

Evidence of Motives and Market Reactions to Sale and Leasebacks

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A sale and leaseback is an alternative to traditional financing in which the owner of an asset contracts to sell the asset and then to lease it from the buyer. This paper focuses on some of the motivations behind this decision. We find evidence supporting the primary theoretical reason for leasing, namely taxes. We also find evidence supporting liquidity needs and capital constraints as motivators. Results are mixed for financial distress and there is little support for asymmetric information motivations. We find that sale-and-leaseback (SLB) firms are typically large and solvent, which contradicts prior theory. Our results suggest that a firm's liquidity needs in conjunction with a lower marginal tax rate and possible credit constraints drive the decision to initiate a sale-and-leaseback. Additionally, we find abnormal market returns are positively correlated with the price-earning (P/E) ratio and negatively correlated with debt structure, suggesting that the market reacts more favorably to a sale-and-leaseback announcement when the capital is likely to be used to fund growth as opposed to cover debt obligations.

■ A sale-and-leaseback (SLB) transaction occurs when the owner of a previously purchased asset contracts to sell the asset and to lease it back from the buyer. Thus, a sale and leaseback provides a means of raising money based on an asset while continuing to use the asset. When the initial investment decision was made, the firm decided it was optimal to purchase the asset. The initiation of a SLB implies that something has changed and that the current benefits to leasing outweigh the additional costs associated with the

transaction. The question is, what has changed? While many aspects of the respective businesses have changed within each firm, we can narrow our search by first considering the standard motives and incentives to lease or buy an asset. Smith and Wakeman (1985) identify eight nontax incentives to lease or buy. Many of the nontax incentives focus on the financial contracting costs faced by the firm. Sharpe and Nguyen (1995) find that a firm's informational contracting costs influence its propensity to lease. The informational contracting costs include asymmetric information (Myers and Majluf, 1984), agency problems (Smith and Warner, 1979), and the underinvestment problem (Myers, 1977).

Although we begin our examination with the traditional motives in the lease-versus-buy decision, we also explore an alternative hypothesis that stems from the unique nature of SLBs. Sale-and-leasebacks differ from direct leases in that they can provide additional cash whereas direct leases do not. When financing is scarce and/or the firm is credit-impaired, external financing costs may be high. A SLB can provide needed liquidity and is a practical alternative to other forms of external financing.

The purpose of this paper is to shed light on the motives behind SLB transactions by providing empirical evidence from one of the largest samples of SLBs by public companies. The evidence focuses on two main questions. First, what motivates firms to initiate SLB agreements? In other words, why is leasing now favorable when compared to the initial decision to purchase? We consider five primary motives: tax-related incentives, asymmetric information or financial contracting costs, financial distress, capital constraints, and liquidity needs. Although liquidity needs have been mentioned in prior research, to our knowledge, this paper is the first to carefully examine the idea. Thus, our second

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main question focuses on how firms use the funds from the transaction.

We find that a firm's liquidity needs in conjunction with a lower marginal tax rate and possible credit constraints drive the decision to initiate a sale-and-leaseback. Our results also suggest that firms using SLBs may face higher financing costs than firms that use debt and implies that when capital costs are high, sale-and-leasebacks present an alternative to external financing. Firms that initiate SLBs have lower marginal tax rates, higher leverage, and less cash flow than comparable firms that do not transact a SLB. Contrary to theory, we find that SLB firms are typically large and solvent compared to the average non-SLB firm. To further explore these relationships, we examine the market returns around SLB announcements. Controlling for credit constraints, we find abnormal market returns are positively correlated with the price-earning (P/E) ratio and negatively correlated with debt structure, suggesting that the market perceives sale-and-leaseback funds likely to be used for growth as value enhancing while firms likely to use funds to meet debt obligation experience lower event returns. We find mixed results for financial distress and little support financial contracting costs or asymmetric information motivations.

This paper is organized as follows. Section I discusses the existing literature and details the hypotheses tested. Section II provides a description of the data and methodologies used in this paper. Analysis and examination of results can be found in Section III. Section IV summarizes and concludes.

I. Related Literature and Hypotheses

What motivates the decision to purchase an asset rather than lease or lease rather than purchase? Miller and Upton (1976) analyze the leasing decision from a capital budgeting perspective within perfect capital markets (PCM) and find no financial advantages to leasing. Once PCM assumptions are relaxed, however, the lease versus buy decision can become quite complicated. When a firm can fully utilize the tax benefits of ownership and the contracting costs are minimized through ownership, the optimal decision is to buy rather than lease an asset. If the firm cannot fully utilize the tax benefits of ownership or financing costs are high, a firm prefers leasing to owning (Schallheim, 1994). Much of the finance literature focuses on the benefit of differential taxation between the lessee and the lessor. Smith and Wakeman (1985) identify eight other non-tax incentives that may influence the lease versus buy decision, which relate to relaxed perfect capital market assumptions.

Why initiate a sale-and-leaseback? Why not use secured debt or equity financing? According to pecking order theory described in Myers (1984), the least expensive form

of financing is internal capital. When internal capital is scarce, firms must tap external markets. Sharpe and Nguyen (1995) hypothesize that firms facing high costs of external funding may be able to economize on fixed capital costs by leasing. A SLB transaction may represent an internal source of funding. The sale-and-leaseback is a vehicle that can liquidate the difference between the market value and any claims held against the asset. Financing with a lease may also reduce the premium on external funds that arise from severe asymmetric information (Myers and Majluf, 1984), or from agency problems that give rise to costly monitoring (Smith and Warner, 1979) or from underinvestment (Myers, 1977).

A. Taxes

Brealey and Young (1980) show that leasing may dominate debt and equity for companies in temporary non-tax positions. In a world with differential taxation, the government may suffer a loss equal to the present value of taxes, which creates gains for the firms involved (see Myers, Dill, and Bautista, 1976 and Franks and Hodges, 1978).

To the extent that the lessee has a lower tax rate than the lessor, the lessee may be able to transfer this tax allowance under the US tax code. Sale-and-leasebacks offer the opportunity to transfer or "sell" non-debt tax shields. If the lessee firm can locate a buyer (lessor) who has a higher probability of using these tax deductions, the buyer will pay more for them than they are worth to the lessee. The lessor "buys" these tax shields by reducing the lease payment, thus, lowering the financing costs of the asset.

The tax benefit of leasing is maximized when the difference in the marginal Tax Rate of the lessor minus the marginal tax rate of the lessee is greatest. Directly testing this relation is difficult because it requires specific information about both the lessors and lessees marginal tax rates; however, Graham, Lemmon and Schallheim (1998) find that marginal tax rates are inversely proportional to leasing.¹ This leads to our first testable hypothesis that firms using SLBs should have lower marginal tax rates than the average firm to capitalize on the benefits of leasing. This also implies that these firms should have lower tax rates than firms that choose debt financing. To test this we use the Marginal Tax Rate (MTR) from Graham (1996a).²

¹The marginal tax rate is defined as the present value of current and expected future taxes paid on an additional dollar of income earned today. Graham (1996a) calculates the marginal tax rate using an algorithm based on reported income that incorporates the nuances of the US tax code.

²The marginal tax rate is the net present value of the next dollar earned based on forecasts of future income and tax shields. See Graham (1996a).

A SLB can provide needed liquidity and is a practical alternative to other forms of external financing.

B. Financial Contracting Costs – Information Asymmetries

Jensen and Meckling (1976) show that agency problems exist between managers and debt holders. If the firm is near default, managers may accept negative net present value (NPV) projects that they might have rejected in a world with no information asymmetries. Another agency problem of underinvestment occurs when the manager has more information than the owners. According to Myers (1977), a manager will reject positive NPV projects that in a world of perfect information he would be forced to accept by the owners. A pecking order of financial securities arises in these models where internal capital is least costly followed by debt and then equity. They show that this problem can be mitigated by securing debt. Since leasing is senior to debt, this suggests that when firms are subject to asymmetric information costs, leasing may be a less costly form of financing compared to both debt and equity.

Sharpe and Nguyen (1995) assume that young, fast-growing, innovation-intensive firms are likely to have many investment opportunities and can face severe information asymmetry problems. Ezzell and Vora (2001) characterize these firms as those paying a low dividend. They find that these firms experience a higher abnormal market return upon announcement of a SLB. Furthermore, Lintner (1956) finds that firms are reluctant to reduce dividends due to information asymmetries, which leads to our assumption that firms facing higher information asymmetry costs will make lower dividend payments, all else equal. Given the relation between dividends and information asymmetry, our second hypothesis is that a firm's dividend should be negatively related to its propensity to initiate SLBs. We use Dividend Yield, which is defined as dividends paid to preferred and common shareholders divided by the market value of equity as a proxy for asymmetric information costs.

C. Financial Distress

Sharpe and Nguyen (1995) show that relative to secured debt, leasing has the potential to reduce the costs of financial distress. Bankruptcy is a legal mechanism that distributes the assets of the firm to claims against the firm in the event of default on contracted obligations. When the probability of default is high, the firm can reduce bankruptcy costs ex ante by using contracts that limit legal involvement. Relative to secured debt, leasing has the potential to reduce financial distress costs by tying the claim of the debt holder directly to the asset.

Eisfeldt and Rampini (2005) argue that this ability of the

lessor to repossess an asset is a major benefit of leasing. In the event of bankruptcy, leases defined by the courts as “true leases” are senior to both debt and equity and thus simpler to repossess. In this case, a lessor can implicitly extend more credit than a traditional lender whose claim is secured by the same asset. The potential of leasing to reduce

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financial distress costs will be realized if the firm has a greater probability of bankruptcy. Krishnan and Moyer (1994) hypothesize that leases have all the advantages of secured debt

and more. They argue that leasing should be used widely by riskier, less established firms whose costs of external capital are likely to be the greatest. They find that firms with lower and less stable operating earnings are more likely to lease. Our third hypothesis is that firms with a higher probability of bankruptcy have a greater incentive to lease. If financial distress costs are reduced through leasing, the probability of bankruptcy should be negatively related to the propensity to lease as well as the market reaction to an announcement. We use z -score as calculated by Altman (1984) and Interest Coverage as proxies for financial distress costs.³ Higher z -scores represent a lower probability of default. We therefore predict that z -score should be negatively correlated with leasing. We also consider size, measured as the market value of equity, as a control variable and a proxy for a firm's general risk level.⁴ In direct leasing, smaller firms who lack established credit may find leasing a less costly method of acquiring operating assets. However, in a sale-and-leaseback, the asset has already been acquired which may alter the importance of size in the leasing relationship.

D. Capital Constraints

Smith and Wakeman (1985) note the existence of both purchased and leased assets within the same firm and suggest that the net benefits within the firm are neither positive nor negative. Ezzell and Vora (2001) show a significant positive change to a lessee's equity value in SLBs, which is insignificant in direct leases. This suggests that the market values SLBs for their ability to unlock cash for other purposes. Our fourth hypothesis is that firms using sale-and-leasebacks are cash poor and face high costs of external financing creating capital constraints. Accordingly, firms

³Ezzell and Vora (2001) use the interest coverage ratio as a measure of financial distress and find little support for the financial distress cost hypothesis.

⁴Similar results were found when using different proxies for size (e.g., total assets or the log of total assets).

should have a higher propensity to sale-and-leaseback assets if they have lower liquidity and require cash to meet current obligations and fund growth. We use Cashflow, defined as EBIT plus depreciation and amortization, as a proxy for cash needs.⁵ We also note that dividend yield may also proxy for cash flow constraints in that cash constrained firms could use the proceeds from SLB transactions to maintain their dividend payments

If capital is needed, why not raise funds through external financing? A SLB transaction may represent an internal source of funding. According to the pecking order theory of capital structure, when a firm is credit constrained, internal funding may represent the least costly source of capital. In conjunction with capital needs, the propensity to initiate a SLB should be positively correlated to credit constraints. Sharpe and Nguyen (1995) use dummy variables of S&P bond ratings to measure credit constraints. We utilize a firms overall Leverage, defined as total liabilities divided by the market value of equity, as an indication of capital constraints. We hypothesize that in comparison to firms using debt to raise capital, SLB firms should have higher debt ratios.

E. Liquidity

A sale-and-leaseback is unique in that it converts the equity in an asset to capital. Selling and leasing back assets that fail to meet internal hurdle rates enables corporations to enhance liquidity, expand operations, and invest in core businesses. The funds may also be used to pay down debt to improve the company's balance sheet or to reduce financial distress costs. Sale-and-leasebacks provide avenues of financing to firms that may be credit-constrained. A recent article in the Wall Street Journal states, "In an environment where corporate financing has been hard to get, especially for smaller, credit-impaired companies, sale-leaseback transactions, an alternative form of financing that is tied to real property or equipment, have been gaining popularity."⁶

Barris (2002) considers recent SLB transactions in Europe and reports several motives behind SLBs, with "raising funds" as the primary motive. In a sale-and-leaseback transaction, taxes and transaction costs may be a secondary motive to a need for cash for some companies. An important difference between SLBs and direct leasing is the ability to capture the difference between the market value of an asset and the claims held against that asset. As far as we know, this study is the first to consider the role of liquidity needs in the decision to sale-and-leaseback assets. Our main proxy

for liquidity needs is the cash flow of the firm. Although it is impossible to know where the funds from the SLB are being used, we do find some clues. While some firms decrease their debt position after the SLB others see an increase in debt. A more detailed look at the substitutability of leases and debt can be found in Schallheim, Wells, and Whitby (2009).

F. Use of Funds - Market Returns

In order to more fully explore the possible uses of funds from SLBs, we examine market returns around the announcement of the SLB. From the seller's perspective, Slovin, Sushka, and Polonchek (1990) find a positive market reaction to the announcement of a SLB for lessee firms and Chen, Conover, and Kensinger (2002) state that one way a firm can add value is to sell assets and lease them instead. From the perspective of the buyer (lessor), there should be sufficient benefits to an SLB when compared to the alternative forms of financing. Slovin, Sushka, and Polonchek (1990) find that lessors experience a positive but insignificant market reaction to the purchase and lease under a sale-and-leaseback contract. If one assumes that the lessor is in the leasing business, this announcement is likely to be perceived as a fully anticipated event and may explain why the market value is unchanged upon announcement. To better understand how the market perceives the use of SLB funds we examine the cross sectional relationship between the cumulative abnormal returns (CARs) and key firm level variables.

II. Data and Methods

A total of 460 sale-and-leaseback observations were hand collected for this sample, which is significantly larger than previous studies; however, a significant number of observations are lost because of missing variables.⁷ The sample comes from three sources. The oldest data source comes from SLB data collected and presented in Ezzell and Vora (2001), which consists of sale-and-leaseback transactions collected from Dow Jones Interactive service for the period 1984 through 1991.⁸ This dataset contains announcement date, lessee name, type of asset leased and selling price when available.

We also benefited from a similar dataset collected and presented in Ben-David (2005), which consists of sale-and-leaseback transactions collected from Reuters for the

⁵Results are robust to alternative measures of cash flow derived directly from the statement of cash flows.

⁶Shaw, J.C., "Sale-Leasebacks Gain Popularity," Wall Street Journal, December 11, 2002, p. 1.

⁷For example, Slovin, Sushka, and Polonchek (1990) and Ezzell and Vora (2001) each use a sample of 44 sale-and-leaseback transactions.

⁸We would like to thank Premal Vora for providing access to this data.

Table I. Summary Statistics

Statistics for firms initiating sale-and-leaseback transactions are presented below. Panel A reports the mean, median, and standard deviation for key variables used in our analysis. Total Assets is derived directly from Compustat (data 6). Market value of equity is the end of year stock price per share multiplied by the number of shares outstanding. Marginal tax rate is defined as the present value of current and expected future taxes paid on an additional dollar of income earned today according to Graham (1996a). Dividend Yield is the amount of the dividend paid to common and preferred shareholders (data 19 + data 21) divided by the market value of equity. Cash Flow is net income plus depreciation divided by total assets. Interest coverage is EBITDA divided by interest expense (data 13/data 15). Leverage is total debt divided by the market value of equity (data 9 + data 5)/MVE. The prior 12-month stock return is calculated using CRSP. *z*-score is calculated per Altman (1984). SLB amount is the purchase amount of the assets in the SLB transaction. Real estate dummy is 1 if any of the assets in the SLB include real estate, 0 otherwise. P/E Ratio is the year end price divided by the annual earnings per share. Debt Structure is current liabilities divided by total liabilities. Panel B lists the number of SLBs by industry as defined in Fama and French (1997).

<i>Panel A. SLB Summary Statistics</i>			
	Mean	Median	Std. Dev.
Total Assets	5,982	654	18,313
Market Value Equity	5,420	525	17,720
Marginal Tax Rate	0.287	0.331	0.176
Dividend Yield	0.019	0.000	0.041
Cash Flow	0.034	0.059	0.130
Interest Coverage	5.549	3.110	21.807
Leverage	2.443	1.038	5.804
12 Month Return	-0.065	0.017	0.562
<i>z</i> -score	23.121	4.649	52.534
SLB Amount	149.86	31.00	403.87
Real Estate Dummy	0.830	1.000	0.376
P/E Ratio	11.595	10.735	68.490
Debt Structure	0.503	0.461	0.246

<i>Panel B. Industries</i>	
Industry	SLBs
Food Products	1
Beer & Liquor	1
Tobacco Products	0
Recreation	9
Printing and Publishing	1
Consumer Goods	6
Apparel	1
Healthcare, Med. Equip., Pharma.	29
Chemicals	0
Textiles	0
Construction	9
Steel Works Etc	1
Fabricated Products/Machinery	9

(Continued)

Table I. Summary Statistics (Continued)

Electrical Equipment	0
Automobiles and Trucks	2
Aircraft, Ships, and Railroad	3
Precious Metals and Mining	7
Coal	0
Petroleum and Natural Gas	15
Utilities	26
Communication	13
Personal and Business Services	33
Business Equipment	31
Business Supplies	2
Transportation	25
Wholesale	5
Retail	30
Restaraunts, Hotels, Motels	20
Banking, Ins., and Real Estate	5
Everything Else	4
Total	288

period 1994 through 2002.⁹ This dataset provides the same variables but also includes limited lessor information for some variables.

Additional observations were collected through similar search methods to verify announcement dates and to fill in gaps when possible. We first limit the data to public firms that appear on COMPUSTAT for at least one year prior to the announcement date. Unless otherwise stated, all financial ratios reported are for year t-1 or the annual report released prior to the announcement date. For example, if the SLB transaction occurred in December of 1996, but the firm reports fiscal year end results in August, the announcement year is changed to 1997 so that the annual reporting data as of August 1996 will be used for analysis. This results in 366 unique observations. Some of these observations, however, are missing key variables. To maintain a consistent sample across tests, we delete observations with missing data, which results in a final sample of 288 observations.

We also analyze SLB firms using matched samples. Our first method pairs each SLB firm with a firm from the same industry as classified by Fama and French (1997) that is closest in size, as measured by total assets. We find a valid match for each SLB firm, so the matched sample also has

288 observations.¹⁰ Since issuing debt would appear to be the next best alternative to a SLB to raise funds, we next match each SLB firm with a firm that issued debt in the same year as the SLB transaction. Data on debt issuing firms comes from the Securities Data Company (SDC) Global New Issues Database. We also employ the previously used matching algorithm to find firms in the same industry that are closest in size. Because some industries issue very little debt, we are not able to find a debt matched firm for each SLB transaction. The debt matched sample consists of 273 observations. We drop unmatched SLB firms from the analysis for consistency. It is also worth noting that the debt matched firms are, on average, larger than their SLB pairs, as reported in Table II. This is one of the reasons why we still include a control for size in our analysis even though our matching process attempts to directly control for size differences.

⁹We would like to thank Zahi Ben-David for assistance and access to this data.

¹⁰As a robustness test of our matching procedure, we use a broader matching algorithm that results in multiple matches for each firm. The broader matched sample consists of all firms in the same industry with total assets within 10% of each SLB firm. This results in a matched sample of more than 1,400 firms. Although this matching procedure gives us more observations and thus more power, the results are almost identical to matched sample results using the closest firm and are therefore not reported.

Table II. Univariate Analysis

Univariate tests of difference of means and medians are reported below. Non-SLB firms include all firm years on Compustat that are not missing variables and are in years and industries where SLB transactions occur. In the first matched sample, each SLB firm is paired with a firm from the same industry as classified by Fama and French (1997) that is closest in size, as measured by total assets. Debt matched firms follow the same procedure but only consider firms that have issued debt (as reported in SDC) the same year as the SLB transaction as possible matches. Total assets is derived directly from Compustat (data 6). Market value of equity is the end of year stock price per share multiplied by the number of shares outstanding. Marginal tax rate is defined as the present value of current and expected future taxes paid on an additional dollar of income earned today according to Graham (1996a). Dividend yield is the amount of the dividend paid to common and preferred shareholders (data 19 + data 21) divided by the market value of equity. Cash Flow is net income plus depreciation divided by total assets. Interest coverage is EBITDA divided by interest expense (data 13/data 15). Leverage is total debt divided by the market value of equity (data 9 + data 5)/MVE. The prior 12-month stock return is calculated using CRSP. z-score is calculated per Altman (1984). A student's t-test is used to compare means and the Wilcoxon Mann-Whitney test is used to compare medians.

	SLB Firms N=288			Non-SLB Firms N=60,417			Size Matched Sample N=288			Debt Issuers Matched Sample N=273		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
Total Assets	5,982	654	18,313	1613**	130**	7,078	4,638	753	12,237	9,894	2334**	28,241
Market Value Equity	5,420	525	17,720	1699**	99**	9,256	3,073	530*	8,751	6,189	1509**	13,139
Marginal Tax Rate	0.287	0.331	0.176	0.312**	0.349**	0.130	0.316**	0.350**	0.112	0.335**	0.350**	0.095
Dividend Yield	0.019	0.000	0.041	0.017	0.000	0.122	0.018	0.000	0.031	0.022	0.012**	0.044
Cash Flow	0.034	0.059	0.130	0.044	0.081**	0.208	0.046**	0.072**	0.171	0.065**	0.079**	0.109
Interest Coverage	5.549	3.110	21.807	38.213**	5.267**	747.553	25.563	4.528	45.171	6.109	4.352	7.908
Leverage	2.443	1.038	5.804	1.104**	0.552**	2.508	1.182**	0.576**	1.894	1.814**	0.766**	4.922
12 Month Return	0.016	0.017	0.562	0.022**	0.063	0.533	0.066**	0.098	0.408	0.021**	0.096	0.379
z-score	23.121	4.649	52.534	7.880**	2.319**	30.481	12.512**	4.233	23.703	18.112	7.991**	27.952
P/E Ratio	11.595	10.735	68.490	14.967**	12.197**	83.217	12.448	13.942	78.196	24.176**	15.625**	71.005
Debt Structure	0.503	0.461	0.246	0.622**	0.613**	0.262	0.418**	0.386**	0.192	0.517	0.521	0.253

**Significant at the 0.05 level.

III. Analysis and Results

A. Univariate Analysis

Descriptive statistics for the SLB firms are reported in Table I. The average amount of a SLB transaction for firms in our sample is \$149 million, with a median of \$31 million. Of the 288 transactions, 83% of them involve some sort of real estate. Examples of real estate transactions include the sale-and-leaseback of several hotel properties by Hilton in 2002 for the amount of \$520 million and the sale-and-leaseback of a distribution center for \$24 million by Nike in 1994. Other real estate transactions include retail office space, assisted living facilities, manufacturing plants, warehouses, and headquarters. Examples of SLBs for non real estate assets include: aircraft, manufacturing equipment, and telecommunications equipment. One example of a non-real estate transaction is the sale-and-leaseback of aircraft by Frontier Airlines in 1985 for \$96 million. For illustrative purposes, a partial list of firms and assets can be found in Appendix A.

Although SLBs are done in almost every industry, there does appear to be some concentration among certain industries. A breakdown of our sample by industry can be found in Panel B of Table I. Personal Business Services (e.g., Assisted Living Facilities), has the most SLB transactions with 33, followed by Business Equipment (e.g., Motorola, 3Com) and Retail (e.g., Best Buy, Home Depot) with 31 and 30 transactions respectively. Because industry appears to be a major driver of SLB transactions, we attempt to control for industry in several ways. First, all of our match algorithms include industry. Second, we also include industry dummy variables or adjust standard errors for clustering on industry in our regression analysis.

Table II reports results from our univariate analyses that compare SLB firms to all other firms, size and industry matched firms, and debt issuing, size and industry matched firms. Means and medians that are statistically different from the SLB firms at the 5% level are noted with an asterisk (*). A student's *t*-test is used to compare means and the Wilcoxon Mann-Whitney test is used to compare medians. Firms that transact SLBs are larger than the average firm with total assets near \$6 billion and market values at almost \$5.5 billion. This finding contradicts Krishnan and Moyer (1994). They argue that leasing should be more widely used by riskier, less established firms. In addition to being larger, SLB firms have lower marginal tax rates and interest coverage ratios. They also have more leverage and higher *z*-scores when compared to non-SLB firms.

Given that the matching process focuses on size, it is not surprising to find little difference between the SLB firms and the matched sample firms with respect to total assets and

market value of equity. Nevertheless, several items stand out as we compare SLB firms to the matched samples. First, the marginal tax rate is significantly lower and leverage is significantly higher for SLB firms compared to each of the control samples. These results lend support to our hypotheses that SLBs are motivated by differential taxes and capital constraints. Although the marginal tax rate and leverage are consistently different for SLB firms across each control sample, we do not place much emphasis on the non-matched sample results with respect to our hypotheses. The non-matched sample results are informative in that we can see how SLB firms differ from the average publicly traded firm, but we cannot make many inferences regarding our hypotheses because of those differences. We will therefore focus on the matched sample results when discussing our hypotheses in both the univariate and multivariate settings. Second, cash flow differences are more apparent once we compare SLB firms with the matched samples. This finding supports the hypothesis that SLBs are partially motivated by liquidity needs. Third, while interest coverage and *z*-score, which we consider proxies for financial distress are significantly different in the non-matched sample analysis, the matched sample analysis yields mixed results. Interest coverage is not significantly different in either matched sample and *z*-score significance varies between the two matched samples and is opposite to our predictions. If distress is a motivating factor for SLB transactions it should have a negative sign. It should also be noted that we find no support for the asymmetric information hypothesis, which states that SLB firms should have lower dividend yields.

B. Multivariate Analysis

Multivariate results can be found in Table III. Our analysis consists of logistic regressions where the dependent variable is equal to one if the firm completed a sale-and-leaseback in a given year and zero otherwise. Independent variables include dividend yield as a proxy for asymmetric information, cash flow as a proxy for liquidity needs, interest coverage and *z*-score as proxies for distress, leverage as a proxy for credit constraints, and the marginal tax rate as a proxy for differential taxes. We also include the market value of equity as a general control for size and the prior 12-month stock return as a control for the general health of the firm. Year fixed effects are included in each regression. Industry fixed effects are included in Model 1, which uses the entire sample of non-SLB firms and utilizes standard errors clustered by firm. Models 2 and 3 do not include industry fixed effects, but use standard errors clustered by industry.

Once again, we will focus on the matched samples when discussing our hypotheses. For the most part, the multivariate results are consistent with our univariate analysis. Dividend yield is never significant at the 5%

Table III. Logistic Regressions

Results from logistic regressions where the dependent variable is one if the firm initiated a sale-and-leaseback and zero otherwise are reported below. Non-SLB firms include all firm years on Compustat that are not missing variables and are in years and industries where SLB transactions occur. In the first matched sample, each SLB firm is paired with a firm from the same industry as classified by Fama and French (1997) that is closest in size, as measured by total assets. Debt matched firms follow the same procedure but only consider firms that have issued debt (as reported in SDC) the same year as the SLB transaction as possible matches. Total assets is derived directly from Compustat (data 6). Market value of equity is the end of year stock price per share multiplied by the number of shares outstanding. Marginal tax rate is defined as the present value of current and expected future taxes paid on an additional dollar of income earned today according to Graham (1996a). Dividend yield is the amount of the dividend paid to common and preferred shareholders (data 19 + data 21) divided by the market value of equity. Cash Flow is net income plus depreciation divided by total assets. Interest coverage is EBITDA divided by interest expense (data 13/data 15). Leverage is total debt divided by the market value of equity (data 9 + data 5)/MVE. The prior 12-month stock return is calculated using CRSP. *z*-score is calculated per Altman (1984). Each specification includes year fixed effects. Model 1 also includes industry fixed effects with standard errors clustered by firm. Models 2 and 3 have standard errors clustered by industry. *p*-values are reported in parentheses.

	SLB and Non-SLB Firms (1)	SLB and Size-Matched Firms (2)	SLB and Matched Debt Issuing Firms (3)
Intercept	-15.082 (0.000)	1.518 (0.000)	1.658 (0.014)
Dividend Yield	-1.426 (0.086)	2.178 (0.480)	-1.953 (0.632)
Cash Flow	0.389 (0.861)	-1.280 (0.002)	-1.874 (0.000)
Interest Coverage	0.000 (0.434)	-0.003 (0.046)	0.006 (0.059)
Leverage	0.031 (0.028)	0.320 (0.001)	0.297 (0.003)
Marginal Tax Rate	-6.159 (0.000)	-7.325 (0.000)	-7.159 (0.000)
12-Month Return	-0.144 (0.153)	0.062 (0.878)	0.268 (0.467)
Market Value Equity	0.002 (0.047)	0.000 (0.562)	0.000 (0.423)
<i>z</i> -score	0.008 (0.018)	0.012 (0.001)	0.002 (0.112)
Observations	60705	576	546
Chi Square	409	125	129
Prob of Chi Square	(0.000)	(0.000)	(0.000)
Pseudo <i>R</i> ²	0.1462	0.212	0.183

level, giving no support to our second hypothesis regarding asymmetric information, which predicts that firms that face a high cost of capital due to information asymmetries will find lower financing costs in the leasing market. Cash flow is negative and significant in both of the matched sample regressions (Models 2 and 3), which supports the hypothesis that SLB firms are cash constrained with liquidity needs. The marginal tax rate is negative and highly significant in all three models, supporting differential taxes as a primary motive behind SLBs. Thus, we find support for the tax-saving hypothesis of leasing, which predicts that low tax-rate firms can transfer depreciation assets via leasing. The capital constraint hypothesis is also supported by the fact that leverage is positive and highly significant in all three models. Results are mixed for the financial distress hypothesis, which predicts that the potential of leasing to reduce financial distress costs will be realized if the firm has a greater probability of bankruptcy. z -score is

positive and significant in Models 1 and 2, which contradicts the financial distress hypothesis, and is insignificant in Model 3. Interest coverage is the most conflicted in that it is insignificant in Model 1, negative and significant in Model 2, and positive and significant in Model 3. To further investigate the role of financial distress in SLBs we examined how many firms were delisted or filed for bankruptcy in the two years following the SLB transaction. Of the 288 observations in our final sample, 19 (6.6%) were delisted or filed for bankruptcy in the two years following the SLB. So although financial distress does not appear to motivate the majority of firms that initiate SLBs, it more than likely plays a role for some firms.

To summarize, SLB firms appear to be larger than the average firm and highly concentrated in certain industries. When we control for size and industry in our matching process and our multivariate analysis we find that SLB firms have much lower marginal tax rates and are more highly levered. We also find that SLB firms are cash constrained in that they have lower cash flows than matched sample firms. Thus, it appears that a firm's liquidity needs in conjunction with a lower marginal tax rate and possible credit constraints drive the decision to initiate a SLB. Our results also suggest that firms using sale-and-leasebacks may face higher financing costs than firms that use debt and implies that when capital costs are high, sale-and-leasebacks present an alternative to external financing. While there is little support for the idea that asymmetric information motivates the SLB, it appears that at least some of the firms that utilize SLBs

We also find that SLB firms are cash constrained in that they have lower cash flows than matched sample firms. Thus, it appears that a firm's liquidity needs in conjunction with a lower marginal tax rate and possible credit constraints drive the decision to initiate a SLB.

are experiencing financial distress. This is evident in the mixed results for our financial distress proxies and the fact that several of the firms in our sample file for bankruptcy or are delisted within two years of completing the SLB.

C. Use of Funds - Event Study

Since there is no way to directly measure how firms use the funds from SLBs, we analyze the market reactions to SLBs to gain insight into how the market perceives different types of SLB transactions. Price changes of common equity of the lessees are studied by using the market-model returns event study methodology (Brown and Warner, 1985). We utilize EVENTUS® software developed by Cowan Research to calculate cumulative average returns for SLB firms within the sample. Table IV reports the market-model adjusted

returns for several periods prior to, during, and after the SLB announcement.¹¹ The ordinary least squares (OLS) estimates of the parameters of the market-model are obtained by using an estimation period beginning 220 days before and ending 21 days prior to the announcement. A cumulative abnormal average return (CAAR) is calculated to study the cumulative effect of information on common equity returns for the various periods. Slovin, Sushka, and Polonchek (1990) find that firms announcing a SLB of structures experience a 0.85% abnormal return over the period one-day prior to and the day of the announcement. Ezzell and Vora (2001) find a 2.63% abnormal return for the same period. We find a market model adjusted return of 1.45% for our sample of 221 firms.¹²

In Table V, we report the cross-sectional relation between lessee gains from sale-and-leaseback transaction announcements. We use the two-day CAAR for the period one day prior to the announcement to the day of the announcement. Market returns are merged with the variables described previously to analyze cross-sectional variation in returns. We also include two additional variables to our cross-sectional returns analysis. The first variable is Debt Structure, which we define as current liabilities over total

¹¹For robustness, alternative adjustment methods were used that yielded similar results and are not reported.

¹²Sufficient data to calculate CAARs was not available for some of the firms used in the previous analysis.

Table IV. Event Study of Lessee Sale-and-Leaseback Abnormal Returns

This table presents the results of an event study reporting the lessee abnormal returns surrounding the announcement of a sale-and-leaseback. The sample consists of 221 announcements over the period 1982 through 2002. The cumulative average abnormal returns (CAAR) are reported for several periods prior to, around and after the announcement date. Panel A presents the market model adjusted returns. An estimation period of 220 days to 21 days prior to the announcement is used to estimate the coefficients of the market model. A minimum of 60 returns during the estimation period is required for the announcement to be included in the sample. Panel B presents the market adjusted returns over similar periods. Market returns are based on the equally weighted market portfolio.

<i>Panel A. Market Model Adjusted Returns</i>						
Event Days	N	CAAR	Positive	Negative	CAAR t-stat	Generalized Sign z
(-1, 0)	221	1.45%	118	103	3.433***	1.797*
(-1, +1)	221	1.50%	121	100	2.904***	2.201**
(+2, +20)	221	2.47%	117	104	1.899*	1.633*

<i>Panel B. Equally Weighted Market Portfolio Adjusted Returns</i>						
Event Days	N	CAAR	Positive	Negative	CAAR t-stat	Generalized Sign z
(-1, 0)	221	1.23%	116	105	2.848***	1.956**
(-1, +1)	221	1.19%	119	102	2.255**	2.361**
(+2, +20)	221	1.54%	110	111	1.56	1.146

***Significant at the 0.01 level.

**Significant at the 0.05 level.

*Significant at the 0.10 level.

Table V. OLS Regression Model of Firm-Specific Variable Related to Abnormal Market Returns

This table presents the results of an OLS regression relating firm-specific variables to lessee abnormal returns announced in the period 1982 through 2002. The 2-day returns for the period one-day prior to the announcement and the day of the announcement ($t = -1$ to $t = 0$) of a sale-and leaseback are adjusted by the market model. Sale-and-leaseback firms in this table are required to report in the Industrial Annual COMPUSTAT tapes in the year prior to the announcement as well as have returns reported in CRSP 220-days prior to the announcement to 20-days after the announcement. The independent variable is the cumulative abnormal return for each event. Column 1 presents proxy variables testing hypothesized arguments for leasing. Column 2 tests the additional motivations discussed in this paper, namely capital constraints and capital needs. Column 3 tests the use of funds. P/E is included as a proxy for growth prospects while Debt Structure is included to proxy for a firm's ability to meet its current obligations. Robust t -statistics are reported in parentheses.

	(1)	(2)	(3)
Intercept	0.0514** (2.23)	0.0732** (2.41)	0.1090*** (2.86)
Tax Rate	-0.0644*** (3.07)	-0.0665*** (3.14)	-0.0642*** (3.07)
Dividend Yield	0.0085 (.41)	0.0175 (.69)	0.0413* (1.72)
Altman's z -score	-0.0322 (1.55)	-0.0379* (1.83)	-0.0353* (1.71)
I(Real Estate)	0.0095 (.6)	0.0081 (.5)	0.0148 (.87)
Log of Book Assets	-0.0069 (.31)	-0.0123 (.6)	-0.0284 (1.42)

(Continued)

**Table V. OLS Regression Model of Firm-Specific Variable Related to Abnormal Market Returns
(Continued)**

Market Leverage		-0.0200	-0.0271
		(.76)	(1.02)
Cashflow		-0.0198	-0.0743**
		(.75)	(2.29)
P/E			0.0544**
			(2.03)
Debt Structure			-0.0874***
			(3.1)
Adj. R^2	0.057	0.063	0.130
f -statistic	2.70	2.10	2.60
Observations	169	169	169

***Significant at the 0.01 level.

**Significant at the 0.05 level.

*Significant at the 0.10 level.

liabilities. The second additional variable is the price to earnings ratio or P/E.

We find that market reaction to the announcement to SLBs is positively correlated with P/E and negatively correlated with Debt Structure indicating that the market reacts more favorably to a SLB announcement when the capital is likely to be used to fund growth and less favorable when it is likely used to meet current debt obligations.

IV. Conclusion

To better understand what motivates a firm to change its mind with respect to the lease versus buy decision we examine one of the largest samples of sale-and-leaseback transactions that spans more than 25 years. We find that compared to the average publicly traded firm, SLB firms are much larger, which contradicts the predictions of Krishnan and Moyer (1994) who argue that leasing should be used by riskier, less established firms. SLB firms also have lower marginal tax rates, are more levered, and appear to be closer to bankruptcy compared to the average firm.

Although comparing SLB firms to the average firm is informative, a more careful analysis using matched samples is warranted. We construct two matched samples. The first matching process finds the closest firm with respect to size, measured using total assets, within the same industry. The second matching process does the same thing but only considers firms that have issued debt the same year as the SLB transaction as possible matches. When comparing SLB firms to matched firms, we consider five main hypotheses related to SLB motivations: taxes, financial contracting costs or asymmetric information, financial distress, credit constraints, and liquidity needs. We find support for the tax hypothesis in that SLB firms have marginal tax rates that are lower than their matched counterparts. We also find support

for the liquidity hypothesis in lower cash flow measures and for the credit constraint hypotheses in significantly higher leverage ratios. Our analysis yields no support for the asymmetric information hypothesis. There is no measurable difference between SLB firms and the matched samples for our asymmetric information proxy, dividend yield. Support for the financial distress hypothesis is mixed in that z -score and interest coverage, our proxies for distress, are often significant, but sometimes in the wrong direction. z -score consistently has the wrong sign. Although the relation between financial distress and SLBs is unclear, it appears that for at least some firms, distress is a motivating factor for SLB transactions in that several of the firms in our sample file for bankruptcy or are delisted within two years of the SLB transaction.

As a whole, it appears that a firm's liquidity needs in conjunction with a lower marginal tax rate and possible credit constraints drive the decision to initiate a sale-and-leaseback. Our results also suggest that firms using sale-and-leasebacks may face higher financing costs than firms that use debt and implies that when capital costs are high, sale-and-leasebacks present an alternative to external financing.

We also build on previous works by Slovin, Sushka, and Polonchek (1990), and Ezzell and Vora (2001) which find a positive and abnormal market reaction to the announcement of sale-and-leasebacks. We find a 1.5% cumulative average abnormal return upon announcement of a sale-and-leaseback. This market reaction to the announcement of a sale-and-leaseback is positively correlated with the P/E ratio and negatively correlated with Debt Structure, suggesting that the market reacts more favorably to a sale-and-leaseback announcement when the capital is likely to be used to fund growth as opposed to cover debt obligations. ■

Appendix A. Sample Details

A partial list of companies and assets involved in SLB transactions are shown for illustrative purposes.

Companies:	Assets:
7-Eleven	Aircraft
AMC Entertainment Inc.	Airport Cargo Facility
AT&T	Assisted living facilities.
Bay State Gas Company	Buildings
Best Buy Co Inc.	Car/truck carriers
Circle K Corp	Cinema theatres
Coors Brewing Company	Communication tower sites
Delta Air Lines	Corporate Campus
Edison International	Dealership
El Paso Electric Co	Distribution center
Federal Express	Electric generating facilities
Gerber Scientific	Factory
Greyhound Lines	Five-story, class A office building
Hershey Foods Corp.	Headquarters
IBM	Hospital
International Paper Co.	Hotels
Johns Manville CP	Laboratory
Kleer-Vu Industries Inc.	Land
Krispy Kreme	Office building
Marriott Corp.	Oil tankers
Motorola	Passenger planes
National Semiconductor Corp	Prisons
Omnicom Group, Inc.	Racetrack
Orbital Sciences Corporation	Restaurant
Petsmart Inc.	Retail center
Piccadilly Cafeterias Inc.	Retirement homes
Regent Assisted Living Inc.	Vehicles
RF Micro Devices	Warehouse/Distribution facilities
SBC Communications	
Saks Inc.	
Southwest Airlines	
The Home Depot Inc.	
Texaco	
US Air Group	
Ultimate Electronics Inc.	
Valero Energy Corporation	
Waddell & Reed Financial, Inc.	
Winn-Dixie	

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