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THE IMPACT OF LEASE ACCOUNTING STANDARDS ON AIRLINES WITH OPERATING LEASES: IMPLICATIONS FOR BENCHMARKING AND FINANCIAL ANALYSIS

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ABSTRACT

In 2016, the Financial Accounting Standards Board (FASB) has issued a new standard for lease accounting. The standard requires capitalization by lessees of most leases currently treated as rentals, i.e., those currently classified as operating leases under the existing standard for lease accounting. We examine the impact on airlines that currently make use of operating leases. Several key financial ratios are examined before capitalization and then after capitalization on a pro forma basis. The results indicate that working capital, leverage, and solvency change dramatically in a negative direction, and airline rankings based on those ratios also change, which has implications for benchmarking performance.

INTRODUCTION

Benchmarking is a widely used management tool. It can be performed in any type of organization, as long as data are available for peer organizations. It may involve financial and also nonfinancial measures. For example, a public company may want to compare its efficiency in the use of assets to other, similar companies. It may calculate the asset turnover ratio using readily available financial data for a peer group of companies. It would then rank the companies to see where it ranks relative to the peer group.

Using published financial statement data for benchmarking may be problematic, particularly where generally accepted accounting principles have fallen behind economic reality. Just how far behind is subject to speculation, but Standard & Poor's, the large credit-rating agency, makes adjustments for almost twenty financial statement items, including accrued interest, capitalized interest, postretirement employee benefits, and operating leases, to name a few (Standard & Poor's, 2013). One adjustment that has received a great deal of attention is the adjustment for operating leases.

Accounting for leases has been a vexing problem for standard setters for almost three quarters of a century. According to Myers (1962, 1-2), in 1949, the Committee on Accounting Procedure issued Accounting Research Bulletin (ARB) No. 38 in response to the increased use of leasing as a means of financing the purchase of assets with little to no disclosure of the existence of such leases. ARB No. 38 took a principles-based approach to lease accounting, calling for capitalization of future payments under a lease that in essence finances the purchase of an asset, with an entry on the balance sheet for the leased asset and corresponding lease payments liability.

In the years following the issuance of ARB No. 38, the use of leasing continued to grow, capitalization to the balance sheet was nearly non-existent, and disclosure was less than that called for by ARB No. 38. Given this, financial analysts wanted more disclosure (Myers, 1962, 2-3). These same issues persisted to some degree for the next six decades, despite repeated efforts by accounting standard setters to change the behavior of lessees and lessors. It is noteworthy that four of the Accounting Principles Board's (APB) 31 official opinions involved lease accounting. The Financial Accounting Standards Board (FASB) issued Statement Number

13 on lease accounting in November 1976. Following that, the FASB issued a significant number of additional statements to amend lease accounting, as well as a number of official interpretations and technical bulletins involving the accounting for and reporting of leases.

At least two major problems cause concern for regulators. One is the persistence of the use of operating leases by lessees to achieve off-balance sheet financing for the acquisition of long-term assets. The second is the lack of symmetry that may result in a “missing asset” problem. Imagine that an airline is leasing a fleet of aircraft from a manufacturer and desires off-balance sheet financing. Using the FASB Statement Number 13 rules-based approach, the airline is able to write a lease contract in such a way that it qualifies as an operating lease. Thus, the fleet of aircraft (and the related liability) is not recorded on the books of the airline. However, the aircraft manufacturer has no desire to keep the aircraft on its books once it delivers the fleet. Thus, the lessor finds a way to record the same lease as a sales-type lease. The ability for each of the parties to take its preferred accounting is at the heart of this problem.

One method of classifying the same lease as an operating lease by the lessee and yet as a sales-type lease by the lessor is for the lessor to hire a third party to guarantee the residual value of the leased asset. One criterion for treating a lease as a capital-type lease is if the present value of the minimum lease payments is 90% or more of the fair value of the asset. In the airline example, since the lessee is not guaranteeing the residual value, it excludes the residual value from its present value calculation, thereby falling below the 90% threshold. In contrast, the aircraft manufacturer includes the residual value in its present value calculation, thereby exceeding the 90% threshold. It then records the lease as a sales-type lease and removes the leased aircraft from its inventory. The airline simply records rent expense as lease payments are made. In this manner, the entire fleet of aircraft simply “disappears.” That is, the fleet is not recorded on either company’s books. These “phantom assets”

become a problem for those evaluating either company’s financial statements.

After a long history of unsuccessful attempts at regulating the accounting for leases to avoid the above mentioned problems, the FASB and the International Accounting Standards Board (IASB) embarked on a joint project to develop new rules on leasing. And in 2016, each board issued new standards. The new standards are similar, and the differences between them are not relevant to the current research. The main feature of the new rules is that capitalization will be required for virtually all leases, which should, in theory, put an end to off-balance sheet financing. According to an article in *The Wall Street Journal* (2012), the new lease accounting rules may result in as much as two trillion dollars of additional debt added to corporate balance sheets. For public companies following the FASB’s rules, the new lease accounting standard goes into effect for fiscal years beginning after December 15, 2018.

We investigate the impact of capitalization by lessees in the U.S. airline industry, building upon the pioneering work of Gritta (1974a, 1974b). Airlines make heavy use of leases, both for aircraft and also for ground operations. Gritta (1974a) first examined how capitalization of operating leases would impact certain measures of leverage in the U.S. domestic airline industry. He updated the original study twenty years later to see if the use of leases had changed (Gritta, Lippman, and Chow, 1994). The current research expands upon this line of research by using a more refined method to capitalize operating leases, and tailoring it to each individual airline’s financial structure. We use a capitalization method similar to that used by Standard & Poor’s Ratings Services, as discussed in Berman and LaSalle (2007). We also examine the impact on measures of liquidity and profitability in addition to leverage.

LITERATURE REVIEW

Thousands of journal articles have been written on the topic of lease accounting. We limit our literature review primarily to articles that examine the impact of capitalizing operating leases by lessees in the U.S. airline industry.

Gritta (1974a) laid the foundation for much of the research in this area. He examined the impact of capitalization on ten U.S. airlines and calculated before and after figures for two commonly used ratios to measure financial leverage. As one would expect, Gritta found that those airlines already making the greatest use of leverage were the ones most impacted by capitalizing their leases. In a second paper published the same year, Gritta (1974b) focused on the four largest U.S. airlines and included leases of ground equipment in addition to aircraft. He found significant changes in two measures of financial leverage when leases were capitalized, and he speculated that the impact would be greater when making intra-firm comparisons within the airline industry, since several other companies at that time did not make great use of leasing.

Gritta, Lippman and Chow (1994) report that the use of leases by airlines grew significantly in the twenty years since Gritta's original research (1974a, 1974b). In addition, accounting for leases had changed since the prior studies, with the issue of Statement of Financial Accounting Standards Number 13: Accounting for Leases (FASB, 1976), necessitating a fresh look at this persistent problem. Using airline data from 1991 financial statements, they found results similar to the earlier studies, but the impact on leverage was even more pronounced. They conclude that despite the FASB's lease accounting rules, "air carriers can structure leases to avoid capitalization of lease payments (1994, 199).

Gritta and Lippman (2010) examined the extent to which airlines changed their use of operating leases since the original two studies in 1994 and 1974. They reported that "Alaska, Continental, and USAir structure all of their leases as operating leases" (2010), an increase from the prior studies. They capitalized the operating leases using the same methodology as in the prior studies, with a 10% discount rate for all airlines in the sample. They report the impact on two leverage ratios. Also, for the first time, they rank the airlines based on each leverage ratio and show before and after ranks. Although no test of significance was reported, they concluded that the relative riskiness, as measured by

the rankings of the debt ratio, remained unchanged by capitalizing the operating leases.

Scheraga and Caster (2014) examined the impact of ignoring capital leases in the airline industry when benchmarking the strategic management of financial leverage. They found that capitalizing operating leases led to statistically significant declines in measures of operating efficiency, using data envelopment analysis. They conclude that "not capitalizing operating leases to the balance sheet creates significant distortions in the perceptions and assessment of the abilities of managers to utilize financial leverage to make investments that enhance firm profitability" (2014).

Furthermore, Scheraga and Caster demonstrated what Gritta (1974a) had observed earlier. Gritta said "the effect of capitalization on these ratios is significant, especially in an intra-industry comparison." It is interesting because some have suggested that capitalizing the operating leases may have no effect. For example, Boatsman and Dong conclude that "lease accounting is often not a matter of consequence in the context of estimating equity value" (2011, 1). However, they do indicate that it may have indirect effects, such as management compensation effects and the effects on lender behavior.

Lipe (2001) reviewed the lease accounting literature and organized results around three decision contexts. In terms of financial statement analysis of equity risk, he reported that most of the studies found that capitalization of operating leases resulted in better measures of shareholder risk. At the same time, the impact on equity value showed inconclusive results. However, sophisticated investors already adjust for operating leases, thus the impact on equity values may be minimal. Lipe's third category was management decision-making. He reported evidence that management makes use of the FASB Statement Number 13 rules to construct lease contracts that circumvent capitalization of leases when that is their intent.

Grossman and Grossman (2010) examined the impact of capitalization on 91 of 200 companies in

the Fortune 500. They were among the few that discussed and examined the impact on the current ratio. Not surprisingly, they found that current liabilities increased, in some cases more than 10%, with one company experiencing an almost 50% increase in current liabilities. They reported that the current ratio declined by significant amounts in some cases. In addition, they calculated the impact on the debt ratio and reported the impact for 8 companies in their sample. One implication they drew from their results is that capitalization of operating leases may cause many companies to be in violation of restrictive covenants in debt agreements.

From Lipe's (2001) review and categorization of the lease accounting literature, and from the airline studies conducted to date, the empirical results demonstrate that if the concern is with equity valuation, capitalizing the operating leases may not make a difference. But for most other types of decisions, including lending, credit ratings, and benchmarking, capitalization of operating leases results in significant changes in the relative financial position of various airlines.

METHODOLOGY AND DATA SET

Berman and Lasalle (2007) review the methods used by three credit rating agencies to capitalize operating leases. They reported that Standard & Poor's uses lease footnote information to calculate the present value of minimum lease commitments. They use an interest rate that reflects the actual borrowing costs as the discount rate for the present value calculation. Moody's simply multiplies reported rent expense by a factor of 5, 6, or 8, depending on the industry segment involved. For airlines, the factor is 8. They believe the result approximates the present value of the future minimum lease payments. Fitch uses both methods. If data permits, they calculate the present value, otherwise, they multiply rent expense by a factor of 8 to approximate the capitalized amount.

The factor method seems too simplistic and ad hoc. Instead, we followed the capitalization method used by Standard & Poor's (2013). Damodaran (2016) provides an Excel template for converting operating

leases to capital leases. His methodology is very similar to that used by Standard & Poor's. However, determining the appropriate discount rate to use for the present value calculations is problematic. With more airlines making greater use of variable interest rate debt agreements, most airlines no longer disclose in financial statement footnotes a weighted average interest rate on their outstanding debt. Some disclose separate rates for fixed-rate debt and variable-rate debt, while others do not disclose any weighted average rate. We followed a suggestion in Imhoff, Lipe, and Wright (1997) to calculate an implied interest rate by dividing interest expense by outstanding long-term debt. We then compared the resulting interest rate to individual rates disclosed in the long-term debt footnote to ensure that the rate used for capitalization was reasonable, that is, within the range bounded by the lowest to highest interest rate on any given debt agreement.

The data set used in the study reported on here was drawn from the Department of Transportation's Research and Innovative Technology Administration (RITA) Bureau of Transportation Statistics, Form B-43, inventory of aircraft. The inventory was for calendar year 2015. Each airplane is identified by RITA as being owned, leased as a capitalized lease, or leased as an operating lease. We deleted all airlines that had no operating leases and confined our sample to U.S. passenger airlines. Also, each airline had to be publicly traded with a Form 10-K annual report available for 2015. Finally, we deleted one airline that was in Chapter 11 bankruptcy proceedings. The result was a sample of 10 airlines, including some of the largest U.S. airlines, i.e. American, Delta, and United.

RESULTS

We chose one measure of short-term liquidity; the current ratio, two measures of long-term solvency; the debt ratio and times interest earned, and two measures of profitability/efficiency; return on assets and asset turnover, for the purpose of benchmarking financial performance within the sample of airlines.

TABLE 1
RATIOS AND FORMULAS

Current Ratio	Current Assets / Current Liabilities
Asset Turnover	Total Revenue / Total Assets
Return on Assets	Operating Income / Total Assets
Times Interest Earned	Operating Income / Interest Expense
Debt Ratio	Total Liabilities / Total Assets

Table 1 provides the formulas used to calculate these ratios.

Table 2 shows each airline, its ratio, and its ranking within the group both before and after capitalization of operating leases.

Some airlines saw dramatic changes in ratios. For example, Spirit Airlines had a current ratio of 2.20:1 before capitalization. It fell to 1.48:1, a decline of about one third. In contrast, Southwest and Delta had very low current ratios before capitalization, and their ratios declined by only eight percent after capitalization. The most dramatic change occurred in the asset turnover calculations, where Virgin America fell from first in the rankings, with a turnover of 0.98 times, to last, with a turnover of 0.48 times, a decline of about 50 percent. Virgin America also dropped from first place to sixth place in the debt ratio after capitalization of its operating leases.

Table 3 shows the results of the non-parametric t-test for differences in means before and after adjustment for operating leases. The current ratio fell significantly ($t = 2.81, p = .01$), which is not surprising given that capitalization of operating leases only adds amounts to the current liabilities (due to the current portion of long-term debt) with no addition to current assets. Because the current ratio has to fall in value after capitalization, we used the one-tailed test. Similarly, asset turnover declined significantly ($t = 4.87, p < .01$). The numerator is unchanged by capitalization, but the denominator increases when the right-to-use asset is recognized and added to total assets. The change in return on assets was not statistically significant ($t = 2.20, p = .06$). We used the two-tailed test because both the

numerator and denominator change with capitalization of operating leases, so we could not predict the direction of the change in the ratio. Finally, both measures of solvency changed significantly. The change in “times interest earned” has a t value of 3.59 ($p < .01$) and the change in the debt ratio has a t value of 3.25 ($p < .01$).

Since airlines often benchmark their performance against other airlines, we also ranked the airlines on each ratio. We performed the Friedman (1937) test for a significant change in ranks before and after capitalization of operating leases. The Friedman test was developed by economist Milton Friedman as a way of examining ranked data to determine if a significant change in ranks occurs. Table 4 shows the results of the Friedman tests. Ranks changed significantly for all of the ratios except return on assets.¹

SUMMARY AND CONCLUSIONS

This research demonstrates that companies making use of operating leases, that is, off-balance sheet financing, will be heavily impacted by new lease accounting standards requiring capitalization of most operating leases. This treatment will be required for fiscal years beginning after December 15, 2018. By examining five widely used financial ratios that capture measures of liquidity, long-term solvency, and profitability, we found that statistically significant changes occurred in the means for all but one ratio, and in the rankings within the group, again for all but one ratio.

One limiting aspect of this research is that all of the companies examined came from one industry, U.S. airlines. It is an industry where some participants

TABLE 2
RATIO ANALYSIS BEFORE AND AFTER CAPITALIZATION OF OPERATING LEASES
(As of Dec. 31, 2015)

Carrier	Current Ratio			Debt Ratio			Times Interest Earned					
	Before	After	Rank	Before	After	Rank	Before	After	Rank			
Alaska Airlines Inc.	0.921	5	0.831	5	54.4%	3	60.9%	1	30.905	2	14.278	2
American Airlines Group	0.734	6	0.636	6	88.4%	10	90.6%	10	6.657	9	5.076	7
Delta Airlines	0.517	10	0.476	10	79.6%	8	82.8%	7	16.220	5	7.990	3
Hawaiian Holdings	0.963	4	0.841	3	82.2%	9	85.9%	9	7.653	8	5.458	6
JetBlue Airways	0.604	8	0.564	7	62.9%	4	66.7%	2	9.500	6	7.429	4
SkyWest Airlines Inc.	1.354	2	1.007	2	68.6%	6	74.3%	5	3.092	10	3.002	9
Southwest Airlines Co.	0.543	9	0.502	9	65.5%	5	69.9%	4	34.017	1	18.369	1
Spirit Air Lines	2.201	1	1.476	1	51.6%	2	67.9%	3	24.979	3	7.307	5
United Air Lines Inc.	0.631	7	0.528	8	78.1%	7	83.9%	8	7.722	7	2.650	10
Virgin America	1.261	3	0.837	4	48.5%	1	74.6%	6	24.326	4	3.193	8

Carrier	Return on Assets			Asset Turnover				
	Before	After	Rank	Before	After	Rank		
Alaska Airlines Inc.	19.9%	2	19.3%	1	0.857	5	0.735	2
American Airlines Group	12.8%	7	12.6%	7	0.847	6	0.684	4
Delta Airlines	14.7%	5	12.8%	6	0.766	8	0.647	7
Hawaiian Holdings	17.0%	4	16.5%	4	0.923	4	0.734	3
JetBlue Airways	14.0%	6	14.6%	5	0.741	9	0.666	6
SkyWest Airlines Inc.	4.9%	10	6.1%	10	0.645	10	0.529	9
Southwest Airlines Co.	19.3%	3	18.7%	2	0.930	2	0.811	1
Spirit Air Lines	20.1%	1	16.6%	3	0.846	7	0.562	8
United Air Lines Inc.	12.6%	8	7.4%	8	0.927	3	0.680	5
Virgin America	11.3%	9	7.3%	9	0.975	1	0.481	10

TABLE 3
DIFFERENCE IN MEANS

<u>Ratio</u>	<u>Mean Before</u>	<u>Mean After</u>	<u>t-Statistic</u>	<u>p-Value</u>
Current Ratio	0.97	0.77	2.81	0.01
Asset Turnover	0.85	0.65	4.87	<.01
Return on Assets	0.15	0.13	2.20	0.06
Times Interest Earned	16.51	7.48	3.59	0.01
Debt Ratio	0.68	0.76	3.25	0.01

TABLE 4
RESULTS OF FRIEDMAN TEST

<u>Ratio</u>	<u>p-Value</u>	<u>Chi-Square</u>
Current Ratio	0.001565	10
Asset Turnover	0.001565	10
Return on Assets	0.05778	3.6
Times Interest Earned	0.001565	10
Debt Ratio	0.001565	10

make heavy use of operating leases. We have no reason to believe the results would not generalize to other industries where the use of operating leases is prevalent.

Since companies and financial analysts make use of benchmarking and other comparisons within an industry, the results demonstrate that it is necessary to make adjustments for operating leases before any meaningful comparisons can be made. As suggested by Gritta (1974b), the results would be even more dramatic if comparisons were made to all of the companies in an industry, including those that do not make use of operating leases. Finally, it is interesting to note that long before the FASB proposed new lease accounting standards requiring capitalization of operating leases, credit rating agencies such as Standard & Poor's, Moody's, and Fitch made such adjustments. However, this is not an ideal way of addressing the issue, and full capitalization of leases will provide for more transparency in actual reported data.

ENDNOTES

1. We also calculated the Wilcoxon signed-ranks test because we only had two panels of data for each ratio, before and after capitalization of operating leases. The same four ratios showed statistically significant differences in ranks after capitalization of operating leases, similar to the Friedman test.

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