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The Impact of Capitalizing Lease Contingent Payments

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Abstract: This study empirically examines the impact of capitalizing operating leases and lease contingent payments, a previously unexplored off-balance sheet item, on key reported accounting numbers and financial indicators. The recently published Exposure Draft-*Leases* by IASB and FASB requires that all leases to be capitalized and lease contingent payments to be included in the estimate of the liabilities associated with the leases. Using a large sample of US companies from 2001 to 2010, this study found that capitalizing operating leases resulted in significant changes in the magnitudes and the relative rankings of total liabilities, total assets, debt ratios, current ratios, and ROAs. Furthermore, capitalizing lease contingent payments resulted in incremental and significant changes in the magnitude and the relative rankings of total liabilities, debt ratios, current ratios and ROAs. The effects of capitalizing off-balance sheet lease obligations on these accounting numbers and ratios were consistent across industries, except for ROAs, which were not significant in all industries. Capitalizing off-balance sheet lease obligations did not significantly affect the magnitude of ROE but did change its rankings. This study contributes to lease research literature by being the first to examine the impact of capitalizing lease contingent payments. This study also provides empirical evidence relevant to IASB and FASB's ongoing deliberation and revision of their recommendations for accounting for leases.

Key words: capitalization of lease liability; lease contingent payment; operating lease
JEL code: M

1. Introduction

Leasing is an important source of financing. The current accounting standard for leases requires that leases be classified as either capital leases or operating leases. While capital leases are capitalized, operating leases are kept off-balance sheet. In addition, the measurements of capital lease assets and liabilities are limited to the minimum payments of non-cancellable leases only. Since the criteria for lease classification are "bright-line tests", they are easily circumvented if a firm is motivated to keep its leases off-balance sheet.[1] Furthermore, a lessee can utilize contingent payment arrangements and renewal options to keep more lease obligations off-balance sheet. For some companies lease obligations constitute the single largest off-balance sheet liability.

The financial crisis of recent years has rekindled public and regulatory interest in off-balance sheet financing in general and leasing in particular. The Financial Accounting Standard Board (FASB), working together with the

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[1] SFAS 13, Accounting for Leases, requires that a lease to be classified as a capital lease if it meets one or more of the following four ccriteria: (1) the lease transfers ownership of the property to the lessee by the end of the lease term; (2) the lease contains a bargain purchase option; (3) the lease term is equal to 75 percent or more of the estimated economic life of the leased property; and (4) the present value of the minimum lease payments equals or exceeds 90 percent of the fair value of the leased property.

International Accounting Standard Board (IASB) launched a joint project on leasing in 2006. Subsequently on March 19, 2009, the Boards published a Discussion Paper, *Leases: Preliminary Views*. The ensuing Exposure Draft (ED), *Leases*, was published on August 17, 2010. The Boards are currently reviewing the feedback from the nearly 500 comment letters and ongoing outreach activities and working on the revision of the proposals. On July 21, 2011, the Boards agreed unanimously to re-expose their proposals for a leases standard. The revised proposals are expected to be re-exposed in the second quarter of 2012.[2]

The August 17, 2010's Exposure Draft, *Leases*, proposes some drastic changes to the accounting for leasing. The most significant change is to replace the "risk and reward of ownership" model on which the current lease accounting is based with the "right-of-use" model for lessees to recognize the assets and liabilities associated with leases. According to the "right-of-use" model, a lessee reports the right to use the leased asset as an asset, and the obligation to make lease payments as a liability on its balance sheet for all lease contracts, including the current off-balance sheet operating leases. Another significant change is the measurement of lease liabilities. More specifically, the ED recommends that lease contingent payments and the lease renewal options be included when measuring the assets and liabilities associated with leases. Under current lease accounting, the capitalized lease liability at inception of a capital lease contract is calculated as the present value of the minimum payments of the non-cancellable leases.

The drastic changes proposed in the ED proved to be controversial and have met strong objections. One concern about incorporating lease contingent payments into the determination of lease liabilities is the additional uncertainty and measurement error that will inevitably be introduced by the more subjective and judgmental decisions required. For instance, to determine the expected lease contingent payments, as prescribed in the ED, requires an entity to estimate the probability of each possible outcome on which the lease contingent payments are based. Another major concern is that lease contingent payments do not meet the criteria of a typical liability. According to the conceptual framework, liabilities are probable future sacrifices of economic benefits arising from present obligations of a particular entity to transfer assets or provide services to other entities in the future as a result of past transactions or events. It is argued that contingent rentals do not meet the definition of a liability because those rentals are dependent on a future event that may or may not occur. Thus it would not be correct to record a liability for an obligation, which is not present due to the absence of a past event.

In their ongoing deliberation the Boards have tentatively decided to limit the types of lease contingent payments to be capitalized. Based on their decisions on April 2011, the variable lease payments to be capitalized are limited to those that are in-substance fixed or depend on an index or a rate. Contingent rents based on performance or usage would be recognized only when they are incurred. The Boards want to ensure that variable lease payments that are fixed in substance are capitalized even if they are contractually described as variable.

The debate over the measurement of lease liabilities is likely to persist as the Boards continue to work towards the goal of ensuring that lease accounting "provide users of financial statements with a complete and understandable picture of an entity's leasing activities". This study provides some empirical evidence on the impacts of capitalizing operating leases and lease contingent payments on the key reported accounting numbers and financial indicators. The effect that the proposed standard would have on reported figures is part of the *ex ante* evidence that accounting standard-setters seek in making their decisions.

The remainder of this paper is organized as follows: Section 2 contains a review of prior research on the

[2] http://www.ifrs.org/Current+Projects/IASB+Projects/Leases/Leases.htm (visited March 8, 2012).

effect of capitalization of off-balance sheet lease obligations; Section 3 explains the research method of this study; Section 4 reports the results; Section 5 discusses the tests of robustness and limitations of this study; and Section 6 contains the conclusions.

2. Review of Prior Research

A large number of studies have examined the impact of capitalization of off-balance sheet leases on financial statements and financial ratios. The early studies conducted prior to SFAS 13's mandatory requirement of capitalizing capital leases focused on the effect of including capital leases in the balance sheet as additional debt. Gritta (1974) examined 11 US airlines and found that the capitalization of the leases of these companies caused the average long-term debt to equity ratio to increase by 30 percent. Incidentally, all the leases of the airlines examined by Gritta (1974) qualified as finance leases (capital leases) according to Vancil's classic definition. Ashton (1985) examined 25 UK firms that voluntarily capitalized the finance leases and found that capitalization of these leases increased the gearing (debt divided by total assets) by 20 percent. In addition to gearing, Ashton (1985) also examined EBIT, EPS, ROE, Return on Capital Employed, Profit Margin, Asset Turnover, and Interest Coverage, and found that none of these other measures were significantly affected by the capitalization of the finance (capital) leases. Ashton (1985)'s finding led to an early belief that capitalizing leases would impact balance sheet ratios only.

SFAS 13, adopted in the U.S. in 1976, requires that leases be categorized as either capital or operating leases and only capital leases are to be capitalized. However, the criteria used for lease classification are arbitrary so it is easy for motivated companies to construct their leases in a manner that they can be classified as operating leases and thus, be kept off-balance sheet. Subsequent to the adoption of SFAS 13, *Accounting for Leases*, many studies began to focus on the impact of the capitalization of operating leases. Imhoff et al. (1991) selected seven U.S. firms with a relatively high usage of operating leases and seven with a relatively low usage of operating leases. Using assumptions of a constant discount rate, constant useful life and remaining useful life, they found that the capitalization of operating leases would result in a significantly greater increase in the return on assets and debt-to-equity ratio of high lease usage firms, 34 percent and 191 percent, respectively, than the low lease usage firms, 10 percent and 47 percent, respectively.

Later studies extended this line of research by using larger samples and multiple industries samples. Imhoff et al. (1993) examined a sample of 29 airlines and 52 grocers from 1984 to 1990. They found that median total debt would increase by $195 million for airlines and $57 million for grocers if operating leases were capitalized. The increases were approximately 40 percent of the median reported liabilities for both industries. Beattie et al. (1998) examined 232 randomly selected UK firms from multiple industries and used firm-specific measures of borrowing rates and asset-useful lives. They found that the mean estimated present value of operating leases approximated 40 percent of total debt. The estimated unamortized assets approximated six percent of total assets. Six out of the nine financial indicators examined in the study: profit margin, return on assets, asset turnover, and three leverage ratios, were significantly affected by the capitalization of operating leases. The effects of capitalizing operating leases were most significant for the service industry. Beattie et al.'s (1998) findings contradicted Ashton's (1985) results and showed that that capitalizing off-balance sheet leases affected some performance ratios as well as balance sheet ratios. Studies using samples from other countries such as New Zealand (Bennett & Bradbury, 2003), Germany (Fülbier et al., 2008), and Canada (Durocher, 2008) also found results similar to Beatties et al. (1998).

In general, these studies found that the capitalization of operating leases had more profound effects on

balance sheet ratios such as the debt ratio and the current ratio than performance ratios such as ROA and ROE. The impact of the capitalization of operating leases is more pronounced in service industries, such as airline, hotels, retailers, and media agencies, where the lease usage was high.

One common feature of all prior studies on the effects of capitalizing off-balance sheet lease obligations is that without exception, the estimates of lease liabilities were based on the discounted minimum lease commitments. The off-balance sheet obligations associated with lease contingent payments were generally ignored. Consequently, the impacts of capitalizing off-balance sheet leases on the financial statements and ratios documented in these studies were understated. To my knowledge, this study is the first to examine the impact of capitalizing lease contingent payments. It investigates whether capitalizing lease contingent payment has incremental impact on financial statements and ratios. This study also provides timely empirical evidence that is relevant to the current FASB and ISAB deliberation on lease accounting standards.

3. Method

Based on the review of prior studies on the impact of capitalizing off-balance sheet lease obligations, the following accounting numbers and financial ratios were chosen in this study to be examined: total assets and total liabilities (reported accounting numbers); debt ratio and current ratio (financing ratios); ROA and ROE (performance ratios). The debt ratio is the total liabilities divided by the total assets. The current ratio is the total current assets divided by the total current liabilities. The ROA is the operating income before interest but after tax divided by the average total assets. The ROE is the net income divided by the average total shareholder' equity.

To estimate the assets and liabilities associated with operating leases the constructive capitalization method first formulated by Imhoff et al. (1991) and subsequently modified by Graham et al. (1998) and Dhaliwal et al. (2011) is used. The capitalized operating lease liabilities are computed as the sum of the discounted rental commitment amounts due in the next five years and the current year rental expense. Here the current year rental expense is an approximation for the discounted rental commitment amounts due after year five.[3] Following prior literature (Imhoff et al., 1993; Graham, 1998; and Dhaliwal, 2011) a cross-sectional constant discount rate of 10 percent is assumed. The related undepreciated leased asset is estimated at 70 percent of the lease liabilities. Imhoff et al. (1991) assumed that assets leased under operating leases would be depreciated using the straight-line method, like most capital assets. They found the asset as a percentage of the liability to be mainly between 60 percent and 80 percent based on different combinations of total lease life, interest rate, and proportion of total lease life expired. Thus, they suggested using 70 percent as a rule of thumb to estimate the undepreciated leased assets. Table 1 contains an illustration of a lease amortization schedule with the assumptions of an average total life of 25 years, with 15 years remaining, at an interest rate of 10 percent. As shown in Column 7 of Table 1, under these assumptions, the ratio of an undepreciated leased asset and unamortized lease liability is close to 70 percent when the remaining useful life is 15 years. A constant effective tax rate of 40 percent is used to determine the tax effect of capitalizing operating leases[4].

[3] As an alternative, I used undiscounted rental commitment amount due in year five, times three, as the proxy for the discounted rental commitment amounts due after year five and arrived at qualitatively similar results.

[4] The estimates of the liabilities associated with operating leases and lease contingent payments and the adjustments to the shareholders' equity as a result of capitalizing operating leases and lease contingent payments used in the empirical analysis in this paper are after-tax figures. For instance, assume the estimated off-balance sheet lease liability is $100 and the undepreciated leased asset would be estimated to be $70, the effect of capitalizing the lease on the retained earnings would be a decrease of $30 before tax. Adjusting for 40% of income taxes, the net effect on the retained earnings is a decrease of $18 and on the total liabilities is an increase of $88 ($100 increase in lease liabilities and $12 decrease in deferred income tax liabilities).

Table 1 Lease Capitalization and Amortization Illustration (Discount Rate = 10%)

	(1)	(2) = (4)*$_{-1}$x10%	(3) = (5)**$_0$/25	(4) = (4)$_{-1}$–(1)+(2)	(5) = (5)$_{-1}$-(3)	(6) = (2)+(3)-(1)	(7) = (5)/(4)
	Rent	Annual Interest	Annual Lease asset Depreciation	Remaining Lease Liabilities	Undepreciated Lease Assets	Adjustment in Expenses	Lease assets as % of Lease Liabilities
At inception				$907.70	$907.70		
1	$100.00	90.77	$36.31	898.47	871.40	$27.08	97%
2	100.00	89.85	36.31	888.32	835.09	26.16	94%
3	100.00	88.83	36.31	877.15	798.78	25.14	91%
4	100.00	87.72	36.31	864.87	762.47	24.02	88%
5	100.00	86.49	36.31	851.36	726.16	22.80	85%
6	100.00	85.14	36.31	836.49	689.86	21.44	82%
7	100.00	83.65	36.31	820.14	653.55	19.96	80%
8	100.00	82.01	36.31	802.16	617.24	18.32	77%
9	100.00	80.22	36.31	782.37	580.93	16.52	74%
10	100.00	78.24	36.31	760.61	544.62	14.55	72%
11	100.00	76.06	36.31	736.67	508.31	12.37	69%
12	100.00	73.67	36.31	710.34	472.01	9.98	66%
13	100.00	71.03	36.31	681.37	435.70	7.34	64%
14	100.00	68.14	36.31	649.51	399.39	4.45	61%
15	100.00	64.95	36.31	614.46	363.08	1.26	59%
16	100.00	61.45	36.31	575.90	326.77	(2.25)	57%
17	100.00	57.59	36.31	533.49	290.47	(6.10)	54%
18	100.00	53.35	36.31	486.84	254.16	(10.34)	52%
19	100.00	48.68	36.31	435.53	217.85	(15.01)	50%
20	100.00	43.55	36.31	379.08	181.54	(20.14)	48%
21	100.00	37.91	36.31	316.99	145.23	(25.78)	46%
22	100.00	31.70	36.31	248.69	108.92	(31.99)	44%
23	100.00	24.87	36.31	173.55	72.62	(38.82)	42%
24	100.00	17.36	36.31	90.91	36.31	(46.34)	40%
25	100.00	9.09	36.31	(0.00)	0.00	(54.60)	
Total	$2,500.00	$1,592.30	$907.70			$0.02	

Note: *: Subscript -1 indicates previous period ending balance. **: Subscript 0 indicate the balance at the inception of the lease.

To estimate the assets and liabilities associated with lease contingent payments, the lease contingent payment of the current year was estimated first. Following Ely (1995), the lease contingent payment of the current period was estimated as the difference between the rental expenses recognized in the current period and the expected minimum operating lease payments due in the current period. A ratio of current period lease contingent payments versus expected current period operating lease payments was then computed. Finally, this ratio was applied to the estimated operating lease liabilities to arrive at the estimated liabilities associated with the lease contingent payments. For instance, if the ratio of the lease contingent payment and operating lease payment ratio is 50 percent, then the lease contingent payment liability is estimated to be 50 percent of the estimated operating lease liabilities. Using the same assumptions for estimating operating lease assets, the assets associated with lease contingent payments were estimated to be 70 percent of lease contingent liabilities.

The current portion of the liabilities associated with the operating leases (contingent payments) was estimated by subtracting the estimated interest on the operating leases (contingent payments) from the expected

cash payments under operating lease contracts (contingent payments). The interest on operating leases (contingent payments) was calculated by applying the discount rate, assumed to be 10 percent, to the estimated operating lease liabilities (contingent payments). The adjustment to the after tax operating income due to the capitalization of operating leases (contingent payments) was computed by replacing the expected operating lease (contingent) payments with the interest expense on the operating leases (the contingent payments) and the depreciation expenses on the assets associated with the capitalized operating leases (the contingent payments). A constant 40 percent income tax rate was used. The adjustment to the net income was calculated as the difference between the adjustments to the ending and beginning retained earnings due the capitalization of the operating leases (contingent payments).

The capitalization of operating leases and lease contingent payments is expected to result in increases in both total liabilities and total assets. Due to the difference in the effective interest method used for amortizing the liabilities and the straight-line method used for depreciating the assets associated with operating leases and lease contingent payments, the positive effect of capitalizing off-balance sheet lease obligation on the liabilities tends to be greater than on the assets. Consequently, the debt ratio is expected to increase. The current ratio is expected to decrease as result of capitalizing off-balance sheet lease obligations due to the current portion of the off-balance sheet lease obligations.

Capitalizing off-balance sheet lease obligations usually results in an increase in total assets. Capitalizing off-balance sheet lease obligations typically also results in an increase in after tax operating income because the rental expenses are replaced with an often-smaller depreciation expense, as illustrated in Table 1. This may not be true if the rental payments vary greatly from year to year. In that case, the after tax operating income may decrease as a result of capitalizing off-balance sheet lease obligations in the years that rental expenses are particularly low. The overall effect of capitalizing off-balance sheet lease obligations on ROA, therefore, depends on the relative magnitudes of its impacts on after tax operating income and on average total assets.

Capitalizing off-balance sheet lease obligations results in a decrease in common equity because the unamortized liabilities associated with off-balance sheet lease obligations are typically larger than the associated undepreciated assets. In fact, the amount of the undepreciated lease assets is assumed to be 70 percent of unamortized liabilities associated with off-balance sheet lease obligations in this study. As shown in Table 1, capitalizing off-balance sheet lease obligations causes total expenses to be greater in the early part of a lease and vise versa in the later part of the lease. Again, if the rental payments vary greatly from period to period, the effect of capitalizing off-balance sheet lease obligations on net income in any given period could deviate from the pattern in Table 1. Consequently, the effect of capitalizing off-balance sheet lease obligations on ROE is an empirical question to be answered with empirical evidence.

4. Results

The sample selection process and the sample composition of this study are summarized in Table 2. The initial sample includes all 282,000 US firm-years included in COMPUSTAT of the period from 2001 to 2010. The sample was reduced to 55,100 after excluding the observations with missing total assets or total liabilities. Among the remaining 55,100 observations, 31,885 have the required data to compute lease contingent payments. 22,447 or 70 percent of these 31,885 observations are estimated to have actually paid lease contingent payments. This indicates that the use of contingent payments is quite common. A scrutiny of the use of capital leases and

operating leases among the sample reveals that out of the 55,100 observations 12,517 (23 percent) reported capital leases versus 40,108 (73 percent) reported operating leases. These ratios show that leasing, especially leasing using an operating lease contract was quite common. Only 13,992 (25 percent) out of the 55,100 remaining observations did not report leases.

Table 2 Summary of the Samples

Sample	2001-2010		2010	
	# of observations	Percentage	# of observations	Percentage
All observations from COMPUSTAT (2001-2010)	282,000		28,200	
Less: Observations with missing Total Assets or Total Liabilities	226,900		24,263	
Usable observations	55,100		3,937	
Usable observations	55,100		3,937	
Less: Observations with missing prior period operating lease data required to determine contingent payments	23,215		1,185	
Observations with data for contingent payments computation	31,885	100.00%	2,752	100.00%
Less: Observations without contingent lease payments	9,438	29.60%	931	33.83%
Observations with contingent lease payments	22,447	70.40%	1,821	66.17%
Usable observations	55,100	100.00%	3,937	100.00%
Observations with capital leases	12,517	22.72%	728	18.49%
Observations with operating leases	40,108	72.79%	2,934	74.52%
Observations with no leases	13,992	25.40%	1,003	25.48%

Table 3 presents the summary statistics of six selected accounting numbers and ratios: Total Liabilities, Total Assets, Debt Ratio, Current Ratio, Return on Assets, and Return on Equity. Each accounting number and financial indicator is shown in three variations: (1) reported: the reported accounting numbers or the ratios based on the reported accounting numbers, (2) operating lease adjusted: the reported accounting numbers adjusted for or the ratios based on the reported accounting numbers adjusted for the effect of capitalizing operating leases; and (3) operating lease & contingent rent adjusted: the reported accounting numbers adjusted for or the ratios based on the reported accounting numbers adjusted for the effects of capitalizing both operating leases and lease contingent payments.

In Table 3, the sample sizes vary depending on the availability of the data required to compute a specific ratio. As expected, capitalizing off-balance sheet lease obligations appears to have positive effects on the means of total liabilities, total assets, debt ratio, and a negative effect on current ratio. The effects of capitalizing off-balance sheet lease obligations on the 25 percentiles, the medians and the 75 percentiles of total liabilities, total assets, debt ratio and current ratio appear to be consistent with that on the means.

For the analysis of ROA and ROE, the observations with either a negative numerator or a negative denominator or both are excluded.[5] As shown in Table 3 capitalizing off-balance sheet lease obligations resulted in a decrease in mean ROA, indicating that the positive effect of capitalizing off-balance lease liabilities on the average total assets outweighs the positive effect on the after tax operating income. The 25 percentiles, the medians and the 75 percentiles of ROA also decreased as a result capitalizing off-balance sheet lease liabilities. The mean ROE increased as a result of capitalizing operating leases, and the decreased slightly from there after capitalizing contingent

[5] The presence of negative ratios could distort the effect of capitalizing off-balance sheet lease obligations. For instance, holding the numerator constant, an increase in the denominator should result in a decrease in the ratio. However, if the ratio is negative and holding the numerator constant, an increase in the denominator should result in a decrease in the ratio.

payments. However, there does not appear to have a consistent pattern in how the 25 percentiles, the medians and the 75 percentiles ROE changed as a result of capitalizing off-balance sheet lease liabilities.

Table 3 Summary Statistics of the Overall Sample

	N	Mean	25 Percentile	Median	75 Percentile
Total liabilities (in million dollars)					
Reported	31,885	110.38	9.19	36.04	146.21
Operating lease adjusted	31,885	132.11	11.27	44.34	175.20
Operating lease & contingent rent adjusted	31,885	136.83	11.61	45.83	180.74
Total assets (in million dollars)					
Reported	31,885	213.42	25.90	104.58	324.40
Operating lease adjusted	31,885	230.71	27.99	112.46	349.43
Operating lease & contingent rent adjusted	31,885	234.46	28.42	114.23	353.79
Debt ratio					
Reported	31,885	0.610	0.252	0.448	0.691
Operating lease adjusted	31,885	0.638	0.303	0.505	0.746
Operating lease & contingent rent adjusted	31,885	0.644	0.310	0.515	0.756
Current ratio					
Reported	30,386	3.27	1.25	2.11	3.69
Operating lease adjusted	30,386	2.97	1.17	1.97	3.42
Operating lease & contingent rent adjusted	30,386	2.92	1.15	1.94	3.37
Return on assets					
Reported	12,306	9.665%	3.567%	6.625%	11.203%
Operating lease adjusted	12,306	8.773%	3.196%	6.034%	10.373%
Operating lease & contingent rent adjusted	12,306	8.757%	3.195%	6.029%	10.314%
Return on equity					
Reported	12,407	19.50%	6.26%	11.85%	19.93%
Operating lease adjusted	12,407	21.40%	6.23%	11.89%	20.28%
Operating lease & contingent rent adjusted	12,407	21.33%	6.27%	12.13%	20.70%

Note: Variable Definition: debt ratio is total liabilities divided by total assets; current ratio is total current assets divided by total current liabilities; return on assets (ROA) is operating income before interest expense but after taxes divided by average total assets; and return on equity (ROE) is net income divided by average shareholders' equity.

A comparison of the means and medians of the variables of interest in this study reveals large and systematic differences between the means and the medians of the variables of interest in this study. The means of total liabilities, total assets, debt ratio, current ratio, ROA and ROE are generally greater than the medians, indicating that the data of these variables could be skewed to a certain extend towards the right.

Table 4 presents the summary statistics of the sample divided into eight industries: agriculture, mining and infrastructure, manufacture-consumer goods, manufacture-industrial goods, transportation, merchandise, financial services and other services. Transportation, merchandise and other services are the industries that were generally viewed as service industries in lease studies. The total liabilities, total assets, debt ratios, current ratios, ROA and ROE after being adjusted for the impact of capitalizing off-balance sheet lease obligations are also shown as percentages of the reported counterparts.

Table 4 Summary Statistics of the Sample — By Industry

	Overall	Agriculture	Mining & Infrastructure	Manufacture-Consumer Goods	Manufacture-Industrial Goods	Transportation	Merchandise	Financial Services	Other Services
Total liabilities (in million dollars)	n = 31,885	n = 128	n = 1,697	n = 5,623	n = 9,764	n = 1,898	n = 3,085	n = 2,045	n = 7,645
Reported	110.38	96.29	132.83	94.38	86.56	190.92	154.80	165.27	95.23
Operating lease adjusted	132.11	106.1	138.34	106.49	94.98	233.78	237.94	177.1	117.56
Operating lease & contingent rent adjusted	136.83	107.9	140.95	109.21	96.83	242.6	255.41	179.06	122.4
Operating lease adjusted as% of reported	119.7%	110.2%	104.1%	112.8%	109.7%	122.4%	153.7%	107.2%	123.4%
Operating lease & contingent rent adjusted as % of reported	124.0%	112.1%	106.1%	115.7%	111.9%	127.1%	165.0%	108.3%	128.5%
Total assets (in million dollars)	n = 31,885	n = 128	n = 1,697	n = 5,623	n = 9,764	n = 1,898	n = 3,085	n = 2,045	n = 7,645
Reported	213.42	189.51	263.2	174.94	195.3	290.85	276.61	287.57	189.68
Operating lease adjusted	230.71	197.31	267.58	184.57	201.99	324.94	342.52	296.98	207.44
Operating lease & contingent rent adjusted	234.46	198.74	269.65	186.74	203.47	331.96	356.64	298.54	211.29
Operating lease adjusted as% of reported	108.1%	104.1%	101.7%	105.5%	103.4%	111.7%	123.8%	103.3%	109.4%
Operating lease & contingent rent adjusted as % of reported	109.9%	104.9%	102.5%	106.7%	104.2%	114.1%	128.9%	103.8%	111.4%
Debt ratio	n = 31,885	n = 128	n = 1,697	n = 5,623	n = 9,764	n = 1,898	n = 3,085	n = 2,045	n = 7,645
Reported	0.610	0.445	0.497	0.611	0.557	0.739	0.621	0.638	0.662
Operating lease adjusted	0.638	0.474	0.506	0.633	0.574	0.766	0.721	0.651	0.690
Operating lease & contingent rent adjusted	0.644	0.476	0.509	0.637	0.577	0.771	0.736	0.653	0.696
Operating lease adjusted as% of reported	104.6%	106.5%	101.8%	103.6%	103.1%	103.7%	116.1%	102.0%	104.2%
Operating lease & contingent rent adjusted as % of reported	105.6%	107.0%	102.4%	104.3%	103.6%	104.3%	118.5%	102.4%	105.1%
Current ratio	n = 30,386	n = 128	n = 1,627	n = 5,556	n = 9,696	n = 1,879	n = 3,051	n = 979	n = 7,470
Reported	3.27	3.39	4.6	4.24	3.65	2.1	2.03	3.76	2.49
Operating lease adjusted	2.97	2.96	4.11	3.86	3.38	1.88	1.78	3.38	2.25
Operating lease & contingent rent adjusted	2.92	2.94	4.02	3.8	3.43	1.84	1.74	3.35	2.21
Operating lease adjusted as% of reported	90.8%	87.3%	89.3%	91.0%	92.6%	89.5%	87.7%	89.9%	90.4%
Operating lease & contingent rent adjusted as % of reported	89.3%	86.7%	87.4%	89.6%	94.0%	87.6%	85.7%	89.1%	88.8%
Return on assets	n = 12,306	n = 55	n = 573	n = 1,602	n = 3,881	n = 781	n = 1,625	n = 949	n = 2,840
Reported	9.67%	8.27%	9.48%	12.90%	9.35%	8.56%	7.44%	10.30%	9.71%
Operating lease adjusted	8.77%	8.01%	9.28%	11.43%	8.85%	7.55%	5.95%	9.70%	8.72%
Operating lease & contingent rent adjusted	8.76%	7.98%	9.26%	11.38%	8.80%	7.55%	6.08%	9.67%	8.68%
Operating lease adjusted as% of reported	90.7%	96.9%	97.9%	88.6%	94.7%	88.2%	80.0%	94.2%	89.8%
Operating lease & contingent rent adjusted as % of reported	99.9%	99.6%	99.8%	99.6%	99.4%	100.0%	102.2%	99.7%	99.5%
Return on equity	n = 12,407	n = 51	n = 553	n = 1,580	n = 3,970	n = 706	n = 1,573	n = 955	n = 3,019
Reported	19.50%	18.57%	19.38%	26.61%	16.17%	20.78%	16.78%	20.19%	21.09%
Operating lease adjusted	21.40%	18.96%	20.22%	31.81%	16.94%	18.12%	22.07%	18.01%	23.56%
Operating lease & contingent rent adjusted	21.33%	19.19%	20.80%	32.15%	17.47%	21.31%	15.51%	19.66%	21.42%
Operating lease adjusted as% of reported	109.7%	102.1%	104.3%	119.5%	104.8%	87.2%	131.5%	89.2%	111.7%
Operating lease & contingent rent adjusted as % of reported	99.7%	101.2%	102.9%	101.1%	103.1%	117.6%	70.3%	109.2%	90.9%

Note: Variable Definition: debt ratio is total liabilities divided by total assets; current ratio is total current assets divided by total current liabilities; return on assets (ROA) is operating income before interest expense but after taxes divided by average total assets; and return on equity (ROE) is net income divided by average shareholders' equity.

The overall average total liabilities increased by nearly 20 percent from $110.38 million to $132.11 million as a result of capitalizing operating leases, 24 percent from $110.38 million to $136.83 million if both the operating leases and lease contingent payments are capitalized. The impact of capitalizing off-balance sheet lease obligations is more profound in service industries. For instance, in merchandise industry the average total liabilities would increase 54 percent from $154.80 million to $247.94 million (65 percent from $154.80 million to $255.41 million) as a result of capitalizing operating leases (both the operating leases and lease contingent payments). The impact of capitalizing off-balance sheet lease obligations on total assets shows a similar pattern to that on total liabilities. The average total assets increased by 8 percent from $213.42 million to $230.71 million (10 percent from $213.42 million to $234.46 million) as a result of capitalizing operating leases (operating leases and lease contingent payments). For the merchandise industry, the increases in total assets as a result of capitalizing operating leases (operating leases and lease contingent payments) were much higher at 24 percent from $276.61 million to $342.52 million (29 percent from $276.61 million to $356.64 million) The finding that the impact of capitalizing off-balance sheet lease obligations is more profound in service industries is consistent with the findings of prior lease research.

Capitalizing off-balance sheet lease obligation resulted in an increase in the debt ratio. The overall average debt ratio increased by 4.6 percent from 0.610 to 0.638 as a result of capitalizing operating leases, and by 5.6 percent from 0.610 to 0.644 if both operating leases and lease contingent payments were capitalized as well. In the merchandise industry, the increases in average debt ratio were significantly greater, by 16.1 percent from 0.621 to 0.721 as a result of capitalizing operating leases, by 18.5 percent from 0.621 to 0.736 if both operating leases and lease contingent payments are capitalized. Capitalizing off-balance lease obligations resulted in a decrease in current ratio. The overall average current ratio decreased by 9.2 percent from 3.27 to 2.97 as a result of capitalizing operating leases, another 1.5 percent from 2.97 to 2.92 if lease contingent payments were capitalized as well. Again, the impact of capitalizing off-balance sheet lease obligations appears to be more profound in the merchandise industry.

The numbers of observations used for ROA and ROE analysis were fewer because the observations with negative ROA and ROE are excluded. The overall average ROA decreased as a result of capitalizing off-balance sheet lease obligations. This pattern of change appeared to be consistent in all industry. The overall average ROE increased as a result of capitalizing operating leases, and decreased slightly from there as a result of further capitalizing lease contingent payments. However, no clear patterns can be discerned in the changes of ROE across the industries.

Table 5 reports the test results for the impact of capitalizing operating leases and contingent lease payments on the means of accounting numbers and ratios. For each accounting number or ratio two t-tests are conducted: the first is the paired t-test comparing the accounting numbers and ratios adjusted for the effect of capitalizing operating leases with their reported counterparts; and second is the paired t-test comparing the accounting numbers and ratios adjusted for the effect of capitalizing both operating leases and the lease contingent payments with their counterparts adjusted for effect of capitalizing operating leases only. The first test examines the significance of the impact of capitalizing operating leases. The second test examines the incremental impact of capitalizing lease contingent payments.

The t-test results in Table 5 show the statistical significant of the impact of capitalizing operating leases and lease contingent payments on the six accounting numbers and financial indicators observed in the summary statistics are statistically significant. Specifically, capitalizing operating leases has significant positive (negative)

effect on total liabilities, total assets, debt ratios, and (current ratios). Capitalizing lease contingent payments has an incremental and significant positive (negative) effect on total liabilities, total assets, debt ratios, and (current ratios). The above results for the overall sample hold consistently across all industries.

Table 5 Impact of Capitalizing Operating Leases & Lease Contingent Payments (T-test)

Mean (2001 - 2010)	Overall	Agriculture	Mining & Infrastructure	Manufacture-Consumer Goods	Manufacture-Industrial Goods	Transportation	Merchandise	Financial Services	Other Services
Total liabilities (in million dollars)	n = 31,885	n = 128	n = 1,697	n = 5,623	n = 9,764	n = 1,898	n = 3,085	n = 2,045	n = 7,645
Reported	110.38	96.29	132.83	94.38	86.56	190.92	154.80	165.27	95.23
Operating lease adjusted	132.11***	106.1***	138.34***	106.49***	94.98***	233.78***	237.94***	177.10***	117.56***
Operating lease & contingent rent adjusted	136.83***	107.90***	140.95***	109.21***	96.83***	242.60***	255.41***	179.06***	122.40***
Total assets (in million dollars)	n = 31,885	n = 128	n = 1,697	n = 5,623	n = 9,764	n = 1,898	n = 3,085	n = 2,045	n = 7,645
Reported	213.42	189.51	263.20	174.94	195.30	290.85	276.61	287.57	189.68
Operating lease adjusted	230.71***	197.31***	267.58 ***	184.57***	201.99***	324.94***	342.52***	296.98***	207.44***
Operating lease & contingent rent adjusted	234.46***	198.74***	269.65***	186.74***	203.47***	331.96***	356.64***	298.54***	211.29***
Debt ratio	n = 31,885	n = 128	n = 1,697	n = 5,623	n = 9,764	n = 1,898	n = 3,085	n = 2,045	n = 7,645
Reported	61.0%	44.5%	49.7%	61.1%	55.7%	73.9%	62.1%	63.8%	66.2%
Operating lease adjusted	63.8%***	47.4%***	50.6%***	63.3%***	57.4%***	76.6%***	72.1%***	65.1%***	69.0%***
Operating lease & contingent rent adjusted	64.4%***	47.6%***	50.9%***	63.7%***	57.7%***	77.1%***	73.6%***	65.3%**	69.6%***
Current ratio	n = 30,386	n = 128	n = 1,627	n = 5,556	n = 9,696	n = 1,879	n = 3,051	n = 979	n = 7,470
Reported	3.27	3.39	4.60	4.24	3.65	2.1	2.03	3.76	2.49
Operating lease adjusted	2.97***	2.96**	4.11***	3.86***	3.38***	1.88***	1.78***	3.38***	2.25***
Operating lease & contingent rent adjusted	2.92***	2.94**	4.02***	3.80***	3.43***	1.84***	1.74***	3.35***	2.21***
Return on assets	n = 12,306	n = 55	n = 573	n = 1,602	n = 3,881	n = 781	n = 1,625	n = 949	n = 2,840
Reported	9.67%	8.27%	9.48%	12.90%	9.35%	8.56%	7.44%	10.30%	9.71%
Operating lease adjusted	8.77%***	8.01%***	9.28%***	11.43%*	8.85%***	7.55%***	5.95%***	9.70%***	8.72%***
Operating lease & contingent rent adjusted	8.76%	7.98%	9.26%	11.38%*	8.80%***	7.55%	6.08%*	9.67%***	8.68%
Return on equity	n = 12,407	n = 51	n = 553	n = 1,580	n = 3,970	n = 706	n = 1,573	n = 955	n = 3,019
Reported	19.50%	18.57%	19.38%	26.61%	16.17%	20.78%	16.78%	20.19%	21.09%
Operating lease adjusted	21.40%	18.96%***	20.22%	31.81%	16.94%	18.12%	22.07%	18.01%	23.56%
Operating lease & contingent rent adjusted	21.33%	19.19%**	20.80%	32.15%	17.47%	21.31%	15.51%	19.66%	21.42%

Note: ***, **, * indicate two-tailed t-test statistically significant at levels of confidence of 1%, 5%, and 10%, respectively.
Variable Definition: see Table 3.

Overall average ROA decreased as a result of capitalizing operating leases and the t-test indicates that the decrease is statistically significant for the overall sample and for all industries when the sample was broken into eight industries. The t-test results show, however, that the incremental decrease in the overall average ROA is not statistically significant. Although two of the eight industries: manufacture-industrial goods and financial services

had significant and incremental decreases in the industry average ROA as a result of capitalizing lease contingent payments. Two other industries had marginally significant and incremental changes in the industry average ROA: manufacture-consumer goods had a slight incremental decrease and merchandise had a slight increase as a result of capitalizing lease contingent payments.

The changes in the overall average ROE as a result of capitalizing operating leases and lease contingent payments were not statistically significant. Except for agriculture industry, which is less than half percent of the overall sample, none of the average ROE for individual industries changed significantly.

5. Additional Test of Robustness and Limitations

One of the weaknesses of the research design is the use of an arbitrarily assumed constant discount rate, 10 percent, the expected useful life of the leased assets, 25 years, and the useful life remaining, 15 years, and the effective income tax rate, 40 percent. Some prior studies have used more refined methods with firm specific estimates of the discount rate, expected life of the leased assets, the remaining useful life, and the effective tax rates. However, the refined approaches are impractical for this study because of a very large sample. The validity of the approach used in this study is justified by the following arguments. First, the prior studies using more refined estimating methods yielded results that are consistent with the studies using more simplified and general assumptions. Second, the analysis in this study was rerun using various combinations of alternative assumed discount rates: of 6 percent 8 percent and 12 percent, the expected useful lives of the leased assets: 15, 20, 30 years, the useful life remaining: 10 and 20 years, and the effective income tax rate: 30 percent and 35 percent. The results remain qualitatively unchanged.

The tests presented in Tables 4 and 5 are based on the overall sample covering the period from 2001 to 2010. To control the effect of temporal changes in the economic cycle and other macro factors, I also ran the same tests annually. The use of annual data allows assessment of the stability and robustness of the results. The tests using annual data did not show significant changes from year to year. Therefore, only 2010 results are reported in Table 6 for the sake of brevity.

The results of 2010 data in Table 6 are similar to the results of 2001-2010 data in Table 5. The overall average total liabilities, total assets, and debt ratio, increased and average current ratio decreased significantly as a result of capitalizing off-balance sheet lease obligations. There were significant and incremental increases (decreases) in the overall average total liabilities, total assets, debt ratios, and (current ratios) as a result of capitalizing lease contingent payments. These effects of capitalizing off-balance sheet lease obligations were consistent across all eight industries for total liabilities, total assets and current ratios. The effect of capitalizing operating leases on debt ratio is consistent across all industries except for the financial services industry: capitalizing operating leases had no significant impact on the average debt ratio of this industry. The incremental increases in debt ratios as a result of capitalizing lease contingent payments are significant in five of the industries. The three industries that did not show significant increases in debt ratios as a result of capitalizing contingent payments are manufacture-consumer goods, manufacture-industrial goods and financial services industry. One possible explanation for these industries showing no significant increases in their debt ratios as a result of capitalizing off-balance sheet lease obligations is that they have relatively high debt ratios and low use of operating leases and lease contingent payments, as shown in Table 4. Consequently the impact of capitalizing off-balance sheet lease obligations would be less.

Table 6 Impact of Capitalizing Operating Leases & Lease Contingent Payments (T-test) (2010)

Mean (2010)	Overall	Agriculture	Mining & Infrastructure	Manufacture-Consumer Goods	Manufacture-Industrial Goods	Transportation	Merchandise	Financial Services	Other Services
Total liabilities (in million dollars)	n = 2,752	n = 15	n = 180	n = 518	n = 863	n = 167	n = 237	n = 177	n = 595
Reported	113.84	67.64	128.45	89.04	89.51	188.04	162.35	161.78	110.25
Operating lease adjusted	134.69***	70.84***	133.61***	101.20***	97.29***	216.45***	260.68***	174.78***	134.98***
Operating lease & contingent rent adjusted	138.59***	71.50*	135.88***	103.58***	98.87***	220.04***	274.67***	176.27***	140.92***
Total assets (in million dollars)	n = 2,752	n = 15	n = 180	n = 518	n = 863	n = 167	n = 237	n = 177	n = 595
Reported	237.45	185.66	294.23	176.01	228.75	296.16	309.68	302.43	223.30
Operating lease adjusted	254.56***	188.21**	298.30***	185.68***	234.94***	318.77***	387.70***	312.78***	242.98***
Operating lease & contingent rent adjusted	277.66***	188.73**	300.11***	187.58***	236.19***	321.62***	399.02***	313.96***	247.70***
Debt ratio	n = 2,752	n = 15	n = 180	n = 518	n = 863	n = 167	n = 237	n = 177	n = 595
Reported	56.3%	34.4%	41.9%	64.6%	50.3%	68.2%	55.8%	58.0%	58.9%
Operating lease adjusted	59.4%***	36.1%***	42.6%***	67.1%***	52.0%***	71.3%***	66.8%***	59.2%	62.5%***
Operating lease & contingent rent adjusted	59.8%***	36.2%***	42.9%***	67.3%	52.2%	71.9%***	69.9%***	59.4%	63.3%***
Current ratio	n = 2,628	n = 15	n = 177	n = 516	n = 865	n = 167	n = 233	n = 81	n = 583
Reported	3.45	4.88	5.94	4.23	3.73	2.00	2.12	3.46	2.52
Operating lease adjusted	3.16***	4.38***	5.09***	3.89***	3.50***	1.80***	1.86***	3.10***	2.30***
Operating lease & contingent rent adjusted	3.12***	4.37***	5.03***	3.84***	3.47***	1.77***	1.83***	3.07***	2.25***
Return on assets	n = 1,294	n = 9	n = 56	n = 186	n = 426	n = 87	n = 149	n = 96	n = 285
Reported	10.40%	8.45%	10.02%	15.34%	9.48%	6.64%	7.73%	15.59%	9.46%
Operating lease adjusted	9.73%***	8.32%	9.87%***	14.53%***	9.13%***	6.13%***	6.34%***	15.01%***	8.60%***
Operating lease & contingent rent adjusted	9.61%***	8.32%	9.78%**	14.33%***	9.05%***	6.05%	6.34%	14.94%***	8.39%
Return on equity	n = 1,323	n = 7	n = 59	n = 183	n = 456	n = 78	n = 149	n = 95	n = 487
Reported	25.38%	16.37%	16.45%	69.73%	17.48%	17.89%	17.37%	21.46%	19.37%
Operating lease adjusted	29.53%	16.52%	16.61%***	98.78%	18.31%***	19.90%	7.03%	22.70%***	22.96%
Operating lease & contingent rent adjusted	28.55%	16.54%	16.68%	103.78%	18.48%	20.92%	13.42%*	22.71%	11.69%

Note: ***, **, * indicate two-tailed t-test statistically significant at levels of confidence of 1%, 5%, and 10%, respectively.
Variable Definition: see Table 3.

Like the results of the overall sample, capitalizing lease contingent payments also resulted in significant and incremental decrease in ROA. However, a close look at the industry results reveals that this result is driven by four of the eight industries, and three of these four industries also had a significant and incremental decrease in average ROA in the overall data as a result of capitalizing contingent payments. Similar to the overall results in Table 5, capitalizing off-balance sheet lease obligations did not affect the overall average ROE significantly. Three industries showed significant change in ROE as a result of capitalizing lease contingent payments, but the directions of changes varied: mining and infrastructure's ROE decreased, manufacture-industrial goods and financial services industries' ROEs increased.

Paired t-test requires data to be normally distributed for the results to be valid. The summary statistics in Table 3 indicate that the data used for testing in this study are skewed. However, a test of normality of the variables did not reject the normal distribution assumption. Even so, the Wilcoxon signed-rank test was conducted on the year-by-year data as an additional test of robustness. Again, only 2010 results are presented in Table 7 because the results from other years are similar.

Table 7 Impact of Capitalizing Operating Leases & Lease Contingent Payments (Wilcoxon Signed-Rank Test)

Median (2010)	Overall	Agriculture	Mining & Infrastructure	Manufacture-Consumer Goods	Manufacture-Industrial Goods	Transportation	Merchandise	Financial Services	Other Services
Total liabilities (in million dollars)	n = 2,752	n = 15	n = 180	n = 518	n = 863	n = 167	n = 237	n = 177	n = 595
Reported	46.95	57.03	61.43	26.65	37.48	100.66	102.64	92.90	45.90
Operating lease adjusted	55.26***	57.08***	64.99***	31.60***	42.16***	123.84***	170.63***	101.72***	54.72***
Operating lease & contingent rent adjusted	56.36***	57.10***	64.99***	31.91***	42.82***	133.17***	182.73***	101.85***	56.28***
Total assets (in million dollars)	n = 2,752	n = 15	n = 180	n = 518	n = 863	n = 167	n = 237	n = 177	n = 595
Reported	139.73	183.15	204.78	77.70	123.23	222.31	234.16	243.64	132.76
Operating lease adjusted	150.36***	183.53***	204.66***	85.11***	130.18***	235.15***	287.97***	245.36***	147.40***
Operating lease & contingent rent adjusted	151.42***	183.55***	206.08***	85.73***	130.18***	236.24***	290.53***	245.78***	149.31***
Debt ratio	n = 2,752	n = 15	n = 180	n = 518	n = 863	n = 167	n = 237	n = 177	n = 595
Reported	40.9%	34.6%	35.7%	39.9%	36.6%	55.5%	49.4%	49.3%	41.7%
Operating lease adjusted	46.4%***	35.0%***	36.1%***	45.3%***	39.8%***	60.7%***	64.3%***	53.3%***	48.5%***
Operating lease & contingent rent adjusted	47.3%***	35.4%***	36.3%***	46.8%***	40.1%***	62.3%***	65.1%***	53.6%***	49.1%***
Current ratio	n = 2,628	n = 15	n = 177	n = 516	n = 865	n = 167	n = 233	n = 81	n = 583
Reported	2.26	3.82	1.94	2.90	2.73	1.43	1.77	2.10	1.78
Operating lease adjusted	2.11***	3.61***	1.79***	2.64***	2.60***	1.29***	1.54***	1.83***	1.65***
Operating lease & contingent rent adjusted	2.08***	3.59***	1.77***	2.62***	2.58***	1.26***	1.51***	1.80***	1.63***
Return on assets	n = 1,294	n = 9	n = 56	n = 186	n = 426	n = 87	n = 149	n = 96	n = 285
Reported	6.65%	6.02%	7.39%	8.88%	6.86%	4.74%	6.37%	5.09%	6.48%
Operating lease adjusted	6.09%***	5.94%**	7.07%***	8.74%***	6.60%***	4.54%***	5.42%***	5.06%***	5.74%***
Operating lease & contingent rent adjusted	6.03%***	5.85%	7.02%***	8.63%***	6.55%***	4.47%	5.21%	5.07%***	5.72%***
Return on equity	n = 1,323	n = 7	n = 59	n = 183	n = 456	n = 78	n = 149	n = 95	n = 487
Reported	11.90%	14.53%	13.19%	14.56%	10.77%	8.92%	12.91%	11.44%	11.71%
Operating lease adjusted	11.99%***	15.02%	13.61%***	15.31%***	10.95%***	10.03%***	12.69%***	11.63%**	11.37%***
Operating lease & contingent rent adjusted	12.13%***	14.88%	13.68%	14.70%**	10.99%**	9.94%**	13.30%***	11.72%	11.90%***

Note: ***, **, * indicate Wilcoxon signed-rank test statistically significant at levels of confidence of 1%, 5%, and 10%, respectively.
Variable Definition: see Table 3.

Table 7 shows the results of Wilcoxon signed-rank test of the 2010 sample. Overall, capitalizing operating leases caused significant changes in the relative rankings of total liabilities, total assets, debt ratio, current ratio, ROA and ROE within the same year and same industry. Further, capitalizing lease contingent payments resulted in incremental and significant changes in the relative rankings of these figures and ratios. These findings are fairly consistent across the industries with the following exceptions: (1) capitalizing off-balance sheet lease obligations had little effect on the rankings of ROA and ROE in agriculture, possibly due to the extremely small number of

available observations of the industry (9 for ROA and 7 for ROE); and (2) the effect of capitalizing lease contingent payments on the rankings of ROA and ROE are not significant in one other industry for each ratio.

6. Conclusions

This study empirically examines the impact of capitalizing operating leases and lease contingent payments on reported accounting numbers and key financial indicators. The findings of the study are as follows: (1) capitalizing operating leases would result in a significant increase (decrease) in the average total liabilities, total assets, debt ratio and (current ratio). (2) Capitalizing lease contingent payments would result in a significant and incremental increase (decrease) in the average total liabilities, total assets, debt ratio and (current ratio. (3) These results remain qualitatively unchanged when the sample is broken down by year. (4) The effect of capitalizing off-balance sheet lease obligations on the average total liabilities, total assets, debt ratio and current ratio are more profound in the service industries. (5) The average ROA decreased significantly as a result of capitalizing operating leases; the average ROA decrease incrementally in some industries as a result of capitalizing lease contingent payments. (6) Capitalizing operating leases and lease contingent payments did not have a systematic impact on average ROE. Finally, (7) the relative rankings of total liabilities, total assets, debt ratio, current ratio, ROA and ROE were affected by the capitalization of operating leases; the relative rankings of these accounting numbers and ratios were further changed as a result of capitalizing lease contingent payments, although the changes in the relative ranking of ROA and ROE as a result of capitalizing lease contingent payments were not present in all industries.

This study provides evidence of the potential impact of capitalizing currently off-balance sheet lease obligations on key accounting numbers and financial indicators. Overall, the findings of this study show that the recommended requirement of capitalizing operating leases will have significant effects on the magnitudes and the relative rankings of these key accounting numbers and balance ratios. In addition, the recommended changes in the measurement of lease liabilities will also have significant and incremental effects on the magnitudes and rankings of the key accounting numbers and balance sheet ratios. As the FASB and the IASB continue their deliberation and revision of the accounting standards for leasing, the findings of this study help interested parties to assess the impact of the potential changes in lease accounting rules.

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