

Lease Accounting and US Transportation Industry

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Abstract

This paper investigates the implications to financial ratios in the context of lease accounting. Total US investment in equipment & software exceeded \$1 trillion in 2009, and end-users are estimated to finance approximately 51% (or \$518 billion). By classifying the asset acquiring in the form of a lease, the corporation can manipulate its accounting ratios and show a favorable financial performance. The abuse in lease classification can serve the unethical conduct of hiding debt problems. This paper would focus on the transportation industry because carriers typically engages in a significant amount of leased assets, such as trucks, vessels, and airplanes, of which managers have inclined to treat them as operating leases. For example, research findings indicated that the average ratios of operating lease to capital lease payments for stores was about 18 to 1; while the ratio for airlines was about 26 to 1. Find a proper way to assess the financial ratios of such companies in the context of lease accounting provides a fruitful area research.

Keywords: Accounting ratios, capital lease, operating lease, lease capitalization, transportation industry, G4+1.

1. Introduction

Managers can improve the looks of their year-end balance-sheets by structuring their leases for expensive assets. In 1976 the US Financial Accounting Standards Board (FASB)¹ issued the accounting standard for leases,² which provided guidance on how to distinguish “capital” leases from “operating” leases.

Since leases do not appear as long-term debt, by structuring the asset acquiring as a lease, the corporation can show a favorable debt-to-equity ratio (D/E ratio). The D/E ratio shows the relative proportion of shareholders' equity and debt used to finance a company's assets (Peterson, 2006). The D/E ratio measures how much money a company should safely be able to borrow over long periods of time. The D/E ratio compares the company's total debt (including short term and long term obligations) with the owner's equity. The two components of the ratio are taken from the firm's balance sheet.

The abuse in using the leasing arrangement to hide the debt problems of their companies was the key motivation of establishing the FASB 13. When a firm has a large amounts of operating leases, such as transportation companies in air and ocean carriage, of which its carriage capacity is achieved by signing long term time charterparties, lease accounting becomes a critical issue when outside creditors need to evaluate the financial performance of these companies. For example, the 1973 balance sheet of United-Airlines recorded \$936 million in long-term debt and \$700 million in equity capital, which gave the impression of a manageable ratio. However, the capitalized value of outstanding leases was \$815 million; if adding this contractual

¹ In the US, the FASB is the designated organization for establishing standards of financial accounting that govern financial reports preparation. The standards set by FASB are officially recognized as authoritative by the Securities and Exchange Commission (SEC) (Financial Reporting Release No. 1, Section 101, and reaffirmed in its April 2003 Policy Statement) and the American Institute of Certified Public Accountants (Rule 203, Rules of Professional Conduct, as amended May 1973 and May 1979).

² Statement of Financial Accounting Standard No. 13 “Accounting for Leases” (hereafter “FASB 13”).

commitment to the long-term debt, the readers would immediately see United-Airlines faced a serious debt problem.³

This paper would focus on the transportation industry because carriers typically engages in a significant amount of leased assets, such as trucks, vessels, and airplanes, of which managers have inclined to treat them as operating leases. To properly assess the accounting ratios of such companies, the area of lease accounting should deserve the attention of academia and the professional literature.

This paper examines the current accounting treatment for operating leases, particularly with its impacts on the calculation of key accounting ratios. This is a fruitful area of research for two reasons:

- (1) *Given the practical nature that accounting ratios are commonly used as tools to determine creditworthiness of a company.*
- (2) *The current activities of the FASB and the IASB⁴ on reviewing the accounting standards on “operating” leases.*

2. Lease Financing

Lease financing provides a significant source of funds for businesses to acquire asset items. In 1994, leasing provided approximately one-eighth of the world's annual equipment financing requirements, and leasing in the US alone amounted to \$140.2 billion (London Financial Reporting Group 1996). In just 15 years, total US investment in equipment and software in 2009 exceeded \$1 trillion. End-users are estimated to finance approximately 51% of this amount of equipment investment, or \$518 billion (Equipment Leasing and Finance Association, 2009).

Leasing arrangement has particular implications to transportation companies. For example, transportation sectors are losing money as the US dollar has lost about 25 percent of its value from 2004 to 2008, according to the Federal Reserve's Trade Weighted Major Currency Dollar index, and almost 10 percent against China's yuan in 2007 (Hoffman, 2008). In order to find a suitable strategy for survival, transportation companies are increasing using software to aggregate enormous amounts of shipping data in its own data farms. In the US, more than half of all investment in equipment and software is currently being acquired under leases (Equipment Finance and Leasing Foundation, 2007).

One potential benefit of leasing is that management can respond to economic changes more quickly in adjusting the company's fixed asset requirements. Although lease financing is often more expensive than other types of debt financing, leasing can allow managers to find the most productive configuration by trying different types of equipment.

One of the major concerns in reporting lease agreements is the possibility of off-balance-sheet financing (SEC, 2005). Off-balance-sheet financing allows a company to keep off capital expenditures from a company's balance sheet through various classification methods. Therefore, a manager can use off-balance-sheet financing to keep the debt to equity (D/E) and leverage ratios low. One typical motivation for a manager to adopt off-balance-sheet financing is that when the loan agreement a company previously entered into has included a term that a large expenditure would break negative debt covenants. Operating leases are one of the most common forms of off-balance-sheet financing.

By signing an operating lease, a company may realize the future economic benefits of an asset without recording either the asset or the obligation of lease payments in its balance sheet. The cost of the lease is

³ Forbes, (Jan 15, 1975) “To Capitalize or Not to Capitalize, that is the question”, Vol. 115, Iss. 2; pg. 42.

⁴ IASB stands for International Accounting Standards Board. The IASB's membership was representative of accounting standards boards, rather than of professional accounting bodies, across national borders; therefore, it is in the best position to undertake the task of drafting a set of global accounting standards. The IASB and the FASB published the Summary Report of the Leases Working Group Meeting on February 15, 2007 to recognize the difficulty in defining the operating and finance leases. http://www.fasb.org/board_meeting_minutes/10-07-08_leases.pdf

recognized as a charge on the income statement. As a result, the leased asset is not included in the calculation of the liquidity ratios.

3. Leasing Agreement

A true leasing agreement is an executory contract. Such contract does not constitute a sale or create a security interest. Under a true leasing agreement, the asset owner allows the lessee quiet enjoyment if and only if the lessee continues to fulfill its ongoing obligations. Upon a default, the asset owner has a right to repossess the asset and bears a duty to find another lessee in mitigating damages.

The typical equipment lessor is the financial institution, such as a bank. The typical lease terms include the right of the lessee to return the leased asset at lease expiry with no further obligations, as well as optional lessee purchase and renewal rights, features which distinguish leases from loans.

The leasing terms in some industries are rather standardize, for example, the very specific nature of the regulations governing load size and the high degree of specialization of transportation companies, such as trucking and ocean carriers for containers would allow little possible variation in leasing terms.

Take the US trucking industry as an example, there is little variation in available interest rates due to the intense competition among lenders. It also means that there will be limited variations in payment terms. The length of the warranty on the truck is the key factor determines the length of the lease. A typical contract for truck leasing runs for less than 75% of the estimated life of the truck. The present value of all the lease payments is less than 90% of the fair value of the truck. The lease typically has a non-cancelable condition, and ownership of the truck will revert back to the lessor at when the lease terminates.

4. Altman Model

Accounting ratios are used to assess credit standing of a business entity. For example, the interest coverage and fixed charge coverage ratios look at a company's ability to generate income for meeting debt obligations. Debt-equity ratio looks on the relative amount of outside (creditor) funding of a company's operations.

In order to recognize the effects of leasing agreement on accounting ratios, some writers proposed a simplified decision rules. For example, Graham and Dodd's Security Analysis (Cottle et al., 1988) suggests that the off balance sheet liability from operating leases is estimated by multiplying the current period's rent expense by eight.

On the other hand, there are more sophisticated models developed for incorporating a wide array of data to judge a company's likelihood of facing financial distress. The best known model is the Altman Z-score (Altman, 1968).

In a simple version, the Altman Z-score model can be seen as a simple weighted average of the following five specific accounting ratios:

- (1) *working capital in relation to total assets,*
- (2) *retained earnings in relation to total assets,*
- (3) *earnings before interest and taxes in relation to total assets,*
- (4) *sales in relation to total assets, and*
- (5) *the ratio of market value of equity to book value of liabilities*

Even though the Altman model is some 40 years, it is the model most embraced by practitioners (IOMA, 2003). The Altman model has stood the test of time and offered the advantages of simplicity and effectiveness. Academic researchers often used the Altman model to evaluate the impacts of lease capitalization of lease arrangements (Jesswein, 2009).

5. Lease Capitalization

Current accounting standards specify two ways of reporting leased assets. Operating leases are viewed as true leasing agreements. The business entity simply reports the cost of the lease payments made in the current period as rental expense. By leasing rather than purchasing an asset, from the perspectives of operation, a company can improve its economies of scale in a way as the owner of assets, but it can reduce the costs of upgrading equipment and improve risk sharing. However, leasing arrangements can result in off-balance sheet implications to a company's financial reporting (SEC, 2005).

On the other hand, if the business enters into a noncancelable lease agreement that extends through most of the asset's useful life, the lease agreement must be capitalized. The classification rules can be found in FASB 13. The principle is that the current leasing standards determine whether leases are capitalized based on the risks and rewards of ownership. The lessee would account the contract as a capital lease if a non-cancelable lease meets any one of the following requirements:

- (1) the lease transfers ownership of the property to the lessee*
- (2) the lease contains a bargain purchase option*
- (3) the lease term is equal to at least 75 percent of the estimated useful life of the leased property,*
- (4) the present value of the minimum lease payments is at least 90 percent of the fair market value of the leased property.*

The FASB 13 approach has been highly criticized because it focuses on the contract rather than the way in which the leased asset is being used.

At one point, the FASB issued a special report supporting a position that leases should be viewed in terms of property rights, rather than ownership rights. Under this approach, many lease contracts that are classified as operating leases should be capitalized.

The first published study of the impact of lease capitalization on accounting ratios was conducted by Nelson (1963), who examined the effect of lease capitalization on the debt-equity ratio of eleven US companies. Nelson found a significant change in the rankings of the companies after capitalisation compared to before capitalization.

More recently, professor Eugene A. Imhoff from University of Michigan, developed a method to estimate the impact of operating lease capitalization on two ratios (return on assets and debt to equity) for 14 US companies (seven matched industry pairs, selected to represent high and low operating lease use). Imhoff's method allows key financial statement ratios to be calculated as if the noncancelable operating leases had been capitalized at their inception (Imhoff, Lipe, & Wright, 1991).

Imhoff finds material differences in the ratios for both 'high' and 'low' lessees, and concludes that operating lease capitalization can materially affect inter-firm comparisons of key financial statement ratios. Imhoff observed that most financial analysts concern over off-balance sheet financing via operating leases, however, they routinely used financial ratios without making adjustment for the lease effects. Imhoff opined that by capitalizing the long-term operating lease commitments would enhance the comparability of firm performance.

Thomas Noland, associate professor from University of Houston showed the potential impact of this approach by using a sample of 273 privately-held companies in the trucking industry (Noland, 2006). The mean and standard deviation of the sample are as following:

Mean & Standard Deviation for a sample of trucking companies <i>(dollar in thousands)</i>			
Variable	Sample Size	Mean	Standard Deviation
Sales	273	\$7450	\$2879

Incomes before taxes	273	\$284	\$411
Current assets	273	\$1083	\$766
Net operating property	273	\$1323	\$1549
Total assets	273	\$2649	\$2307
Current liabilities	273	\$811	\$621
Total debt	273	\$1645	\$1579
Current ratio	273	3.89	26.19
Debt ratio	273	0.64	0.32
Return on trans. assets	273	2.69	18.37
Profit margin	273	0.04	0.05

The variables used in the above table have significant implications in the methods in evaluating the creditworthiness of a company because (1) they are used in calculating the ratios that are used by creditors in writing the debt covenants, (2) they form the accounting numbers that are used by investors in performance valuation (Beattie, Goodacre and Thompson, 2000(a) and 2000(b)).

Noland's findings are applicable to industries where leased equipment comprises a significant portion of companies' fixed assets. The results illustrate the economic impact of leasing on the profitability and liquidity of the business as following:

1. *After capitalization, the figures looked less favorable. For example, both the current ratio and return on assets became lower; the debt ratio became higher.*
2. *Companies relied primarily on leasing appeared to be in a more favorable financial position prior to lease capitalization. Once the leases were capitalized, they were generally in a less favorable financial position than the companies which purchase the assets.*
3. *If one classifies the portion of the asset to be depreciated within the coming year as a current item, then it can reduce the impact of capitalization on the current ratio. The justification of this treatment is based on the concept of asset use rather than asset ownership. The lessee makes a contract to acquire the right to use the asset, such as a truck, then the annual right to use will expire within the coming year, and this would meet the definition of a current asset.*

6. Recent Development In Lease Accounting

The Group of Four Plus One (G4+1) represents a cooperative effort in lease accounting researches by national accounting standard setters from US, UK, Canada, Australia, and New Zealand, plus the International Accounting Standards Committee.

Conclusions reached by the G4+1 are not recognized as GAAP in any financial reporting jurisdiction. However, by the very nature of its membership, the research findings are expected to influence the future standard setting concerning lease accounting in many jurisdictions. Under the G4+1 proposal, lessees recognize the fair value of any assets and liabilities contained in a lease contract. Recognition begins when the lessor makes the asset available to the lessee. Thus, lessee balance sheets are expected to reflect additional lease liabilities if this new approach is adopted.

The Enron debacle in 2001 caused a focus on off balance sheet financing, including operating leases. The resulted Sarbanes-Oxley Act and the Public Company Accounting Oversight Board (PCAOB) were established to reduce the off-balance sheet transactions, such as synthetic leases. In 2004 there were approximately 200 public companies that needed to restate their financial results due to lease accounting issues.

Academic researches found that financial performance in terms of accounting ratios are different depends on whether one applies lease capitalization or not. Should we capitalize all the lease arrangements? Capitalizing all leases would simplify the process of classifying a lease. However, it would add complexity to the lessee because he has to calculate:

(1) the present value for every piece of asset items in the lease (could be thousands of PCs and company vehicles);

(2) the amount for depreciation on the asset over the shorter of the lease term or the useful life;

(3) the separate amounts of the lease payment between imputed interest cost and reduction in implied principal; and

(4) the amount for deferred taxes, as the lease is treated as an operating lease for income tax purposes.

Chapter 1 of the 2000 G4+1 paper⁵ sets out the deficiencies of existing accounting standards for leases. The paper then discusses the scope of revised accounting standards for leases in chapter 2.

In chapter 3, the paper discusses:

a) Whether a lessee should recognize assets and liabilities about the rights and obligations of a lease when the lessor has substantially performed its obligation to provide the lessee with access to the leased asset?

b) Whether the fair value of the rights and obligations of the lease be recorded at the beginning of the lease term?

c) Whether the fair value of the rights obtained by a lessee can be less than the present value of the total minimum payments of the lease (assuming that the lease is negotiated on an arm's length basis)?

Chapter 4 discusses contingent rentals. Chapter 5 talks about residual value of the leased asset. Chapter 6 addresses on what discount rate should be applied to the rental payments. Chapter 7 focuses on discusses the accounting approaches to sale and leaseback transactions.

In chapter 8, the paper discusses whether a gain should be recognized at the beginning of the lease term if:

(a) there is evidence that the value of the leased assets (less its liabilities) has increased as a result of the lease contract, and

(b) the increase can be measured reliably

Chapter 9 is on disclosure of separate components of the leased assets. Chapter 10 discusses the initial measurement of residual interest assets. Chapter 11 discusses the treatment of contingent rentals from the lessor's perspective. Chapter 12 discusses three alternative views on how a lessor's residual interest asset should be measured during the lease term.

7. Conclusion

⁵ The G4+1 published the document entitled “*Leases: Implementation of a New Approach*”

This paper explores lease accounting and capitalization in relation to transportation industry. There is a need for additional research related to lease accounting, especially in the context of ethics. The research should focus on the role of rules and that can enhance ethical behavior in lease classification.

The threshold for ethical behavior should be set at higher level than that of legal behavior. As indicated by the Enron tragedy, there were many smart people who knew how to maneuver around the legal rules, and these smart people showed less concerns on understanding why the rules had been written in the first place (Eichenwald, 2005). Satava et al. (2006) opined that the rule-based tradition of financial reporting could become a useful vehicle for rule manipulating in reporting financial statements.

What is the key factor that motivates a manager to hide the leased assets and related liabilities on the firm's balance sheet? The simple answer is that 'window dressing' of the financial performance promotes his self-interest. By honestly putting the lease on the balance sheet may result in violation of loan covenants, which may affect the amount of compensation he will be received as a manager, especially when his compensation is linked to the firm's earnings). The way how a manager is compensated will determine the likelihood a manager will engage in the legal but unethical rule maneuvering of structuring the lease as operating type to avoid capitalization.

Byrnes, in Business Week (June 5, 2006), estimates that S&P 500 firms have more than \$300 billion in leases that do not appear on lessee balance sheets and estimates the tally at \$1.25 trillion when all public companies are considered. The classification of lease as operating type is common in transportation sector. For example, Revsine et al. (2005) show that the average ratios of operating lease payments to capital lease payments for variety stores is 18 to 1; while the ratio for airlines is 26 to 1.

On reducing the unethical behavior in maneuvering reporting rules, such as lease classification, Satava et al. (2006) suggested that a "principles-based approach" could improve the ethical conduct of accountants and auditors. Is the approach welcome by the professionals, on commenting the ethics of structuring lease contracts to avoid capitalization, said a senior audit manager of a Big Four accounting firm: [O]n lease accounting, the rules win out and ethical behavior takes a back seat (Frecka, 2008).

An ideal approach should be found to guide managers in meeting their fiduciary responsibilities, at least in the area of lease classification, in a way to go beyond mere professionalism when reporting their financial performance to shareholders and creditors.

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