Collateral, Ease of Repossession, and Leases: Evidence from Anti-Recharacterization Laws

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Abstract

This paper studies how the ease of repossessing collateral in bankruptcy affects corporate leasing policy. Using plausibly exogenous variation of the comparative advantages in the ability to repossess assets between leases and secured lending generated by anti-recharacterization laws, I find that the anti-recharacterization laws, which make collateral repossession easier for secured lending, reduces corporate leasing. Consistent with the argument that only financially constrained firms value additional debt capacity due to increased ability of repossessing assets, I find that the effect concentrates on financially constrained firms. I also find that the effect is much stronger for firms with less specific assets.

Keywords: Leases, Ability to Repossess, Anti-Recharacterization Laws, Bankruptcy

JEL Code: G32, G33, G38

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1 Introduction

This paper studies empirically how the ability to repossess collateral affects corporate leasing policy. Eisfeldt and Rampini (2009) argue that the ease of repossessing leased assets in bankruptcy is a major comparative advantage of leasing relative to secured lending and is an important determinant of corporate leasing policy. In a dynamic setting, Rampini and Viswanathan (2013) also model leases as highly collateralized financing. It follows that the relative ability of secured lenders and lessors to repossess assets should affect corporate leasing policy. Empirically, however, no paper has attempted to examine the effect of the ease to repossess assets in bankruptcy on corporate leasing policy. One major challenge is the difficulty of empirically measuring the ability to repossess. An even more difficult task is to find exogenous variation in the ability to repossess assets to identify its causal effect on corporate leasing policy. In this paper, I overcome this difficulty by exploiting exogenous variation generated by state anti-recharacterization laws, which increase secured lenders' ability to repossess assets in bankruptcy, and present the first empirical effort to examine the causal effect of the ability to repossess assets on corporate leasing policy.

According to the US Bankruptcy Code, in Chapter 11, the lessee must either assume the lease, that is, continue to make the rental payments, or reject the lease and return the asset, implying that the lessor can repossess the assets relatively easily and quickly. In contrast, collateral underlying secured lending is subject to automatic stay in Chapter 11, implying that the lender can only repossess the collateral with a significant delay or will not be able to repossess the collateral at all. Because the automatic stay reduces creditor rights and hence borrowers' debt capacity, firms subject to financial constraints will use more leases to expand their debt capacity.

However, many borrowers can evade the automatic stay by borrowing via a bankruptcy-remote special purpose vehicle (SPV). The borrower first transfers the collateral to the SPV,

and use the SPV as the borrowing entity. The advantage of borrowing via the SPV is that it may avoid the automatic stay because the SPV remains solvent even if the borrower files for bankruptcy. However, the strategy of using an SPV to avoid automatic stay is not guaranteed because bankruptcy judges have the discretion to rule that the transfer of the collateral to the SPV is a financing transaction rather than a true sale, a ruling known as recharacterization. Since the later 1990s, seven states have adopted anti-recharacterization statutes, which treat the collateral transfer to SPV as a true sale.

These anti-recharacterization laws generate plausibly exogenous variation in the comparative advantage in ability to repossess assets between leases and secured lending. These laws affect firms that are incorporated in those seven states and use SPVs to conduct secured borrowing. The use of SPVs is widespread. Feng, Gramlich, and Gupta (2009) document that 42% of the firms use at least one SPV, and nearly 30% of the firms have multiple SPVs. In addition, while the passing of these laws were heavily lobbied in the states, lobbying activities were mostly concentrated in the financial industries. In this paper, however, I focus on leasing policy of non-financial firms. It follows that these laws are arguably exogenous to the firms I consider in this paper. This setting thus allows me to study the impact of these laws within a difference-in-differences framework.

Using the difference-in-differences specification, I find that the anti-recharacterization laws reduce firms' use of leases by more than 10% of the sample median. The results are robust to the inclusion of year and firm fixed effects. One potential concern is that firms may endogenously choose the states of incorporation because of their financing needs. To mitigate this concern, I first exclude all firms incorporated in Delaware, the favorite incorporation state, and find that the result remains robust. I then further exclude all firms not incorporated in their headquarters states and still find similar results. To mitigate the concern that the results may be driven by pre-existing differences between treated and control

firms in the absence of these laws, I examine the dynamic effect of the anti-recharacterization laws and find that the effect takes place only after, but not before, the implementation of the laws, suggesting that the results are unlikely to be driven by pre-existing differences between treated and control firms before the anti-recharacterization laws.

In addition, I also conduct a falsification test on the effect of anti-recharacterization laws on capital leases. Under the Bankruptcy Code, capital leases are more likely to be categorized as leases intended as security and assets under capital leases are more likely to be also subject to the automatic say. As such, the choice between capital leases and secured lending is unlikely to be determined on the same margin as the choice between secured lending and operating leases. It follows that capital leases may not be affected by the anti-recharacterization laws because these laws should only affect the comparative advantage between secured loans borrowed through SPVs and true leases. Using the same difference-in-differences framework, I indeed find no effect of the anti-recharacterization laws on capital leases.

To further confirm that the results are driven by the comparative advantage between leases and secured lending, I explore how cross-sectional variation of financial constraints alter the effects of the anti-recharacterization laws on leases. As argued in Eisfeldt and Rampini (2009) and Rampini and Viswanathan (2013), financially constrained firms are more likely than unconstrained firms to value the additional debt capacity generated by the ability to repossess assets of leases or SPV secured lending. Therefore, the effect of the anti-recharacterization laws should be more pronounced on financially constrained firms, i.e., firms that are close to their debt capacity. To this end, I use three proxies, namely dividend payout, the size and age index (Hadlock and Pierce 2010), and the Whited-Wu index (Whited and Wu 2006), to measure financial constraints. Consistent with the conjecture, I find that the effect of the anti-recharacterization laws concentrates on financially constrained firms

but not unconstrained firms.

Finally, I also examine whether the effect changes with regard to asset specificity. The effect, driven by the comparative advantage between leases and secured lending, also relies on an implicit assumption that the asset under consideration can either be leased or purchased with debt. In practice, however, some assets are more likely to be purchased rather than to be leased. In particular, Krishnan and Moyer (1994) and Gavazza (2010, 2011) show that leases of firm-specific or industry-specific assets entail large agency costs and firms are more likely to purchase these specific assets. It follows that if asset specificity prohibits the substitution between leasing and purchasing, the comparative advantage in terms of the ease of repossession should not matter for leasing policy. Indeed, I find that the effect of the anti-recharacterization laws is much weaker for firms with more specific assets, further suggesting that the baseline result is driven by the comparative advantage between leases and secured lending.

This paper contributes to the literature on corporate leasing policy. Early theories on leasing policies almost exclusively study the leasing decision in the Modigliani-Miller framework (Modigliani and Miller 1958). Under that framework, leasing policy is largely determined by the differential tax treatment of leasing versus buying (Lewellen, Long, and McConnell 1976, Miller and Upton 1976, and Myers, Dill, and Bautista 1976). Smith and Wakeman (1985) consider a broad set of determinants of leasing policy, including contractual provisions. Others explain leasing using market power arguments (Coase 1972; Bulow 1986; Waldman 1997; and Hendel and Lizzeri 1999). Eisfeldt and Rampini (2009) are the first to recognize and to formally model the ability to repossess assets as an important determinant of leasing policy.

Empirically, Krishnan and Moyer (1994) find that firms with lower retained earnings, higher growth rates, lower coverage ratios, higher debt ratios, higher operating risk, and lower Altman Z-scores are more likely to have capital leases. Studying both capital leases and

operating leases, Sharpe and Nguyen (1995) find that firms with no dividend payments, lower earnings, lower credit rating, and smaller firms use more operating leases. Graham, Lemmon, and Schallheim (1998) provides large sample comprehensive evidence on the determinants of leases and especially on the negative effect of corporate tax rates on leases. This paper provides the first empirical study on the causal effect of the ability to repossess assets on leases. Compared with the huge literature on capital structure, the literature on corporate leases is rather limited. Given the magnitude of leases in companies' capital structure, as shown in summary statistics below, corporate leasing policy deserves more attention. This paper presents such an effort to advance the literature on corporate leasing policy.

This paper is also related to several recent papers that examine the effect of the anti-recharacterization laws on corporate policies. Li, Whited, and Wu (2016) use the anti-recharacterization laws as natural experiments to examine the effect of collateral on capital structure and find that the anti-recharacterization laws increases corporate leverage. Mann (2014) examines how the anti-recharacterization laws and related court decisions affect the ability of firms to use patents as collateral to access credit and to finance future innovation. This paper is the first to examine how the anti-recharacterization laws affect the comparative advantages between debt and leases and consequently corporate leasing policy.

The rest of the paper is organized as follows. Section 2 discusses the institutional background of anti-recharacterization laws; section 3 describes the sample; section 4 presents the empirical results; and section 5 concludes.

2 Leases, Secured Lending and the Anti-Recharacterization Laws

The US Bankruptcy Code treats leasing and secured lending differently upon a firm's filing of bankruptcy. Upon filing Chapter 11 bankruptcy, a firm must either assume the lease, i.e., continue to pay specified payments, or default on the lease and return the asset. In this case, the lessor can almost immediately seize the leased assets. In contrast, collateral of secured debt is usually subject to the Bankruptcy Code's automatic stay, which prevents creditors from seizing the collateral upon the filing of Chapter 11. It follows that it is much easier for a lessor to regain control of the leased assets than for a secured creditor to seize the collateral. The ease to repossess leased assets therefore presents a comparative advantage of leases over secured lending.

One way for secured lending to get away with the automatic stay is to borrow via a special purpose vehicle (SPV). Instead of borrowing directly from a lender, the firm first transfers the asset (collateral) to an SPV, and then use the SPV to borrow. The benefit of using an SPV is that the SPV remains solvent even if the firm files for bankruptcy, commonly known as bankruptcy remote. The collateral under the SPV is not subject to the automatic stay when the firm files for bankruptcy due to the bankruptcy remote status of the SPV. In this case, the lender can seize the collateral immediately upon the firm's filing of bankruptcy without any delay. Therefore, if firms can borrowing via SPVs, the comparative advantage of leases against secured lending disappears, i.e., borrowing through SPVs makes leases less attractive.

However, before the implementation of the anti-recharacterization laws I consider in this paper, collateral under SPVs is not always exempted from the automatic stay because bankruptcy courts have the discretion to recharacterize the collateral as a traditional loan,

which makes the collateral subject to the automatic stay again. The threat of recharacterization therefore makes secured lending less attractive but leases more attractive.

The anti-recharacterization laws, however, make recharacterization much more difficult in states that adopted these laws. Texas and Louisiana implemented the laws in 1997, followed by Alabama in 2001, Delaware in 2002, South Dakota in 2003, Virginia in 2004, and Nevada in 2005. These laws, by enhancing the pledgeability of collateral assets, make secured lending more attractive relative to leases.

These state-level anti-recharacterization laws are later almost reversed by several bankruptcy cases that use federal law standard to block these anti-recharacterization laws. The most prominent case that challenges the anti-recharacterization laws is the 2003 Reaves Brokerage Company, Inc vs. Sunbelt Fruit & Vegetable Company, Inc. case. In this case, the court ignored the anti-recharacterization law of Texas and prevented lenders from seizing the collateral after the firm filed for bankruptcy. This case opened the gate of federal laws preempting the state anti-recharacterization laws, which substantially reduced the relevance of the anti-recharacterization laws, and makes secured lending less attractive but leases more attractive.

3 Data and Sample Construction

3.1 Sample Construction

The sample begins with all Compustat firms between 1994 and 2010. The sample period starts from 1994 for two reasons. First, only until 1994 did Compustat start to report rental commitment, which will be used to calculate leases; second, the first anti-recharacterization law was implemented in 1997 in Texas, and therefore including observations prior to 1997 enables more efficient estimation in the difference-in-differences framework. Because the

preemptive federal court rulings start in year 2003, including observations after 2003 is also necessary for estimation efficiency. But including observations too far way from the event may also lead to spurious inference (Bertrand, Duflo, and Mullainathan 2004), and I therefore end the sample period in 2010. I exclude firms in the financial (SIC 6000-6999) and utilities industries (SIC 4900-4949). I also exclude firms not incorporated or not located in the U.S.. I then exclude firms with missing or negative book assets and firms with missing key variables. The final sample has 41,880 firm year observations and 6,539 unique firms.

3.2 Measuring Leasing Policy

I measure operating lease as the present value of current and future lease commitments. To compute the present value, I follow Li, Whited, and Wu (2016) and discount lease commitments due in years one through five (MRC1-MRC5) at the Baa bond yield obtained from the federal reserve web site. I then similarly discount lease commitments due in years beyond five (MRCTA) by assuming that the lease commitments are spread out evenly from year six to year ten. The present value is then the sum of current lease commitment (XRENT) and the present value of future lease commitments. I then scale this sum as a fraction of both total assets (AT) and total debt. Total debt is defined as the sum of current liability (DLC), Long Term Debt (DLTT), and the present value of lease commitments. I label the one scaled by total assets as *Lease*, and the one scaled by total debt as *Lease Share*. I measure capital lease as total capital lease (DCLO) scaled by total assets, which I label as *Capital Lease*.

3.3 Other Variables

I follow Sharpe and Nguyen (1995) and Graham, Lemmon, and Schallheim (1998) to include the following control variables: *Log Assets* – the log of total assets (AT), *Leverage* – total liability over total assets ((DLC+DLTT)/AT), *Tobin's Q* – market value of total assets

(AT + PRCC_F × CSHO - TXDB - CEQ) to total assets, *Dividend* – equals one if the firm pays out dividend (DVP+DVC>0) and equals zero otherwise, *Profitability* – operating income (OIBDP) divided by total assets, *Cash* – the cash holding (CHE) divided by total assets, *Tangibility* – total property, plant, and equipment (PPENT) divided by total assets, *Tax Rate* – tax payment (TXT) to pre-tax income (PI).

3.4 Summary Statistics

The summary statistics of the variables used in this paper are presented in Table 1. The mean of *Lease* is almost 15%, which suggests that leasing is a significant source of financing. The percent of leased capital is comparable to long term debt, which has a mean of 19% in the sample. While there has been a huge literature on the determinants of leverage, very little has been done on leases. And given the magnitude of leases in a company's capital structure, corporate leasing policy deserves more attention in financial research.

4 Empirical Results

4.1 Identification Strategy

In this paper, I use the institutional setting of the passing of anti-recharacterization laws to design a difference-in-differences test of the effect of the ease of repossession on corporate leasing policy. One concern for using these anti-recharacterization laws as natural experiments for identification is that the passing of these laws were heavily lobbied in the states. However, lobbying activities were mostly concentrated in the financial industries, in which the big concern was the negative impact of recharacterization on securitization (Janger 2003 and Li, Whited, and Wu 2016). Non-financial firms, the focus in this paper, have rather limited roles in the lobbying activities, which mitigates the concern that the endogeneity of

the passing of these anti-recharacterization laws may bias our results.

I follow Li, Whited, and Wu (2016) to first define the treatment variable *Law* as follows: *Law* equals one if the firm is incorporated in Texas, Louisiana, or Alabama, three states that passed the anti-recharacterization laws before 2002, and the fiscal year is after the passing of the laws in these states but before 2004. I only focus on the anti-recharacterization laws passed before 2002 because the state-level laws were preempted by federal laws after 2003. I then estimate a difference-in-differences specification as follows:

$$Lease_{ijt} = \alpha_i + \alpha_t + \beta Law_{jt} + \gamma X_{it-1} + \varepsilon_{it} \tag{1}$$

Where $Lease_{ijt}$ is the measure of leases of firm i, incorporated in state j, and in year t, α_i is the firm fixed effects, α_t is the year fixed effects, Law_{jt} is defined as above, X_{it-1} is a vector of control variables. The inclusion of firm fixed effects and year fixed effects ensures the specification is a difference-in-differences specification. In this setting, β is the difference-in-differences estimate, which captures the effect of anti-recharacterization laws on corporate leases. Because the independent variable of interest is measured at the incorporation state level, I cluster the standard error by incorporation state. The results, however, are robust if standard errors are clustered by firm.

4.2 Baseline Results

The baseline regression results are presented in Table 2. In Column (1), only the treatment variable *Law* and firm and year fixed effects are included as independent variables. I do not include other firm characteristics because they are also likely to be affected by the anti-recharacterization laws, and therefore are potentially endogenous. The difference-in-differences estimate, i.e., the coefficient on *Law*, is negative and statistically significant,

suggesting that the anti-recharacterization laws reduce the use of leases. In Column (2), I then include firm level controls except for leverage because the anti-recharacterization laws are known to affect leverage (Li, Whited, and Wu 2016). The difference-in-differences estimate is still negative and statistically significant. Finally, in Column (3), I show that the result remains robust even if leverage is included as an additional control variable. Furthermore, the effect is also economically significant. Taking the estimate in Column (1), the law reduces the use of lease by at least 1.66 percentage points, which is about 11% of the sample mean and about 27% of the sample median. The effect is even larger for estimates in Columns (2) and (3).

Focusing on the results in Columns (2) and (3), the effects of control variables are consistent with most existing literature. For example, operating lease decreases with firm size and internal cash, and increases with Tobin's Q (Eisfeldt and Rampini 2009 and Graham, Lemmon, and Schallheim 1998).

4.3 Addressing Identification Challenges

In this subsection, I address two identification challenges that can potentially undermine the identification of the baseline specification. First, due to the special legal environment of the state of Delaware, many firms not headquartered in Delaware choose to be incorporated in Delaware. The endogenous choice of incorporation states may then bias the baseline results. To address this concern, I first exclude all firms incorporated in Delaware and re-estimate Equation (1). The results are presented in Columns (1)-(3) of Table 3. The difference-in-differences estimates are again all negative and statistically significant, suggesting that the baseline results are not driven by firms endogenously choosing to be incorporated in Delaware. I then further address this problem excluding all firms that are not incorporated in their headquarters states, and the results are presented in Columns (4)-(6). The results

are again qualitatively similar to the baseline results.

Another possibility that may undermine the identification strategy is that the results are driven by pre-existing differences between treated firms incorporated in Texas, Louisiana, and Alabama and control firms before the passing of the anti-recharacterization laws. To mitigate this concern, I follow Bertrand and Mullainathan (2003) and Roberts and Whited (2012) to examine the dynamics of the effect of the laws on corporate leases. Specifically, I construct four variables related to the timing of anti-recharacterization laws. The four variables are: Law^{-1}, which equals one if the observation occurs one year before the passing of the law; Law^{0}, which equals one if the observation occurs in the year of the passing of the law; Law^{+1}, which equals one if the observation occurs one year after the passing of the law; Law^{+2}, which equals one if the observation occurs more than one year after the passing of the law. I then replace Law in the baseline specification with these four newly constructed variables. If the baseline results are driven by pre-existing differences between the treated and control firms before the anti-recharacterization laws, the effect should show up in Law^{-1}. The results are presented in Table 4. The coefficients on Law^{-1} and Law^{0} are all small and statistically insignificant, suggesting that the baseline results are unlikely to be driven by pre-existing differences or reverse causality. In contrast, consistent with the baseline results, the coefficients on Law^{+1} and Law^{+2} are all negative and statistically significant.

4.4 Robustness Tests

In this subsection, I present several robustness tests. First, in the baseline results, I include only firms incorporated in Texas, Louisiana, and Alabama in the treated group. However, Delaware, South Dakota, Virginia, and Nevada also passed anti-recharacterization laws, albeit after year 2003, which would have limited effects due to the preemption by federal laws. However, concerns remain that these states may create noises in the baseline

estimation. To mitigate this concern, I then exclude all firms incorporated in Delaware, South Dakota, Virginia, and Nevada. The results are presented in Panel A of Table 5, which shows that, similar to the baseline results, the difference-in-differences estimates are all negative and statistically significant.

The effect of the anti-recharacterization laws on leasing policy is driven by the effect of the laws on the comparative advantages of secured lending versus leases. It is therefore expected that the laws should have a positive effect on debt usage (Li, Whited, and Wu 2016), and have a negative effect on the share of leases in total debt, i.e., *Lease Share*. I check whether this is true by replacing the dependent variable in Equation (1) with *Lease Share* and *Leverage* respectively, and the results are presented in Panel B of Table 5. Consistent with the conjecture, the anti-recharacterization laws have a negative effect on *Lease Share* and a positive effect on *Leverage*.

The lease measure used above is calculated based on operating lease payments. Operating leases are more likely to be categorized as true leases under the Bankruptcy code and the assets under operating leases are less likely to be subject to the automatic stay. In contrast, capital leases are often considered as leases intended as security and assets under capital leases are more likely to be subject to the automatic stay in bankruptcy. In this regard, the anti-recharacterization laws should negatively affect operating leases but not capital leases. As a falsification test, I then replace the dependent variable in Equation (1) with *Capital Lease* and the results are presented in Panel C of Table 5. As expected, the difference-in-differences estimates are all very small and statistically insignificant, suggesting that anti-recharacterization laws have little effect on capital leases.

4.5 The Impact of Financial Constraints

The effects of the anti-recharacterization laws documented above are driven by the laws' impact on the comparative advantage of leases versus secured lending. The ability to repossess assets of leases or SPV borrowing increases a firm's borrowing capacity. However, as argued by Eisfeldt and Rampini (2009), the value of additional debt capacity generated by the ability to repossess assets is more valuable when the firm is financially constrained. It implies that the ability to repossess assets or the anti-recharacterization laws will affect a firm's choice between leases and secured lending (via SPV) only when the firm is financially constrained and makes financing decisions along that margin.

To test this conjecture, I follow the literature to use three proxies to measure financial constraints. The proxies are:

- Proxy 1: I sort the firms based on their dividend payout and assign to the financially constrained group those firms with zero dividend payout, and to the unconstrained group those firms with positive dividend payout. A similar approach of categorizing financial constraints is also used in Fazzari, Hubbard, and Petersen (1988) and Almeida, Campello, and Weisbach (2004).

- Proxy 2: I rank the firms based on their SA index (Hadlock and Pierce 2010) and assign to the financially constrained (unconstrained) group those firms in the top (bottom) three deciles of the SA index.

- Proxy 3: I rank the firms based on their Whited-Wu index (Whited and Wu 2006) and assign to the financially constrained (unconstrained) group those firms in the top (bottom) three deciles of the Whited-Wu index.

I then examine the impact of anti-recharacterization laws on financially constrained and unconstrained firms separately, and the results are present in Table 6. In Panel A, I use

the first proxy, dividend payout, to form constrained and unconstrained groups. For financially unconstrained firms (Columns (1)-(3)), the coefficients on *Law* are either positive or statistically insignificant, suggesting that the anti-recharacterization laws have little impact on unconstrained firms. In contrast, for financially constrained firms (Columns (4)-(6)), the difference-in-differences coefficients are all negative and statistically significant. Furthermore, the differences between columns (1) and (4), columns (2) and (5), and columns (3) and (6) are all statistically significant at the 1% level. The results suggest that the impact of anti-recharacterization laws and the comparative advantages of the ability to repossess assets on leases only comes from financially constrained firms.

In Panel B, I use the second proxy, the SA index, to form constrained and unconstrained groups. The results are similar to those in Panel A. The negative effect of the anti-recharacterization laws only concentrates on financially constrained firms. Finally in Panel C, I use the third proxy, the WW index, to form constrained and unconstrained groups, and the results are again similar.

Overall, the results in Table 6 suggest that the negative effect of anti-recharacterization laws on leases comes only from financially constrained firms, who value additional debt capacity generated by the ability to repossess more and makes financing decisions along that margin.

4.6 The Impact of Asset Specificity

The fact that the ability to repossess assets drives the decision of leasing versus secured lending at the margin reflects the demand of the company to increase its debt capacity. However, for the demand for debt capacity to work, it is necessary that the assets under consideration can either be leased or purchased, that is, leasing and secured lending is substitutable. However, some assets may not always be available for lease, or may entail substantial

agency costs if leased. To this end, I explore the cross-sectional variations of industry-level asset specificity to generate supply side frictions that may prevent the substitution between leases and secured lending. As argued in Krishnan and Moyer (1994) and Gavazza (2010, 2011), leases of firm-specific or industry-specific assets entail large agency costs and firms are more likely to purchase these specific assets.

To measure asset specificity, I follow Kim and Kung (2014) to construct the industry-level asset redeployability measure. Specifically, the asset redeployability measure is constructed using the Bereau of Economic Analysis (BEA) capital flow table. For each asset class, the redeployability score is calculated as the proportion of industries or firms by which a given asset is used. The industry-level redeployability measure is then the value-weighted average of each asset's redeployability score. More redeployable assets are less specific. I then rank firms according to their asset redeployability measures and assign to the high (low) asset specificity group firms in the bottom (top) three deciles of the asset redeployability measure. I then re-estimate Equation (1) on low and high asset specificity firms separately and the results are presented in Table 7.

For firms with more specific assets (Columns (1)-(3)), the difference-in-differences estimates are all small and statistically insignificant, which is consistent with the conjecture that substitution between leases and secured lending is more difficult for more specific assets, which makes the ability to repossess assets less important in determining leasing policy. In contrast, for firms with less specific assets (Columns (4)-(6)), the coefficient estimates on *Law* are all negative and statistically significant. The differences between columns (1) and (4), columns (2) and (5), and columns (3) and (6) are all statistically significant at the 1% level. The result is consistent with the argument that less specific assets cam either be leased or purchased with secured lending; and therefore the ability to repossess assets can affect the substitution between leasing and secured lending at the margin.

5 Conclusion

This paper studies how the comparative advantage of the ability to repossess assets in bankruptcy between leasing and secured lending affects corporate leasing policy. Using state-level anti-recharacterization laws as natural experiments, I find that when the ability of secured lenders to repossess assets increases due to the anti-recharacterization laws, firms reduce their use of leases. In addition, I find that the effect is stronger for financially constrained firms and firms with less specific assets.

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Table 1: Summary Statistics

This table presents the summary statistics of the variables used in the paper. The sample consists of all non-financial, non-utility publicly traded companies in Compustat from fiscal year 1994 to 2010. Definitions of the variables are in the Appendix.

	Obs.	Mean	S.D.	P25	Median	P75
Lease	49,790	14.850	23.483	2.770	6.233	15.116
Lease Share	49,544	45.843	37.130	11.324	33.702	88.218
Leverage	49,627	24.944	26.183	1.377	17.944	38.449
Capital Lease	47,736	0.513	1.681	0.000	0.000	0.115
Dividend	48,901	0.332	0.471	0.000	0.000	1.000
Rating	44,483	0.275	0.447	0.000	0.000	1.000
Log Assets	48,901	5.098	2.377	3.561	5.238	6.751
Tobin's Q	43,396	2.844	3.095	0.873	1.446	3.142
Profitability	48,736	-0.100	0.747	-0.042	0.094	0.160
Cash	48,896	0.217	0.249	0.027	0.108	0.331
Tangibility	48,846	0.236	0.219	0.067	0.163	0.339
Tax Rate	48,850	0.168	0.378	0.000	0.237	0.374
SA Index	49,790	-2.918	0.985	-3.568	-3.059	-2.476
WW Index	47,082	-0.131	0.223	-0.241	-0.155	-0.059
Redeploy	26,032	0.151	0.145	0.051	0.136	0.164

Table 2: Baseline results

This table presents the baseline results of estimating $Lease_{ijt} = \alpha_i + \alpha_t + \beta Law_{jt} + \gamma X_{it-1} + \varepsilon_{it}$. The dependent variable *Lease* is defined as the present value of lease payments scaled by total assets; the independent variable of interest is *Law*, which equals one for firms incorporated in Texas, Louisiana, or Alabama after the passing of the anti-recharacterization laws but before 2004. Definitions of other control variables are in the Appendix. All regressions include year and firm fixed effects. Robust standard errors clustered by incorporation state are reported in parentheses. Significance at 1%, 5%, and 10% levels are indicated by ***, **, and *, respectively.

	(1)	(2)	(3)
Law	-1.66***	-2.85***	-2.88***
	(0.25)	(0.48)	(0.47)
Leverage			1.04
			(0.69)
Dividend		-0.12	-0.12
		(0.24)	(0.24)
Log Assets		-1.09***	-1.07***
		(0.19)	(0.20)
Tobin's Q		-0.17***	-0.18***
		(0.04)	(0.04)
Profitability		-2.40***	-2.31***
		(0.26)	(0.25)
Cash Holding		-3.61***	-3.31***
		(0.46)	(0.59)
Tangibility		5.15***	5.03***
		(1.75)	(1.81)
Tax Rate		-0.17	-0.16
		(0.14)	(0.15)
Constant	11.56***	20.99***	20.78***
	(3.57)	(1.95)	(1.85)
Rating Dummies		Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Observations	49,790	43,221	43,221
Adjusted R-squared	0.772	0.776	0.776

Table 3: Endogenous choice of incorporation states

This table presents the baseline results of estimating $Lease_{ijt} = \alpha_i + \alpha_t + \beta Law_{jt} + \gamma X_{it-1} + \varepsilon_{it}$ excluding firms incorporated in Delaware (Columns (1)-(3)) and excluding firms not incorporated in their headquarters states (Columns (4)-(6)). The dependent variable *Lease* is defined as the present value lease payments scaled by total assets; the independent variable of interest is *Law*, which equals one for firms incorporated in Texas, Louisiana, or Alabama after the passing of the anti-recharacterization laws but before 2004. Definitions of other control variables are in the Appendix. All regressions include year and firm fixed effects. Robust standard errors clustered by incorporation state are reported in parentheses. Significance at 1%, 5%, and 10% levels are indicated by ***, **, and *, respectively.

	Excluding Delaware			Incorp same as Headquarters		
	(1)	(2)	(3)	(4)	(5)	(6)
Law	-1.17***	-2.01***	-2.04***	-1.31**	-3.10***	-3.16***
	(0.34)	(0.48)	(0.48)	(0.52)	(0.61)	(0.63)
Leverage			2.25**			1.64
			(0.88)			(1.38)
Dividend		-0.20	-0.17		-1.02	-1.01
		(0.73)	(0.74)		(0.74)	(0.75)
Log Assets		-1.19**	-1.15*		-2.00***	-1.97***
		(0.58)	(0.59)		(0.41)	(0.39)
Tobin's Q		-0.10**	-0.13**		-0.05	-0.06
		(0.05)	(0.05)		(0.12)	(0.12)
Profitability		-2.28***	-2.12***		-1.79*	-1.68*
		(0.66)	(0.62)		(0.96)	(0.91)
Cash Holding		-2.93**	-2.33*		-3.23**	-2.80**
		(1.16)	(1.20)		(1.38)	(1.38)
Tangibility		2.00	1.78		6.34***	6.19***
		(2.47)	(2.46)		(2.16)	(2.15)
Tax Rate		0.10	0.13		0.32	0.35
		(0.33)	(0.33)		(0.39)	(0.39)
Constant	19.86***	25.31***	24.80***	20.10***	29.03***	28.67***
	(1.75)	(2.39)	(2.35)	(2.53)	(2.68)	(2.49)
Rating Dummies		Yes	Yes		Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	17,496	15,639	15,639	11,555	10,438	10,438
Adjusted R-squared	0.765	0.772	0.772	0.824	0.827	0.827

Table 4: The dynamics effect of anti-recharacterization laws

This table presents the baseline results of estimating $Lease_{ijt} = \alpha_i + \alpha_t + \beta_1 Law_{jt}^{-1} + \beta_1 Law_{jt}^{0} + \beta_1 Law_{jt}^{+1} + \beta_1 Law_{jt}^{+2} + \gamma X_{it-1} + \varepsilon_{it}$. The dependent variable *Lease* is defined as the present value of lease payments scaled by total assets; the independent variables of interests are: Law^{-1}, which equals one if one year before the passing of the law; Law^{0}, which equals one of in the year of the passing of the law; Law^{+1}, which equals one if one year after the passing of the law; Law^{+2}, which equals one if more than one year after the passing of the law. Definitions of other control variables are in the Appendix. All regressions include year and firm fixed effects. Robust standard errors clustered by incorporation state are reported in parentheses. Significance at 1%, 5%, and 10% levels are indicated by ***, **, and *, respectively.

	(1)	(2)	(3)
Law^{-1}	0.05	0.32	0.31
	(0.45)	(0.46)	(0.46)
Law^{0}	0.36	0.60	0.60
	(0.61)	(0.39)	(0.39)
Law^{+1}	-1.39**	-1.20**	-1.20**
	(0.67)	(0.46)	(0.47)
Law^{+2}	-1.12**	-1.28**	-1.29**
	(0.52)	(0.59)	(0.59)
Leverage			1.05
			(0.68)
Dividend		-0.12	-0.12
		(0.24)	(0.24)
Log Assets		-1.08***	-1.06***
		(0.19)	(0.20)
Tobin's Q		-0.18***	-0.19***
		(0.04)	(0.04)
Profitability		-2.42***	-2.32***
		(0.26)	(0.25)
Cash Holding		-3.65***	-3.34***
		(0.46)	(0.58)
Tangibility		5.11***	4.99***
		(1.75)	(1.81)
Tax Rate		-0.17	-0.16
		(0.15)	(0.15)
Constant	11.54***	21.15***	20.94***
	(3.67)	(2.01)	(1.91)
Rating Dummies		Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Observations	49,790	43,221	43,221
Adjusted R-squared	0.772	0.776	0.776

Table 5: Robustness tests

This table presents three sets of robustness test results. Panel A presents the results excluding firms incorporated in states that enacted anti-recharacterization laws after 2002; Panel B presents results on *Lease Share*, defined as the present value of lease payments scaled by total debt, and *Leverage*, defined as total liability scaled by market value of assets ; Panel C presents results on *Capital Lease*, defined as capital lease scaled by total assets. The independent variable of interest is *Law*, which equals one for firms incorporated in Texas, Louisiana, or Alabama after the passing of the anti-recharacterization laws but before 2004. Definitions of other control variables are in the Appendix. All regressions include year and firm fixed effects. Robust standard errors clustered at incorporation state level are reported in parentheses. Significance at 1%, 5%, and 10% levels are indicated by ***, **, and *, respectively.

Panel A: Excluding states with laws after 2002

	(1)	(2)	(3)
Law	-1.08***	-2.00***	-2.02***
	(0.39)	(0.52)	(0.52)
Leverage			1.40
			(0.95)
Dividend		-0.50	-0.49
		(0.82)	(0.83)
Log Assets		-1.82***	-1.79***
		(0.33)	(0.32)
Tobin's Q		-0.10	-0.11
		(0.09)	(0.09)
Profitability		-1.36*	-1.25*
		(0.74)	(0.70)
Cash Holding		-3.09*	-2.77*
		(1.57)	(1.57)
Tangibility		4.19*	3.98*
		(2.21)	(2.23)
Tax Rate		0.08	0.09
		(0.38)	(0.38)
Constant	16.56***	24.29***	24.13***
	(0.11)	(2.36)	(2.36)
Rating Dummies		Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Observations	14,604	13,121	13,121
Adjusted R-squared	0.802	0.804	0.804

Panel B: *Lease Share* and *Book Leverage*

	Lease Share		*Leverage*	
	(1)	(2)	(4)	(5)
Law	-4.39***	-3.76***	3.79***	2.36**
	(1.10)	(0.93)	(0.76)	(0.96)
Dividend		0.08		0.51
		(0.54)		(0.38)
Log Assets		-1.42***		-0.31
		(0.42)		(0.26)
Tobin's Q		-0.01		-0.07
		(0.04)		(0.04)
Profitability		3.26***		-3.41***
		(0.52)		(0.55)
Cash Holding		20.47***		-12.49***
		(0.88)		(1.06)
Tangibility		-3.95**		4.24***
		(1.70)		(0.92)
Tax Rate		0.10		-0.56***
		(0.34)		(0.15)
Constant	52.05***	38.00***	18.06***	31.09***
	(1.20)	(3.04)	(2.78)	(4.10)
Rating Dummies		Yes		Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Observations	49,544	43,091	49,627	43,157
Adjusted R-squared	0.689	0.701	0.675	0.675

Panel C: Capital leases

	(1)	(2)	(3)
Law	-0.04	-0.02	-0.02
	(0.03)	(0.03)	(0.03)
Leverage			0.01
			(0.03)
Dividend		0.01	0.01
		(0.04)	(0.04)
Log Assets		0.03**	0.03**
		(0.01)	(0.01)
Tobin's Q		-0.00	-0.00
		(0.00)	(0.00)
Profitability		-0.00	0.00
		(0.02)	(0.02)
Cash Holding		-0.04	-0.04
		(0.04)	(0.04)
Tangibility		0.51***	0.51***
		(0.19)	(0.19)
Tax Rate		-0.04**	-0.04**
		(0.02)	(0.02)
Constant	0.95	2.03*	2.03*
	(0.94)	(1.20)	(1.20)
Rating Dummies		Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Observations	47,736	41,519	41,519
Adjusted R-squared	0.611	0.623	0.623

Table 6: Financial constraints and the effect of anti-recharacterization laws

This table presents the estimation results of $Lease_{ijt} = \alpha_i + \alpha_t + \beta Law_{jt} + \gamma X_{it-1} + \varepsilon_{it}$ on subsamples partitioned on measures of financial constraints. In Panel A, firms are partitioned based on dividend payout; in Panel B, firms are partitioned based on the SA index; and in Panel C, firms are partitioned based on the WW index. The dependent variable *Lease* is defined as the present value lease payments scaled by total assets; the independent variable of interest is *Law*, which equals one for firms incorporated in Texas, Louisiana, or Alabama after the passing of the anti-recharacterization laws but before 2004. Definitions of other control variables are in the Appendix. All regressions include year and firm fixed effects. Robust standard errors clustered at incorporation state level are reported in parentheses. Significance at 1%, 5%, and 10% levels are indicated by ***, **, and *, respectively.

Panel A: Dividend payout as a measure of financial constraints

	Positive Dividend			Zero Dividend		
	(1)	(2)	(3)	(4)	(5)	(6)
Law	0.95***	-0.21	-0.21	-3.09***	-3.32***	-3.37***
	(0.26)	(0.38)	(0.39)	(0.23)	(0.42)	(0.41)
Leverage			0.66			1.33
			(0.99)			(0.81)
Dividend		0.49*	0.49*		-0.41*	-0.40*
		(0.29)	(0.29)		(0.23)	(0.23)
Log Assets		-0.77*	-0.77*		-1.11***	-1.08***
		(0.39)	(0.40)		(0.22)	(0.22)
Tobin's Q		-0.27***	-0.27***		-0.15***	-0.16***
		(0.09)	(0.08)		(0.03)	(0.03)
Profitability		-3.88***	-3.83***		-2.08***	-1.95***
		(0.92)	(0.96)		(0.33)	(0.28)
Cash Holding		-0.60	-0.39		-4.02***	-3.66***
		(0.57)	(0.76)		(0.92)	(1.09)
Tangibility		6.26***	6.20***		5.38***	5.26***
		(0.88)	(0.89)		(1.60)	(1.66)
Tax Rate		-0.05	-0.05		-0.11	-0.10
		(0.40)	(0.40)		(0.14)	(0.15)
Constant	13.60***	16.05***	15.90***	9.57**	18.63***	18.44***
	(0.58)	(2.43)	(2.44)	(4.02)	(2.39)	(2.29)
Rating Dummies		Yes	Yes		Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,312	13,931	13,931	33,478	29,290	29,290
Adjusted R-squared	0.847	0.841	0.841	0.766	0.775	0.775

Panel B: SA index as a measure of financial constraints

	Low SA Index			High SA Index		
	(1)	(2)	(3)	(4)	(5)	(6)
Law	0.10	-0.42	-0.48	-3.41***	-2.58**	-2.54**
	(0.15)	(0.40)	(0.39)	(0.88)	(1.13)	(1.16)
Leverage			1.52**			1.37
			(0.70)			(1.06)
Dividend		-0.29	-0.28		-0.20	-0.18
		(0.31)	(0.32)		(0.84)	(0.83)
Log Assets		-1.80***	-1.85***		-1.42***	-1.32***
		(0.21)	(0.21)		(0.30)	(0.31)
Tobin's Q		0.06	0.05		-0.19***	-0.20***
		(0.17)	(0.16)		(0.06)	(0.06)
Profitability		-2.24**	-1.84*		-2.59***	-2.51***
		(0.99)	(0.99)		(0.39)	(0.39)
Cash Holding		-3.82***	-3.55***		-2.04**	-1.66
		(0.82)	(0.82)		(0.89)	(1.04)
Tangibility		5.83***	5.71***		5.93***	5.76***
		(1.83)	(1.85)		(1.97)	(2.04)
Tax Rate		-0.16	-0.14		0.28	0.30
		(0.16)	(0.16)		(0.49)	(0.49)
Constant	12.54***	23.22***	23.27***	20.77***	29.00***	18.79***
	(1.58)	(2.30)	(2.33)	(3.69)	(6.18)	(3.23)
Rating Dummies		Yes	Yes		Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,937	13,046	13,046	14,937	13,649	13,649
Adjusted R-squared	0.914	0.914	0.914	0.589	0.601	0.601

Panel C: WW index as a measure of financial constraints

	Low WW Index			High WW Index		
	(1)	(2)	(3)	(4)	(5)	(6)
Law	0.33**	0.22	0.22	-4.87***	-4.30***	-4.30***
	(0.16)	(0.35)	(0.35)	(0.83)	(0.91)	(0.92)
Leverage			-0.06			0.31
			(0.60)			(1.22)
Dividend		0.63*	0.64*		1.30	1.31
		(0.37)	(0.37)		(0.90)	(0.88)
Log Assets		-0.77***	-0.77***		-0.88**	-0.87*
		(0.18)	(0.18)		(0.43)	(0.46)
Tobin's Q		0.04	0.04		-0.20**	-0.21***
		(0.07)	(0.07)		(0.08)	(0.07)
Profitability		-2.95	-2.96		-2.88***	-2.86***
		(2.62)	(2.60)		(0.40)	(0.44)
Cash Holding		-4.22***	-4.23***		-4.70***	-4.60***
		(0.68)	(0.62)		(1.04)	(1.34)
Tangibility		1.17	1.18		3.45	3.40
		(1.69)	(1.69)		(2.54)	(2.66)
Tax Rate		-0.24	-0.24		0.14	0.15
		(0.18)	(0.17)		(0.47)	(0.48)
Constant	12.19***	17.30***	17.30***	18.44***	14.69***	14.59***
	(2.28)	(2.83)	(2.84)	(1.52)	(1.73)	(2.03)
Rating Dummies		Yes	Yes		Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,125	11,855	11,855	14,124	13,213	13,213
Adjusted R-squared	0.922	0.919	0.919	0.611	0.629	0.629

Table 7: Asset specificity and the effect of anti-recharacterization laws

This table presents the estimation results of $Lease_{ijt} = \alpha_i + \alpha_t + \beta Law_{jt} + \gamma X_{it-1} + \varepsilon_{it}$ on subsamples partitioned on measures of asset specificity. The dependent variable *Lease* is defined as the present value lease payments scaled by total assets; the independent variable of interest is *Law*, which equals one for firms incorporated in Texas, Louisiana, or Alabama after the passing of the anti-recharacterization laws but before 2004. Definitions of other control variables are in the Appendix. All regressions include year and firm fixed effects. Robust standard errors clustered at incorporation state level are reported in parentheses. Significance at 1%, 5%, and 10% levels are indicated by ***, **, and *, respectively.

	High Specificity			Low Specificity		
	(1)	(2)	(3)	(4)	(5)	(6)
Law	-0.39	-0.42	-0.34	-2.80***	-2.86***	-2.90***
	(0.30)	(0.32)	(0.34)	(0.56)	(0.63)	(0.62)
Leverage			1.46			0.15
			(1.13)			(1.08)
Dividend		0.00	0.02		0.32	0.35
		(0.24)	(0.24)		(0.38)	(0.37)
Log Assets		-0.43*	-0.42**		-0.24	-0.23
		(0.22)	(0.21)		(0.22)	(0.22)
Tobin's Q		-0.17**	-0.20***		-0.35***	-0.36***
		(0.07)	(0.07)		(0.09)	(0.09)
Profitability		-1.62***	-1.43**		-1.79***	-1.74***
		(0.60)	(0.54)		(0.39)	(0.41)
Cash Holding		-1.52	-1.11		-3.11***	-3.07***
		(1.06)	(1.11)		(0.62)	(0.69)
Tangibility		2.34	2.17		3.87***	3.73**
		(3.25)	(3.23)		(1.41)	(1.48)
Tax Rate		-0.05	-0.02		-0.05	-0.04
		(0.15)	(0.15)		(0.14)	(0.14)
Constant	9.91***	10.89***	10.61***	13.04***	13.48***	13.45***
	(0.32)	(1.46)	(1.55)	(0.45)	(1.14)	(1.28)
Rating Dummies		Yes	Yes		Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,828	7,636	7,618	7,798	7,643	7,615
Adjusted R-squared	0.608	0.633	0.633	0.537	0.549	0.549

Table A1: Variable Definitions

Variables	Definition
Lease	Present value of lease commitment divided by total assets
Lease Share	Present value of lease commitment divided by total liability
Capital Lease	Capital lease divided by total assets
Log Assets	Natural logarithm of book assets
Tobin's Q	Market value of assets to book value of assets
Cash	Cash holding to book value of assets
Leverage	Total liability to market value of assets
Profitability	Operating income to market value of assets
Tangibility	Total property, plant, and equipment divided by total assets
Tax Rate	Tax payment divided by pre-tax income
SA Index	The size-age index of financial constraints of Hadlock and Pierce (2010)
WW Index	The Whited-Wu index of financial constraints of Whited and Wu (2006)