Honors Thesis Proposal

For

Leasing Losing Its Luster: An Analysis of Lease Capitalization

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Introduction

Over the years leasing has become one of the most popular methods for financing large assets, spawning a multibillion dollar leasing industry in America alone. One 2010 survey conducted by the AICPA shows that 8 out of 10 companies in the US lease a significant amount of their equipment (Kieso et al. 2011). The purpose of this study is to explore the nature of a lease highlighting how different accounting methods for reporting leases under GAAP can impact the financial statements. The current methods of reporting are currently under reevaluation by the Financial Accounting Standards Board (FASB) in response to both off balance sheet financing as well a strong interest in converging current US Generally Accepted Accounting Principles (GAAP) with the International Financial Reporting Standards (IFRS).

When an asset is leased, ownership of that asset may or may not be transferred. A lease as defined by the FASB is an “agreement conveying the right to use property, plant or equipment (land/depreciable assets) usually for a stated period of time.” Leases are agreements that allow for the right to use an asset and do not necessarily include any ownership claims by the user of that asset during the lease term. In fact, some leases may not even acknowledge an asset or liability at all. During November 1979 the FASB published Statement 13: Accounting for Leases (FASB 13) to govern the reporting of lease arrangements on the financial statements and included four general requirements which mandated the capitalization of a lease. Since its inception in 1979 however, FASB 13 has been under criticism as one of the most lax standards put into effect. Due to the subjective nature of the leasing standards put in place by FASB 13, companies have been able to manipulate their leasing structures to obtain a multitude of desired
effects, one of which being the ability to omit large lease obligations from the financial
statements. This behavior mentioned earlier as off balance sheet financing, has in part led to a
decision by the FASB to reevaluate the current leasing criteria and propose a new standard for
leasing assets that involves discontinuing the operating method of reporting and forcing the
capitalization of all leased assets by the lessee. The efforts of the FASB to merge US GAAP with
IFRS have also been noted as another important reason for these reevaluations and will be a topic
for discussion in this study.

When a lease agreement is signed, two parties are formed. The first party is the original
owner of the asset who collects payment for its use over a term and is referred to as the lessor.
The second party is the user of that asset who makes the payments to the lessor is referred to as
the lessee. This study focuses on the recording and reporting of leased assets by the lessee. The
current FASB 13 rule states that if any one of four requirements for capitalization is met, a lease
will be required to be capitalized by the lessee. Capitalization for this report means recognition
of a depreciable asset on the balance sheet as well as a related long term liability. If none of the
four requirements are met, a lease is not capitalized and is instead recorded as an operating lease.
The four requirements of capitalization as mandated by GAAP are as follows:

1. Transfer of Ownership:

   If the lease agreement has a provision that transfers ownership of the leased asset from
   the lessor to the lessee then the lease must be capitalized.

2. Bargain Purchase Option:

   If the lease agreement has a provision for a bargain purchase option that may be
   exercised at the end of the term by the lessee, then the lease must be capitalized.

3. 75 Percent of Economic Life of the Asset
If the lease term exceeds 75 percent of the economic life of an asset, the lease must be capitalized.

4. 90 Percent Recovery of Investment

If the present value of the lease payments equal more than 90 percent of the current value of the asset being leased the lease must be capitalized.

Currently, when a lessee capitalizes a lease they must make an entry to record the lease asset and another entry to record the liability of the payments. This entry is equal to the present value of the minimum lease payments as calculated using either the lower of the incremental borrowing rate or the implicit rate if the implicit rate is known and is lower than the incremental rate. The incremental borrowing rate is defined as “the rate that, at the inception of the lease, the lessee would have incurred to borrow the funds necessary to purchase the leased asset on a secured loan with repayment terms similar to the payment schedule called for in the lease” (Keiso 2011). The implicit rate is defined as “the discount rate that, when applied to the minimum lease payments and any unguaranteed residual value accruing to the lessor, causes the aggregate present value to equal the fair value of the leased property” (Keiso 2011). The lease liability is then reduced by each annual payment and interest expense is recorded and accounted for using an amortization schedule. The lease asset is also reduced using an acceptable method of depreciation either over the term of the lease if ownership is not transferred or the economic life of the asset if ownership is transferred.

Under the operating method the lease payments are simply expensed in the period incurred as “rent payments”.

It is clear that a very different expense pattern emerges between a lease that is reported and recorded as an operating lease and one that is reported and recorded as a capital lease of the
same value. There also exists a major distinction in the accounts that appear on the annual financial statements between the two reporting methods. These differences are the primary focus of this study as we investigate the proposed discontinuation of the operating lease, which has been said to allow for less accurate reporting practices.

It has been inferred and even demonstrated in literature that the omission of leasing obligation information from the financial statements can have a favorable effect on the outward appearance of a company’s financial position. Since the appearance of the financial statements between the two methods (capital and operating) is different, the impression of a user could reasonably vary as a result. It is important to bear in mind that one key function of the four financial statements is to reflect accurate and useful information to the user and any inhibitions of that function often fall under the scrutiny of standard setters and users alike. This study is intended to illustrate how the operating lease allows for a great deal of information to be excluded from the balance sheet and income statement. The effects of those omissions on not only those two financial statements but also several key financial ratios which users rely on for information about the nature of a business will be examined and discussed.

Fortunately, we have more than just the financial statements to rely on for information about a company. Many other statements are filed annually with the Securities and Exchange Commission (SEC) that aid users in finding more specific details about the financial position of a company. One such statement that will be utilized by this study is the 10-k. 10-k reports are comprehensive summaries of the annual economic activity a business undergoes and they include information in the form of detailed disclosures that supplements the four financial statements. Although these statements and information are made available to the public, due to their complexity they are frequently underutilized. Much of the information used in this study on
operating leases can be found in the 10-k filings of each of four airlines that have been selected to model the effects discussed.

Other significant consequences that can arise from differences in information shown on the financial statements include distortion of financial ratios which are derived from figures reported in the financial statements. There are several key financial ratios that appear widely in mainstream statement analysis and may be materially affected by manipulations in lease reporting. Three ratio groups that we will observe in this study are liquidity, solvency, and profitability groups. Each group contains specific ratios that portray information about the financial position of a company. Currently stock trading websites such as yahoofinance.com and google.com/finance display financial ratios to aid investors in making quick decisions about the financial health of a company. These ratios are typically derived from figures on the four financial statements, specifically the balance sheet and the income statement. It stands to reason that any changes to those statements (specifically capitalization of leases) would then affect the ratios on which many users rely to make inferences on the financial health of companies. This logic will be demonstrated in this study through two models for constructive capitalization of operating lease liabilities.

Many industries use operating leases for many different reasons, some of which have little to do with reporting. This study is not designed specifically to determine why an industry chooses to use operating leases but rather the effects that occur from those reporting methods. The American airline industry stands out among other industries as one of the most prevalent users of the operating lease and thus has been selected to be used to illustrate the effects of the upcoming changes in reporting requirements. Delta, United, Southwest, and AirTran Holdings are the four airlines that will model the effects of capitalizing operating lease obligations on the
balance sheet, income statement and several common financial ratios. They have been selected to represent the airline industry based on their current fleet size, revenues and amount of operating lease obligations. Due to the large operating lease obligations on the 10-k forms of these airlines, the effects of capitalizing those obligations should be very apparent.

**Literature Review**

Aristotle once said, “Wealth does not lie in ownership but in the use of things”! Figures from the Equipment Leasing Association (ELA) support that statement estimating that of the $850 billion in total fixed investment expected from domestic business in 2010, $521 billion would be financed through leasing (Kieso et al. 2011). The introduction discussed problems that have arisen regarding the presentation of these leasing obligations, the largest being the problem of off balance sheet financing via the use of operating leases. As a result of the problem of off balance sheet financing, the FASB is currently working on a joint project with the IASB that will require all lease agreements to be capitalized (Kostolansky et al. 2011). In a recent comparison of IFRS and US GAAP, IFRS contain 8 requirements for capitalization where US GAAP contains only four. The four requirements for US GAAP are specific, citing percentages such as the 75% of economic value of an asset or the 90% recovery of investment tests while the eight IFRS requirements are more general, using language such as “at least substantially all of the fair value of leased property” and “a major part of the economic life of an asset” (Kilpatrick et al. 2011). If the goal of the FASB and the IASB is to eliminate off balance sheet financing completely it would seem that neither of these two standards are sufficient and that brings us to the recently proposed right of use model. Research by Bob Kilpatrick and Nancy Wilburn (2011) on the recent FASB publications tells us:
“The fundamental change proposed under the joint [FASB and IASB] project's ED is utilization of a single "right-of-use" lease accounting model that would require capitalization of all leases in the lessee's statement of financial position.”

In anticipation of the upcoming amendments to current GAAP standards several studies involving the constructive capitalization of operating lease obligations have been conducted in an effort to predict the effects of these changes. The idea of constructive capitalization, or recasting the financial statements to include obligations not previously shown, is not a new one. Creditors and rating agencies have been using constructive capitalization methods for years in order to gain a better insight into the economic health of companies. Research by Imhoff, Lipe, and Wright (1997) even references the S&P’s discount rate for capitalization of 10% in two of their studies. In their 1991 study on lease capitalization they were able to show the effects of constructive capitalization on the balance sheet, however only the effects on the balance sheet were measured under the assumption that any effects on the income statement would be immaterial. Several years later the same team found it necessary to conduct a second study which measured and demonstrated the effects of constructive capitalization on the income statement and the results were found to be material (Imhoff et al. 1997). This study will use similar variables and assumptions as the Imhoff, Lipe and Wright 1997 model and will explore the effects of constructive capitalization on both the balance sheet and the income statement simultaneously as well as other various financial ratios that may be affected by changes to those statements.

Past studies demonstrating the process of constructive capitalization (Imhoff et al. 1991 and 1997) and the use of a variety of firm specific discount rates (Duke et al. 2002) (Kostolansky et al. 2011) have excluded the use of different depreciation methods for their constructively capitalized assets. While each of these studies has found the impact of accounting for operating
leases off of the balance sheet to have a significant effect on the balance sheet and the income statement as well as the ratios which are derived from those statements only straight line depreciation has been utilized. This study will likely show similar results to those of previous studies when we use straight line depreciation for our first constructive capitalization model. The new element that will be examined in this study is the effect of using an accelerated depreciation method for a constructive capitalization model. This study differs from those previous studies by assuming a second method of depreciation and comparing it to both the traditional straight line depreciation common in most constructive capitalization models, and our control. The control is simply the statements as reported with no constructive capitalization adjustments.

**Hypothesis**

Operating leases keep relevant information about lease obligations off of the balance sheet. Once operating lease obligations are synthetically capitalized a negative change in financial position should be indicated by the current and quick ratios, the debt to equity ratio and the return on assets ratio as well as other various financial ratios derived from those statements. This study will test the significance of differences in depreciation methods used for constructive capitalization and illustrate the effects that two different depreciation methods might have on a company’s decisions in structuring lease agreements.

**Method**

This study has three objectives. The first objective is to test the significance of the use of different depreciation methods on constructively capitalized lease assets as they appear on the balance sheet and the income statement. Dramatic differences in expense patterns and ratios caused by using different methods of depreciation may indicate that depreciation methods have an impact on a company’s decision to capitalize its leases or vice versa. Our second objective is
to demonstrate the effects of off-balance sheet financing as indicated by previous models and discuss the impact of these effects on the FASB and IASB's efforts to create a new "right of use" model that will mandate capitalization of all lease assets by the lessee. The third objective of this study is to also discuss the effects of off-balance sheet financing on creditors and investors who may overlook constructive capitalization of a company's lease obligations.

Our sample will consist of four different airlines: Delta and United will represent the larger and well-established airline companies while Southwest and AirTran Holdings will represent the midsize, up and coming airline companies. We have selected the airline industry for our study based on the knowledge that airlines rely heavily on operating lease agreements to finance their assets (Kicso et al. 2011).

When working with these four very different airlines it is important to keep in mind that the effects of capitalization for each company will vary slightly based on factors including company size and management policies based on the levels of aircraft and equipment kept on operating leases vs. capital.

Data will be collected from the airlines 10-k filings with the SEC filed for the years 2011 and 2012 on revenues, fleet size, aircraft owned, aircraft currently under an operating or capital lease, and operating and capital lease liabilities.

The revenue values are used primarily as an indicator to denote differences in size and scale. This will help show how much of an impact the overall size of a company can have relative to the changes in the financial ratios caused by our synthetic capitalization.

Fleet size provides an indicator of how many aircraft are leased as compared to how many are owned. The companies are required to disclose how many aircraft are in the fleet and how many of those aircraft they actually own so even if the amount of aircraft leased is omitted
from the 10-k it can be found simply by subtracting the aircraft owned value from the total fleet size leaving us with the total amount of aircraft leased under both capital and operating structures.

\[ \text{Total fleet size} = \text{Aircraft owned} + \text{Aircraft leased} \]

This will allow us to compare amongst our sample which companies lease higher percentages of their fleets at a quick glance. The higher the value for percentage of aircraft leased gets, the higher the potential for change resulting from synthetic capitalization assumedly.

Data will be collected on the minimum lease payments due after the years 2011 and 2012 for the next five years and thereafter for each of the airlines in this study. Since we do not have the incremental nor the implicit borrowing rate for each leasing transaction included in the 10-k reports, a discount rate of 10% will be used to discount the minimum lease payments back to their present value and then again to calculate the resulting estimated interest payments. Since the cash flows resulting from these operating leases are uneven, it is not feasible to amortize the interest payments evenly however they will be amortized in accordance with the amount of each payment.

Once the minimum lease payments are properly discounted back to their present value using the specified incremental rate of 10%, a leasing asset and a leasing liability will be recognized and added back into the PPE and Long Term Liabilities sections of the balance sheet. Any payments for the year will also be reported and the interest will be calculated based on the discount rate of 10%.

The Lease Asset that arises from the capitalization of these lease payments will be depreciated assuming two methods. Method one will be straight line, method two will be double-declining balance. The reason two methods for depreciation will be modeled is that some
companies use different methods for depreciating their assets. Straight line is usually the most common method for depreciation however some companies do choose an accelerated depreciation method and the effects of constructive capitalization using an accelerated method should also be tested. To preserve comparability we will apply the same methods of depreciation to all subjects in this study, testing only the effects of constructively capitalizing leases and the two depreciation methods with all other factors held constant.

After the depreciation is figured and the interest payments are calculated, we will be able to reconstruct the balance sheet and the income statement of each airline to reflect the changes we made. The control and both depreciation (SL and DDB) models of the balance sheet and income statement will be displayed side by side for comparison for each airline. A standard tax rate of 40% consistent with the Imhoff 1997 model will be applied before net income.

With the complete models we will then be able to run our test ratios to determine key differences between what our models show and what the control shows. Each ratio and what it indicates will be discussed in detail regarding its effect on the user.

**Test Model**

Company A has filed its 10-k on February 2, 2011 for the period ending December 31, 2010. Its operating lease liabilities after 2010 (assuming due at the beginning of the period) were as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Amount Due in Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>10,000</td>
</tr>
<tr>
<td>2012</td>
<td>11,000</td>
</tr>
<tr>
<td>2013</td>
<td>12,000</td>
</tr>
<tr>
<td>2014</td>
<td>13,000</td>
</tr>
</tbody>
</table>
To determine the present value of these cash flows, we use the discount rate of 10% as adopted from the Imhoff 1997 model. Since the cash flows are different, we discount them independently using the PV formula:

\[ PVF = \frac{1}{(1+i)^n} \]

Where \( i \) is set at .1 and \( n \) represents the number of periods. We will then multiply the PVF by the appropriate lease payment to obtain our PV of the operating lease payment.

Since we don’t know the actual cash flows of the $20,000 figure for leasing obligations thereafter, we divide the $20,000 evenly over 5 years to accommodate a lease period of 10 years.

\[ \frac{20,000}{5} = 4000 \]

Our PV of the operating lease will equal (rounded to the nearest dollar):

\[ 9,091 + 9,091 + 9,091 + 8,880 + 8,696 + 2,258 + 2,051 + 1,869 + 1,695 + 1,544 = 54,191 \]

We hold the same assumptions as the Imhoff 1997 model regarding the amount of relevant operating lease assets. Therefore we account for all operating lease obligations when we calculate the value of our lease asset and liability.

Depreciation is calculated using both Straight Line (SL) and Double Declining Balance (DBD) methods.

Straight Line:

\[ \frac{54,191}{10 \text{ years}} = 5,419 \text{ in year one} \]

\[ \frac{54,191}{10 \text{ years}} = 5,419 \text{ in year two} \]

Double Declining Balance:
100% / 10 years = 10% for SL 2 x 10% = 20% for DBD

$54,191(.2) = $10,832 in year one

$43,359(.2) = $8,672 in year two

January 1, 2011

Entries under Operating Method

Rent Expense $10,000
Cash 10,000

Entries under Capital Method

Leased Equipment  Capital Leases $54,191
Lease Liability 54,191
Lease Liability 10,000
Cash 10,000

December 31, 2011

Entries under Operating Method

None

Entries under Capital Method (Interest 10% and Depreciation SL and DBD)

Interest Expense $4,419
Interest Payable 4,419
Depreciation Expense (SL) 5,419
Accumulated Depreciation – Capital Leases (SL) 5,419
Depreciation Expense (DBD) 10,832
Accumulated Depreciation – Capital Leases (DBD) 10,832
We then plug these entry values back into the balance sheet and income statements and restate assuming values of 3,000,000 Assets, 1,000,000 for Liabilities, and 2,000,000 for Stockholders’ Equity before adjusting for our entries:

### Balance Sheet

**December 31, 2011**

<table>
<thead>
<tr>
<th>Account</th>
<th>As Reported</th>
<th>Constructively Capitalized with SL</th>
<th>Constructively Capitalized with DBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>$2,990,000</td>
<td>$3,038,772</td>
<td>$3,033,359</td>
</tr>
<tr>
<td>Liabilities</td>
<td>1,000,000</td>
<td>1,048,610</td>
<td>1,048,610</td>
</tr>
<tr>
<td>Equity</td>
<td>1,990,000</td>
<td>1,990,162</td>
<td>1,984,749</td>
</tr>
</tbody>
</table>

### Income Statement

**December 31, 2011**

<table>
<thead>
<tr>
<th></th>
<th>As Reported</th>
<th>Constructively Capitalized with SL</th>
<th>Constructively Capitalized with DBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>$500,000</td>
<td>$500,000</td>
<td>$500,000</td>
</tr>
<tr>
<td>Operating Expenses</td>
<td>360,000</td>
<td>359,838</td>
<td>365,251</td>
</tr>
<tr>
<td>Operating Income</td>
<td>140,000</td>
<td>140,162</td>
<td>134,749</td>
</tr>
<tr>
<td>Other Expenses</td>
<td>80,000</td>
<td>80,000</td>
<td>80,000</td>
</tr>
<tr>
<td>Income before Taxes</td>
<td>60,000</td>
<td>62,162</td>
<td>54,749</td>
</tr>
<tr>
<td>Tax Expense (40%)†</td>
<td>24,000</td>
<td>24,865</td>
<td>21,900</td>
</tr>
<tr>
<td>Net Income</td>
<td>36,000</td>
<td>37,297</td>
<td>32,849</td>
</tr>
</tbody>
</table>
As we can see, the numbers on the statements change in relation to both constructive 
capitalization and the method of depreciating that capitalized amount. Our model will conclude 
by testing the effects of these changes on the following ratios:

Current Ratio:

\[
\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}
\]

Quick Ratio (Acid Test Ratio)

\[
\text{Quick Ratio} = \frac{\text{Quick Assets}^2}{\text{Current Liabilities}}
\]

Debt to Equity Ratio

\[
\text{Debt to Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Stockholders' Equity}}
\]

Return on Assets Ratio

\[
\text{Return on Assets Ratio} = \frac{[\text{Net Income} + \text{Interest Expense (net of tax)}]}{\text{Average Total Assets}^3}
\]

**Clarification of Terms**

1. Our 40% tax rate comes from an earlier model developed by Imhoff, Lipe and Wright.
2. Quick Assets refer to assets that are either cash or can be quickly converted to cash. 
   (Typically cash and receivables) It is viewed as a slightly stricter test of liquidity than the 
   current ratio.
3. Average Total Assets refers to the average of total assets between two years. For a report 
   ending December 31, 2010, the average of total assets would be the sum of total assets in 
   the year ended December 31, 2009 and the year ended December 31, 2010 divided by 
   two.
References


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