105	1,105	1,105	1,105	1,105

This table reports the OLS regression results of model (1). The dependent variable is *Opl_fc*. All variables are defined in Section 3.2. Heteroscedasticity robust T-statistics are reported in parentheses. ***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.

Table 6. Determinants of REIT Leasing- Tobit

	Opl_fc						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	0.4693***	0.6072***	0.4582***	0.3043***	0.4660***	0.5097***	0.5108***
	(16.01)	(23.74)	(15.80)	(9.58)	(16.64)	(18.19)	(18.23)
LogAT	-0.0515***	-0.0382***	-0.0529***	-0.0519***	-0.0379***	-0.0383***	-0.0387***
	(-13.24)	(-11.42)	(-13.49)	(-13.88)	(-11.82)	(-12.20)	(-12.28)
Distress	-0.0330***				-0.0113	-0.0125	-0.0122
	(-2.92)				(-1.23)	(-1.42)	(-1.39)
Lev		-0.5290***			-0.5211***	-0.5158***	-0.5181***
		(-20.87)			(-21.44)	(-21.88)	(-21.93)
Earning			0.2923**		-0.1818*	-0.2542***	-0.2521***
			(2.57)		(-1.91)	(-2.67)	(-2.65)
MB				0.1100***	0.1032***	0.0954***	0.0964***
				(9.96)	(10.81)	(10.26)	(10.34)
TaxRate						0.0631***	0.0618***
						(3.60)	(3.52)
Ltloss						-0.0616***	-0.0615***
						(-6.23)	(-6.22)
Stloss						0.0092	0.0078
						(0.53)	(0.45)
Crisis							0.0185
							(1.27)
N	1,105	1,105	1,105	1,105	1,105	1,105	1,105

This table reports the Tobit regression results of model (1). The dependent variable is *Opl_fc*. All variables are defined in Section 3.2. T-statistics are reported in parentheses. ***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.

Table 7. Determinants of REIT Leasing- Fixed Effects

	Opl_fc						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LogAT	-0.0566***	-0.0405***	-0.0560***	-0.0551***	-0.0397***	-0.0399***	-0.0399***
	(-10.83)	(-8.59)	(-10.75)	(-10.60)	(-8.39)	(-8.59)	(-8.57)
Distress	0.0002				-0.0017	-0.0027	-0.0027
	(0.03)				(-0.27)	(-0.44)	(-0.44)
Lev		-0.4333***			-0.4285***	-0.4107***	-0.4106***
		(-16.19)			(-15.96)	(-15.53)	(-15.41)
Earning			0.1755*		0.0269	0.0233	0.0233
			(1.80)		(0.31)	(0.27)	(0.27)
MB				0.0306***	0.0210**	0.0216**	0.0216**
				(3.16)	(2.39)	(2.53)	(2.51)
TaxRate						0.0306**	0.0306**
						(2.29)	(2.28)
Ltloss						-0.0576***	-0.0576***
						(-5.89)	(-5.88)
Stloss						-0.0598**	-0.0598***
						(-4.12)	(-4.12)
Crisis							-0.0001
							(-0.01)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.7514	0.8060	0.7522	0.7540	0.8073	0.8175	0.8175
N	1,105	1,105	1,105	1,105	1,105	1,105	1,105

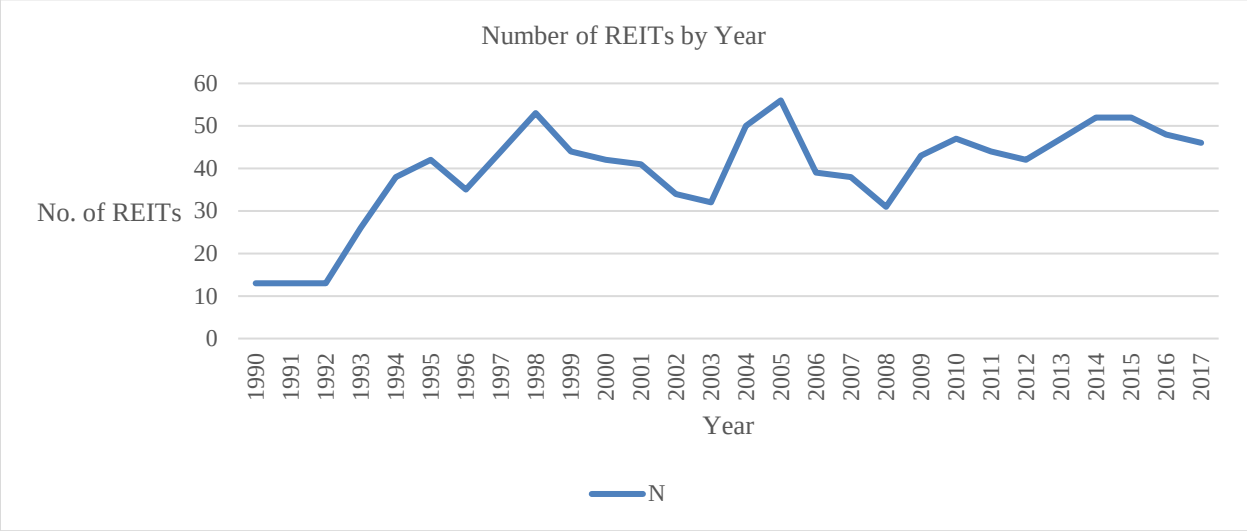
This table reports the GLM regression results of model (1) with firm fixed effects and year dummies. The dependent variable is *Opl_fc*. All variables are defined in Section 3.2. T-statistics are reported in parentheses. ***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.

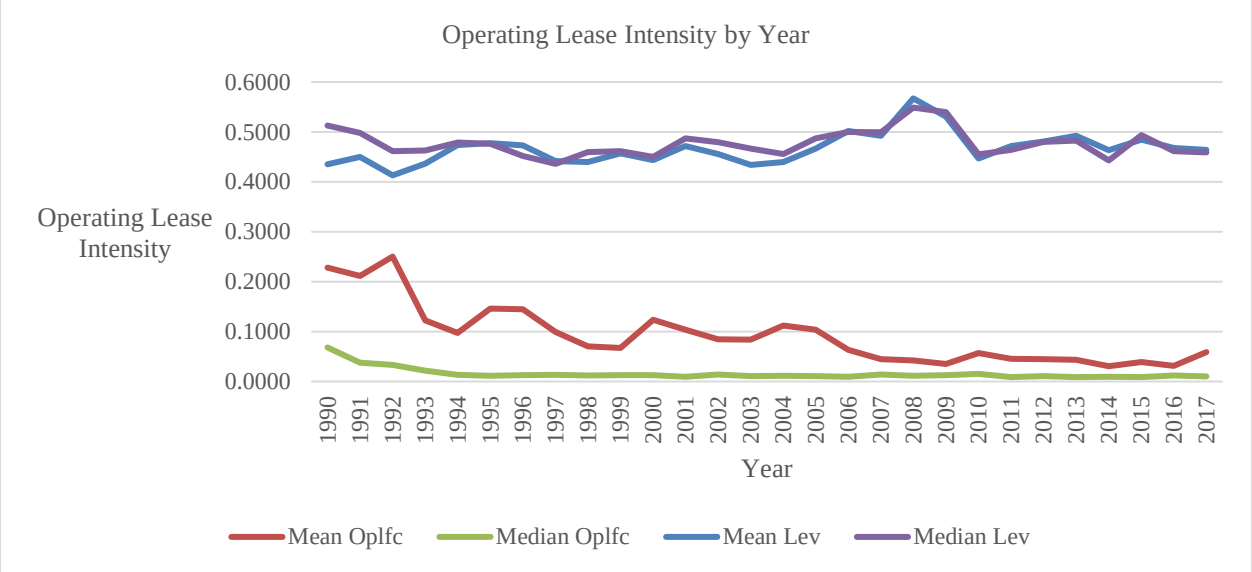
Table 8. Substitution between Leasing and Debt-Simultaneous Equations

	(1)	*(2)*
Dependent Variable	*ΔOpl*	*ΔLev*
Intercept	0.0038	0.0024
	(0.56)	(0.35)
ΔLev	0.3202***	
	(-10.68)	
ΔOpl		-0.3435***
		(-10.68)
ΔAT	-0.0110	0.0329***
	(-1.04)	(3.00)
Distress	-0.0019	-0.0185***
	(-0.28)	(-2.61)
ΔEarning	-0.0976	0.0102
	(-1.25)	(0.13)
ΔMB	0.0160	0.0002
	(1.38)	(0.02)
ΔTaxRate	0.0008	0.0026
	(0.16)	(0.49)
Ltloss	-0.0058	0.0035
	(-0.78)	(0.46)
Stloss	-0.0067	0.0042
	(-0.55)	(0.33)
Crisis	-0.0065	0.0094
	(-0.60)	(0.83)
Adjusted R-square	0.1143	0.1246
N	933	933

This table reports the simultaneous equations estimation results of models (2) (Column 1) and model (3) (Column 2). Δ denotes the one-year change of continuous variables. All variables are defined in Section 3.2. T-statistics are reported in parentheses. ***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.

Figure 1. REIT Distribution by Period





This figure plots the annual number of unique REITs, and the means and medians of operating lease intensity and leverage for the sample period between 1990 and 2017. All variables are defined in Section 3.2.

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