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Financial constraint and the choice between leasing and debt

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ABSTRACT

Earlier studies suggest that companies use debt and leases interchangeably as the alternative external financing choice. We provide evidence that firms are not indifferent between debt and leases and the lease versus debt decision depends on the extent to which firms are financially constrained. For the most constrained firms leasing (debt) is negatively (positively) related to internal funds and for the less constrained firms the results are just the opposite. Our findings support the hypothesis that constrained firms tend to choose leasing over debt financing. The results are robust to various estimation methods that control for endogeneity and panel dynamics.

1. Introduction

Leasing is a financial contract that allows the separation of ownership and use of an asset. In a frictionless (Modigliani & Miller, 1958, 1959) type environment, the real operating cash flow from buying or renting an asset would be invariant to the ownership of the asset. Correspondingly, the literature has proposed that leasing decision is largely motivated by various financial market imperfections. Earlier research focuses on the tax-related incentive to lease versus buy. Myers, Dill, and Bautista (1976) and Miller and Upton (1976) show that differences in the tax rates across firms provide the opportunity to transfer the depreciation tax shields and thus create the gain to leasing. The leasing models generally predict that low tax rate firms should lease more than high tax rate firms. Consistent with this prediction, Graham, Lemmon, and Schallheim (1998) show a negative association between operating leases and the corporate marginal tax rate. Sharpe and Nguyen (1995) and Barclay and Smith (1995) also find that capital leases are positively related to a tax-loss carryforward dummy variable, a proxy for a lower marginal tax rate.

Besides the tax motive, recent research explores the role of leasing in corporate financing choices. As lease payments are fixed obligations, similar to debt payments, leasing is often considered an alternative to borrowing. The notion is that leases displace debt and reduce debt capacity. On the other hand, Lewis and Schallheim (1992) demonstrate that leasing may motivate a firm to use more debt than it would not otherwise since leasing offers the lessee the opportunity to "sell" the redundant non-debt tax shields and thus increase the marginal benefit of debt tax shield. Several studies directly investigate the relation between leasing and debt financing but the empirical evidence is mixed. Ang and Peterson (1984) show that a greater use of debt is associated with a greater use of leasing. Ang and Peterson thus call it a leasing puzzle. However, Yan (2006) finds that a higher lease ratio leads to less new debt financing, suggesting a substitutive relation between debt and leases. Another strand of the research on leasing bypasses the direct estimation of the relation between leasing and debt by implicitly assuming their substitutability and examines how corporate leasing decision is affected by financial contracting costs. For instance, Sharpe and Nguyen (1995)

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suggest that cash-poor or lower rated firms, those likely to face higher contracting costs, tend to lease more. Graham et al. (1998) show that firms with more growth options in their investment opportunity sets have a lower proportion of fixed claims in the capital structure, debt or leases alike. These studies demonstrate that firms with high external financing requirements use debt and leasing interchangeably, notwithstanding their substitutability. However, an important but unanswered question is whether firms are actually indifferent between leasing and borrowing. Specifically, for what types of firms leasing may rank higher than debt in the pecking order of the external financing choices?

As discussed in Smith and Wakeman (1985), while leasing is similar to debt in a number of dimensions, it differs in others. For instance, during the bankruptcy procedure, it is simpler for the lessor to repossess the leased asset than for the secured debtholder to acquire the pledged asset. As a result, leasing may offer a higher debt capacity than secured lending. Two theoretical works discuss the determination of leasing-versus-debt decision. Eisfeldt and Rampini (2009), using the argument of higher debt capacity of leasing, derive that leasing ratio is increasing in firm's financial constraints, characterized as firm having low internal funds or having a return on internal funds exceeding the market interest rate. Their leasing model implies a pecking order of external funds driven by financial constraints: more financially constrained firms lease the asset while less constrained firms buy the asset and borrow against it.[1] Rampini and Viswanathan (2011) argue that tangible assets are a key determinant of corporate debt capacity. Basing on the need to collateralize loans with tangible assets, the authors develop a dynamic model of capital structure incorporating leasing as a financing alternative. As leasing amounts to a strong form of collateralization due to the relative ease with which the leased assets can be repossessed, the authors derive that firms with low tangible assets will lease more and borrow less.

The objective of this paper is two-fold. First, we seek to answer what motivates a firm to choose between their uses of leasing and debt capital. Our main hypothesis is that financial constraints will lead firms to choose leasing over debt financing. We design the test basing on Eisfeldt and Rampini's (2009) and Rampini and Viswanathan's (2011) theories. Second, we revisit Ang and Peterson's leasing puzzle by examining the relation between leases and debt, controlling for the simultaneity in leasing and capital structure decisions. Lewis and Schallheim (1992) argue that leasing is simultaneously determined with firm's choice of optimal capital structure. The endogeneity problem, if not properly addressed, may confound the interpretation of the true relation between leasing and debt financing. We deal with this problem by using instrumental variable approach and dynamic panel estimation method as robust checks.

Our findings are as follows. We show that the use of leases relative to the use of debt financing is strongly related to measures of financial constraints — including low internal funds, high variability of internal funds, high market-to-book ratio, low asset tangibility and small size. In particular, we provide evidence that firms with low tangible assets use more operating leases[2] and less debt financing, supporting Rampini and Viswanathan's (2011) prediction that firm's tangibility constraint influences firm's financing choice between leasing and borrowing. In addition, our results indicate that there is greater use of leases for firms that are smaller or with higher variation in internal funds and hence repossession advantage is more valuable, while firms that are larger or with less risky cash flow tend to be more leveraged.

Consistent with prior studies, we show that low internal funds or less growth option in the investment opportunities motivates firms to increase debt and leases overall. However, our findings indicate that firms are not indifferent between leasing and borrowing but prefer one or the other. In response to decreases in internal funds or increases in growth opportunities, small firms tend to hold a higher fraction of the fixed claims obligation in leasing and a lower fraction of the fixed claims in debt. In fact, the use of leases is not universally negatively related with internal funds. As internal funds fall, firms that are most constrained tend to increase leasing and decrease borrowing while firms that are less constrained tend to decrease leasing and increase borrowing. The results strongly suggest that leasing has higher debt capacity and hence is preferred to borrowing for financially constrained firms, supporting Eisfeldt and Rampini's (2009) hypothesis.

Finally, controlling for the simultaneity between leasing and debt, we provide evidence that leasing and debt act as substitutes and their substitutive relation varies with financial constraints. Specifically, we find that a decrease in debt financing would lead to a significantly larger increase in leases for the most constrained firms than for the less constrained firms.

Overall, our findings consistently demonstrate that financial constraint plays a significant role in explaining firm's lease versus borrowing decision. Prior empirical studies show that firms with high external financing requirements may use debt and leases interchangeably (e.g. Sharpe & Nguyen, 1995; Graham et al., 1998; Yan, 2006). By specifically testing the theories of Eisfeldt and Rampini (2009) and Rampini and Viswanathan (2011), our study extends the literature and provides unambiguous evidence that firms are not indifferent between leasing and borrowing but prefer one or the other.

The rest of the paper proceeds as follows: Section 2 reviews the literature and develops our hypotheses. Section 3 describes our data and provides the descriptive analysis of the relation between leases and debt. We present the empirical results in Section 4 and conclude in Section 5.

2. Literature review and hypotheses development

Earlier leasing theories explore tax reason for leasing. Myers et al. (1976) show that when the lessor and the lessee pay different tax rates, the leasing contract allows the high-tax lessor to take advantage of (accelerated) depreciation and interest tax

[1] Eisfeldt and Rampini (2009) do not specifically test this preference order between leasing and debt. However, using the microdata from the Census of Manufactures, the authors did not find that debt and leases are significantly related.

[2] Sharpe and Nguyen (1995), Graham et al. (1998) and Eisfeldt and Rampini (2009) state that typically it is operating leases that enjoy the repossession benefit and are considered as *true* lease while capital leases more closely resemble to purchases with secured debt.