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The effect of operating lease capitalization to audit fees

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Abstract

The main objective of this study is to find out whether capitalization of operating leases has an effect on audit fees. I assume capitalized operating leases to correlate positively with audit fees. Additionally the effect of capitalized operating lease assets and total assets to audit fees is compared and assumed to be equal. The study is a quantitative study, where the main research method is an OLS regression analysis.

The data is collected from Audit Analytics and Compustat databases and it contains 731373 observations from American companies during the years 2000-2016, excluding financial institutions that do not use operating leases. Operating lease liabilities and assets are capitalized on the balance sheet using a method presented by Imhoff et al. (1991).

The central finding of this study is that capitalization of operating leases has a positive effect on audit fees. The effect is significant per se as well as when compared to the effects of other audit fee attributes. Also, the effect of capitalized operating lease assets and total assets is found not to be equal.

Keywords operating lease, capitalization, audit fees

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Tutkielman otsikko Käyttöleasingsoimusten aktivoimnin vaikutus tilintarkastuspalkkioihin

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Tiivistelmä

Tutkimuksen päätavoitteena on selvittää, onko käyttöleasingsoimusten aktivoimnilla vaikutusta tilintarkastuspalkkioihin. Oletan aktivoitujen leasingsoimusten korreloivan positiivisesti tilintarkastuspalkkioiden kanssa. Lisäksi aktivoitujen käyttöleasingvarojen ja kokonaisvarojen vaikutusta tilintarkastuspalkkioihin verrataan, ja oletan vaikutuksen olevan saman suuruinen. Tutkimus on määrällinen tutkimus, jossa pääasiallinen tutkimusmetodi on OLS regressioanalyysi.

Aineisto on kerätty Audit Analytics ja Compustat tietokannoista ja se sisältää yhteensä 731373 havaintoa Amerikkalaisista yrityksistä vuosilta 2000-2016, pois lukien rahoituslaitokset, joilla ei ole käyttöleasingsoimuksia. Käyttöleasingsoimukset on aktivoitu taseelle käyttäen Imhoff et al. (1991) esittämää metodia.

Tutkimuksen keskeisin löytö on, että käyttöleasingsoimusten aktivoiminen taseelle vaikuttaa tilintarkastuspalkkioihin positiivisesti. Vaikutus on merkittävä itsessään sekä verrattuna muiden tilintarkastuspalkkioihin vaikuttavien tekijöiden vaikutuksiin. Aktivoitujen käyttöleasingvarojen ja taseen kokonaisvarojen vaikutus ei havaitusti ole saman suuruinen.

Avainsanat käyttöleasing, aktivointi, tilintarkastuspalkkio

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1 INTRODUCTION

1.1 BACKGROUND

Growing popularity of leasing as a funding mean for assets has forced standard setters to improve lease regulation. The average use of operating leases has increased 745% as a proportion of total debt from 1980 to 2007, while the use of capital leases has fell by half. (Cornaggia et al., 2013) Currently, operating leases are hiding off the balance sheet and it is not favourable for outside parties interested in the true financial position of the company.

A new IFRS 16 standard on leases is pending to become effective and mandated in 2019, and it will force companies to recognize all leases on their balance sheet, having numerous implications from debt covenants to performance metrics. It requires companies to capitalize operating leases and show them on the balance sheet together with financial leases (Cornaggia et al. 2012).

A method for capitalizing operating leases was developed by Imhoff et al. (1991), and it presents a method for calculating the amounts of unrecorded operating lease assets and debt as if they were recorded on the balance sheet. The model has been used since to study the effects of capitalizing off-balance sheet leases and capitalization is found to affect firms' income and balance sheet items as well as performance ratios.

Another important subject area of this study is audit fees, as the purpose of this study is to examine the effect of capitalizing operating leases to audit fees. To better understand audit fees, auditing and the pricing of it needs to be addressed. Auditing provides independent assurance of the credibility of accounting information, therefore it serves financial statement users in valuing companies and per se increases the value of financial statement information. Increased value of financial statement information improves resource allocation in the markets as well as contracting efficiency (DeFond & Zhang, 2014), and auditing is required by law for operability and efficiency of markets. Auditors charge audit fees in exchange of auditing and there are different aspects affecting on how auditor's charge.

Earliest significant audit fee research was done by Simunic (1980), who suggested that audit fees are a function of firm-specific factors that increase auditor's risk and of work required to complete the audit. There is a wide variety of preceding literature about audit fee attributes, and some attributes such as auditee size, risk and complexity are commonly agreed significant audit fee attributes among audit fee studies. Size of the auditee is the most significant and unanimously recognized explanatory variable of audit fees, as other variables have mixed results. (Hay, Knechel & Wong, 2006)

1.2 OBJECTIVES AND CONTRIBUTION

The field of operating leases is changing which makes studying the effects of capitalization a timely subject. The new IFRS 16 standard on leases brings on important questions regarding companies' financing strategies, and even though the possible material effects of IFRS 16 are yet to be seen, it is interesting to try to predict them. When operating leases are to be brought to the balance sheet in a similar way than financial leases, management faces big decisions and possible changes as companies' might want to alter their financing structure to achieve the most favourable capital-debt structure.

Auditors are among the first ones to examine the possible changes of the IFRS 16 through audits. As audit pricing is based on different auditor and client related determinants, it is interesting to see if capitalization of client's operating leases has an effect on audit fees. The results could help predict the audit pricing market's reaction to the new standard.

The main objective of this study is to examine whether off-balance sheet operating leases are relevant to auditors and have an effect on audit fees. OLS regression analysis is used together with other analysis methods to study the effects of operating leases. Secondary object is to contribute to the audit fee research by presenting an overview of the most important audit fee determinants and presenting a new possible audit fee determinant, as well as contribute to the field of operating leases by giving an extensive review of operating leases and their capitalization.

The capitalization method used in this study is developed by Imhoff et al. (1991) and since it has been used in many studies, but there does not exist studies on the effects of lease

capitalization to audit fees. The literature on audit fees is mostly focused on the effects of financial statement items or economic events to audit fees. Overall the effects of off-balance sheet items are generally less studied, which motivates to study the field. Also, as lately off-balance sheet accounting has faced some criticism and a new standard to recognize all leases is to become mandated, the effects of operating leases are currently a very timely and interesting topic. Today, operating leases are an important source of funding for many companies, like their immense growth suggests, which makes changes in legislation particularly interesting as they affect so many companies and their debt-to-asset ratios and companies are likely to invent new ways to avoid capitalizing all leases.

It is natural to analyse the effects of operating leases to audit fees, as audit fees are constantly changing and all kind of economical and legislative changes and situations reflect on them through companies. There is no simple method of audit pricing, and there are many different attributes known to affect audit fees and this makes it tempting to try to find some additional forces and attributes that affect audit fees. This study brings in a new attribute that could affect audit fees.

1.3 METHODOLOGY AND DATA

The study is a quantitative analysis that uses ordinary least squares (OLS) regression analysis to test the research hypotheses. The dependent variable of the model is audit fees and independent variables include some control variables as well as the main research variables examining the effect of capitalized operating leases to audit fees. I transferred all the continuous variables to logarithm in order to reduce skewedness and help in interpreting the results.

The variables for capitalized operating leases were logCAP_LIAB and logCAP_A, of which the former was eliminated in the process as together they correlated too much and therefore misled the results. The research variable logCAP_A measures capitalized operating lease assets, which are calculated from the capitalized liabilities by the chosen capitalization method (Imhoff et al., 1991).

Other variables are chosen according to audit fee literature and the chosen control variables are found to affect audit fees by studies. These variables include total assets transformed to logarithm, indebtedness measured by liabilities divided by assets, and three dummy variables; BIG4, having the value one if the auditor is one of Big 4 firms; LOSS, having the value one if the firm has experienced a loss in the previous fiscal period and BusyPeriod, having the value one if the fiscal period ends in December. The regression model also includes year dummies for all of the years 2000-2016, to control for the effects of yearly changes.

The data in our research was obtained from Wharton Research Data Services databases. Audit fee data was from Audit Analytics database and all other data was obtained from Compustat database. Our total sample consisted of 731373 observations from North America, of firms between the years 2000 and 2016. Observations that did not contain all of the data values were omitted. Observations were from different industry firms, excluding financing firms with SIC codes 6000-6999, because they normally do not have operating leases. Data from Audit Analytics and Compustat databases was merged using SAS program in order to match company specific data to audit fee data. Companies' standard industrial classification (SIC) codes were used as the linking data in both data groups.

1.4 STRUCTURE

After the introduction the study continues with a chapter about operating leases. The accounting of operating leases is presented and a legal framework for using operating leases in the U.S. and Europe is given. Then begins the literature review, starting with prior studies on operating leases and capitalization. The capitalization method used in this study is presented in this chapter. The next chapter is a literature review on audit fees, focusing on prior studies of audit pricing and audit fee determinants. After the literature reviews the study continues to the hypothesis development. Then the research model and variable construction is explained, followed by a presentation and discussion of the results. In the final paragraph, a conclusion is presented together with limitations and possible future research topics.

2 ACCOUNTING ON OPERATING LEASES

2.1 BACKGROUND OF OPERATING LEASE ACCOUNTING

A lease is a contract in which the owner of an asset – the lessor – conveys to another party – the lessee – the right to use that asset in exchange for a usually monthly lease payment. The legal right to that asset remains with the lessor. When a lease contract is signed and obligations of both parties are determined, it is still unperformed, and therefore accounting of leases is not so clear. (Revsine et al. 2017)

There are different kind of leases. Financial leases are typical leases for acquiring property, plant and equipment and their accounting is equivalent to purchasing an asset. Operating leases are usually used to acquire assets for a shorter period of time and their accounting differs from asset purchases as they are simply rental agreements between parties. For operating leases, lessee simply uses an asset, typically equipment or property, until he gives it away. The title to the asset does not transfer to the lessee during or after the lease period, unlike in financial leases where the lessee has control over the asset as risks and rewards pass to the lessee. These two leasing methods contain different benefits and disadvantages that are discussed below. (Revsine et al. 2017)

There are different reasons for using operating leases, one evident being working in an industry of big equipment such as aircraft that profits from leasing part of its equipment. Leasing is a financially good way to fund business. For financially distressed firms that may be unable to raise debt or equity capital to purchase equipment, leasing is a way to get it, and at the same time it does not affect the financial position as no debt is recorded to the balance sheet. (Cornaggia et al, 2012; Eisfeldt & Rampini, 2009; Rampini & Viswanathan, 2013)

The accounting of operating leases gives companies also other benefits apart from the non-affected debt amount. If a company needs an assets for a short time, there is an obvious practical benefit in taking an operating lease. Also, as leased equipment are off-balance sheet, they do not affect ratios containing debt or asset elements, and therefore do not affect company's apparent profitability. Operating leases also improve turnover ratios as their

assets contribute to the normal production process and enable better sales without increased debt or assets.

Lease accounting has been a controversial subject for long. Leases are an important way to finance businesses, and the rapidly expanded use of operating leases has given incentives for regulators around the world to improve and change the regulation of leases in cooperation. The following table 1 (FASB/IASB meeting memo, 2007) gives a background for the current lease regulation situation.

Table 1: Lease regulation through history

Year	Author	Doc	Title
1949	AICPA	ARB 38	<i>Disclosure of Long-Term Leases in Financial Statements of Lessees</i>
1962	AICPA	ARS 4	<i>Reporting of Leases in Financial Statements</i>
1964	APB	APB Opinion 5	<i>Reporting of Leases in Financial Statements of Lessees</i>
1966	APB	APB Opinion 7	<i>Accounting for Leases in Financial Statements of Lessors</i>
1972	APB	APB Opinion 27	<i>Accounting for Lease Transactions by Manufacturer or Dealer Lessors</i>
1973	SEC	ASR 132	<i>Reporting of Leases in Financial Statements of Lessees</i>
1973	SEC	ASR 141	<i>Interpretations and Minor Amendments Applicable to Certain Revisions of Regulation S-X</i>
1973	APB	APB Opinion 31	<i>Disclosure of Lease Commitments by Lessees</i>
1973	SEC	ASR 147	<i>Notice of Adoption of Amendments to Regulation S-X Requiring Improved Disclosure of Leases</i>
1974	FASB	DM	<i>An Analysis of Issues Related to Accounting for Leases</i>
1975	FASB	ED	<i>Accounting for Leases</i>
1976	FASB	ED (Revised)	<i>Accounting for Leases</i>
1976	FASB	FAS 13	<i>Accounting for Leases</i>
1980	IASC	ED (E19)	<i>Accounting for Leases</i>
1982	IASC	IAS 17	<i>Accounting for Leases</i>
1997	IASC	ED (E56)	<i>Leases</i>
1997	IASC	IAS 17 (Revised)	<i>Leases</i>
2003	IASB	IAS 17 (Revised)	<i>Leases</i>
1996	G4+1	Special Report	<i>Accounting for Leases: A New Approach</i>
1999	G4+1	Special Report	<i>Leases: Implementation of a New Approach</i>

Table 1 presents the history of lease regulation. From 1949, long-term leases have been regulated. The earliest regulation on leases, ARB 38, required that material long-term leases be disclosed in the financial statement or notes. More concern was on disclosing the liabilities, as omitted liabilities were seen to affect judgments of financial statements more.

Over ten years later, new regulation ARS 4 was issued as the importance of leases had grown and disclosure adjustments needed to be made for the financial statements to be more relevant and informative. The authors of ARS 4 argued that there are also right-to-use assets where the lessor does not have ownership of the asset, and that in all cases all leases should be recognized on the balance sheet at the discounted present value of cash flows. (FASB/IASB, 2007)

Two years later, APB Opinion 5 on reporting of leases was issued, as it was noted that previous requirements had not reached wanted results. No consistent pattern of lease disclosure nor enough capitalizations of leased property had emerged from the previous obligations. Opinion 5 differentiated from ARS 4 in the definition of an asset as it stated that property rights conveyed by a lease do not meet the definition of an asset themselves, but the lessee must also create equity by the lease arrangement for it to be considered as an asset. In the following years, two other APB Opinions on lease accounting were issued. They described how lessors are to account and present leases on their financial statement. (FASB/IASB, 2007)

In 1973, in total four regulatory documents were issued. The focus was on lessees' accounting and reporting of leases. Three of the documents were issued by SEC and the first two did not present any new models for lease accounting but specified how lessees are to record leases according to the current regulation. After two SEC's releases, APB issued an Opinion that required less disclosure for leases than SEC had previously identified to be needed. SEC's last publication that same year was provoked by APB's release and as a response to the light disclosure requirements it presented the most extensive recognition and disclosure requirements to date and criticized the previous excessively light requirements.

In 1974, Financial Accounting Standards Board (FASB) Discussion Memorandum discussed new lease accounting models and provided a list of criteria for capitalizing leases. During

the following years, FASB Memorandum was followed by two FASB Exposure Drafts in 1975 and 1976 on the accounting of leases. The Drafts provided models for lease accounting and updated the criteria for lease capitalization. Later the same year, FASB issued the standard FAS 13; *Accounting for leases*, based on the exposure draft. FAS 13 is presented in more details in the next chapter.

In 1980, International Accounting Standards Committee (IASC) followed FASB by issuing its own Exposure Draft on lease accounting, which was very similar to the FAS 13. Two years later the Exposure Draft led to issuance of IAS 17; *Leases*, which was based on the same requirements as FAS 13. Since then, both standards have been revised a few times and today they have some important differences between them, which are presented below in table 2, after presenting both standards in detail. (FASB/IASB, 2007)

In addition to the leasing standards, in 1996 and 1999, a special report was published by Australia, Canada, New Zealand, the United Kingdom and the United States (named the G4+1), together with IASC, with the objective to develop common rules for leasing and to unify lease accounting. The amount of leasing had reached the volume of \$140 billion worldwide and the group G4+1 proposed new elements for lease accounting and disclosure to be considered in order to increase the comparability and usefulness of financial statements.

The new lease accounting elements were focused on fair value accounting of rights and obligations conveyed by a lease, recorded as the present value of the minimum payments required by the lease plus any other liabilities incurred. Lessors should report financial assets representing amounts receivable from the lessee and residual interests as separate assets. The amounts reported as financial assets by lessors would, in general, be the converse of the amounts reported as liabilities by lessees. (FASB/IASB, 2007)

2.2 FAS 13

The Financial Accounting Standards board (FASB) is responsible for U.S. Corporations' Generally Accepted Accounting Principles (GAAP). FASB regulates lease accounting by FAS 13, *Accounting for leases*. The most recent revision of FAS 13 became effective in February 2016, and today the standard is also known as Accounting Standards Codification

(ASC) Topic 842. As IFRS issued the new lease accounting standard IFRS 16 in January 2016, there was also need for FASB to update the lease accounting policies.

FAS 13 became effective in 1976. FAS 13/Topic 842 lets organizations classify their leases as financial lease – called capital lease in the U.S. and in FAS 13 – or operating lease. According to FAS 13, if even one of the below requirements is met at the inception of lease, then the lease has to be classified as a financial lease and capitalized on the balance sheet:

(FASB, 1976)

- the lessor transfers ownership of the asset to the lessee by the end of the lease term
- the lease contains a bargain purchase option to the lessee
- the lease term is equal or exceeds 75% of the asset's estimated economic life
- the present value of the minimum lease payments at the inception equals or exceeds 90% of the asset's market value

If none of the requirements are met, then a lease may be considered an operating lease and treated as such. If parties to a lease contract decide to change the provisions of the lease during the leasing period, so that it affects the classification, then the modified contract is considered a new contract. If the lease term is under 12 months, the lease may be considered as neither of the above and it can be presented as rentals that do not need to be disclosed in the footnotes. (FASB, 1976)

If a lease is a financial lease, the lessee recognizes it as a depreciable asset on its balance sheet and an obligation, debt on the balance sheet, equal to the present value amount of the future minimum lease payments or the fair value if it is lower, excluding other related costs to be paid by the lessor. On the income statement, lease payments are divided into interest expense and obligation payments. Leases are disclosed in lessee's financial statement with specified information on future minimum payments, gross amount of assets, subleases and contingent rentals. Lessor recognizes an asset on its balance sheet and lease receivables for the present value of the rents, and discloses all the essential information on its financial statement. (FASB, 1976)

Operating leases are not recognized by the lessee on its balance sheet, the lessee only records monthly payments as rent or operating expenses on the income statement and therefore the asset does not affect lessee's assets or liabilities. Rental expense is recognized on a straight-line basis, unless another basis is more representative. Lessee will disclose in its financial statement or footnotes the future minimum rental payments required, total amount of minimum rentals to be received, rental expenses, contingent rentals and sublease rentals, and a general description of the lessee's leasing arrangements. Lessor recognizes the asset on its balance sheet and records straight-line depreciation expenses normally, as well as records receivables from the lease as rent revenue. (FASB, 1976)

2.3 IAS 17

In Europe, the International Accounting Standards Board (IASB) is responsible for setting regulation for European corporations. IASB regulates lease accounting by IAS 17, *Leases*, which became effective in 1997 and was revised in 2010.

According to IAS 17, a lease is classified as a financial lease if it transfers all of the risks and rewards incidental to ownership of an asset. All other leases are operating leases. IAS 17 includes restrictions about applicable lease types, and it is not applied to: (IASB, 1997)

- leases to explore for or use minerals, oil, natural gas or other similar resources
- licensing agreements for films, video recordings, plays, manuscripts, patents and copyrights
- property held by lessee and accounted as investment property
- investment property provided by the lessor under operating leases
- biological assets held or provided by the lessee under financial or operating leases

Classification is done at the inception of the lease and if parties to a lease contract are to change the provisions of the lease so that it would affect the classification, the revised agreement is considered as a new agreement. If a lease includes both land and buildings, each element is to be assessed and classified separately, but not if lessee wants to classify both as investment property and financial lease at the fair value, which is allowed under IAS 40.

In addition to the formal classification requirement, IAS 17.10 provides examples of situations where a lease would normally be classified as a financial lease: (IASB, 1997)

- the lease transfers ownership of the asset to the lessee by the end of the lease term
- the lessee has the option to purchase the asset at a bargaining price that is expected to be sufficiently lower than the fair value at the day of the option becoming exercisable, and it is reasonably certain
- the lease term is for the major part of the economic life of the asset even if it is not transferred
- the present value of the lease payment at the inception amounts to the fair value of the leased asset, at least substantially
- the leased assets are of specialized nature so that only the lessee can use them without major modifications

At the inception, lessee's recognition of financial lease as assets and liabilities is at the fair value or present value of minimum lease payments. If present value of lease payments is lower, then it is applied. Discount rate used in the present value calculation is the interest rate of the lease, or the lessee's borrowing rate if the former is not determinable. Any additional direct costs related to the lease are added to the amount of the asset.

If the lease would not be recognized as an asset and a liability, it would distort financial ratios and underestimate economic resources. Financial lease is disclosed under IFRS 7's requirements concerning financial instruments, but also further disclosures can be made. Lessors recognize assets as financial lease in the balance sheet and receivable at the income statement at an amount equal to the net investment in the lease. (IASB, 1997)

For operating leases, lessee usually recognizes the lease as an expense on a straight-line basis over the lease term. In addition to meeting the requirements of IFRS 7, lessees can make the following disclosures for the reporting period: (IASB, 1997)

- the total of future minimum lease payments under non-cancellable operating leases, for not later than one year, not later than five years and later than five years

- the total of future minimum sublease payments expected to be received under non-cancellable subleases
- lease and sublease payments recognized as an expense, with separation to minimum lease payments, contingent rents and sublease payments
- a general description of the lessee's significant leasing arrangements

Lessors recognize assets in the balance sheet according to the nature of the asset and the leasing income is recognized as income on a straight-line basis, if no other basis is more representative, on the income statement. Direct costs related to negotiations or arrangements will be added to the carrying amount of the leased asset and recognized as expenses over the lease term on the same basis as the lease income. Depreciation of an asset will be consistent with lessor's normal depreciation policy. In addition to IFRS 7, lessors can also disclose following information: (IASB, 1997)

- the future minimum lease payments under non-cancellable operating lease, for not later than one year, not later than five years and later than five years
- total contingent rents recognized as income in the period
- a general description of the lessor's leasing arrangements

2.4 DIFFERENCES BETWEEN FAS 13 AND IAS 17

FAS 13 and IAS 17 have some important differences, despite both regulating leases. FAS 13 regulates lease accounting in the U.S. and IAS 17 mainly regulates countries of the European Union. The main differences from the point of view are presented below: (FASB, 1976; IASB, 1997)

Table 2: Most significant differences between IAS 17 and FAS 13

Attribute	IAS 17	FAS 13
Naming of a lease that transfers risks and rewards to the lessee	Financial lease	Capital lease
Scope of standard	Applies to all kind of assets, also intangible	Only applies to property, plant and equipment
Classification of lease	Depends on the substance of the lease	Depends on criteria, lease is capital lease if meets criteria, otherwise operating lease
Leases of land and buildings	Leases of land and buildings are assessed and classified separately	Leases of land and buildings are usually accounted as a single unit
Borrowing rate for calculating minimum future payments	Implicit interest rate of the lease used to calculate minimum payments, unless it is not practicable to determine, then incremental borrowing rate	Incremental borrowing rate of the lessee used to calculate minimum payments, unless implicit rate is known and lower
Depreciation	Operating lease depreciated over the lease term or the useful life of the lease, depending on which one is shorter	Operating lease depreciated over the lease term
Future rent disclosures	Three groups for future rent disclosures; first year, years two to five, and years beyond five	Every year for the first five years, then the remaining total amount

2.6 THE NEW LEASING STANDARD – IFRS 16

On January 2016, a new regulation for leases was issued by the International Accounting Standards Board (IASB), after many years of development. Around the same time, FASB also issued new, improved lease accounting standard, Topic 842. These new standards were developed in cooperation, and both become mandated on January 2019. First the IFRS 16 is presented.

IFRS 16 specifies how leases are to be recognized, measured, presented and disclosed under International Financial Reporting Standards (IFRS). The new standard has many similarities to the previous IAS 17, and it is viewed as an improved version of IAS 17, which aims to improve the treatment of leases in financial statements as well as increase transparency of financial statements.

IFRS 16's single lease accounting model completely changes the accounting of leases for the lessee, since it requires the lessee to recognize all leases over 12 months as assets on its balance sheet, unless they are of low value. Over 85% of leases are estimated to be operating leases (IFRS publication, 2016) so IFRS 16 will have significant effects on companies' balance sheets.

In IFRS 16, at the inception of a lease, the lessee will recognize a right-of-use asset and a lease liability. The right-of-use asset is measured at a cost model, at the amount of the lease liability plus any initial direct costs incurred by the lessee and less any accumulated depreciation costs or impairment. The leased liability is measured at the present value of the lease payments, discounted at the implicit rate or if it is not determinable then at the incremental borrowing rate, as in IAS 17. Lessor's treatment of leases is not affected as the lessor already classifies leases as financial or operational under IAS 17.

IFRS 16 applies to almost all leases, with some mentionable exceptions: leases to explore for or use minerals, oil, natural gas or other similar resources, biological assets and licenses of intellectual property. A contract is a lease if it conveys the right to control the use of an identified asset for a period of time in exchange for consideration. Control is conveyed when the lessee has the right to direct the asset's use and obtain substantially all the economic benefits from its use. (IASB, 2016) If a lease contains also non-lease components, the lessee

will allocate separately the consideration payable on the basis of estimated stand-alone prices, or allocate all components of the lease together. Lessors will allocate consideration in accordance with IFRS 15; *Revenue from Contracts with Customers*. (IASB, 2016)

IAS 17 let companies treat financial and operating leases differently, but as IFRS 16 requires all leases to be recognized, companies can no longer benefit from hiding operating leases in their footnotes. As over 85% of leases are operating leases, off-balance sheet, investors have had difficulties estimating profitability of firms, and the new IFRS 16 is mainly developed for the needs of investors. Capitalization of operating leases increases comparability between financial statements of firms leasing and firms buying assets, which facilitates investor decisions. IFRS 16 will reduce investors' needs to make adjustments by providing a richer set of information and increasing relevancy of financial statements. (IASB, 2016) Also, IFRS 16 simplifies lease accounting as all leases are recognized in a similar way. (IASB, 2016)

IFRS 16 will affect financial statement items and ratios. IFRS 16 affects some sectors more than others, airline, retail and traveling industries for example are known to use off-balance sheet leases extensively and therefore the new standard will significantly affect these industries. (IFRS publication, 2016) Assets and liabilities on financial statement will increase for firms based on how much operating leases they had, and this affects asset turnover ratios and debt-to-equity ratios. Increase of debt can affect covenants so companies must be careful not to breach covenant terms. When IFRS 16 is applied, companies are expected to evaluate the lease terms and definitions more rigorously which can lead to recognition of different amounts of lease liabilities than today's operating lease commitments suggest. (IASB, 2010)

IASB (2017) recently published an update on the implementation of IFRS 16. It evaluates how companies are doing with the required changes and discusses the transition options and benefits. According to the publication, the transition comes with available cost savings to companies that carefully choose the right options in implementing the new standard. The IASB publication mentions some examples of possible cost savings; taking the least costly options will lead to approximations in the companies' financial statements which will affect reported amounts possibly for several years; for long-term leases of large assets companies

may prefer to include extra costs gathering historical data to avoid a higher depreciation charges in the income statement; and companies may measure right-of-use assets on the date of initial application of IFRS 16 without using historical data, which may lead to higher amounts than when using historical data. It is therefore crucial that companies think about their transition choices as early as possible, as it enables them to get the most benefits as in cost savings and reporting quality. (IASB, 2017)

The effects of capitalizing operating leases have been discussed and some companies have been frightened by the possible negative effects (see table 3), but financial statements users are confident there are no surprises in applying the new IFRS 16. It is not expected to give rise to changes in credit ratings or in cost of finance, since credit-rating agencies and lenders have already estimated the effects of off-balance sheet leases on financial leverage and for them nothing is expected to change when IFRS 16 is applied. Nevertheless, a survey done at an IFRS Foundation conference declares that only 45% of companies surveyed at said they will have the same amount of leases when they apply IFRS 16 in 2019. (IASB, 2010)

The table 3 below further illustrates the changes in leasing policies IAS 17 and IFRS 16, as well as explains the reasons for changes and shows their implications at firms' perspective. (IASB, 1997; IASB, 2016; IASB, 2016, Investor perspective)

Table 3: IFRS 16 effects and differences to IAS 17 summarized

Attribute	IAS 17	IFRS 16	Why	Impact
<i>Classification of leases</i>	Leases classified as financial or operating.	All leases to be treated as financial leases.	To increase transparency and comparability.	Increased transparency and comparability between different firms' financial statements.
<i>Accounting treatment</i>	Treatment of operating leases is less complex than of financial leases and their volume is greater.	All leases treated the same.	Accountants have not had challenges with operating leases as they are off-balance sheet.	More work, time spent and interaction with other departments for accountants.
<i>Measuring and interest rate</i>	Financial lease assets and liabilities measured at fair value or at the minimum lease payments if they are lower. Implicit rate used in calculations if known, otherwise lessee's borrowing rate. Any direct costs are added to asset's value.	Liabilities measured at the present value of future lease payments. Implicit rate used if known, otherwise incremental borrowing rate. No mention of fair value or minimum lease payments.	New standard aims to provide a consistent view of lease obligations and to achieve this measurements need to be specifically defined to ensure a consistent measurement approach.	Measurement of operating lease assets and liabilities previously not done. Requires work and extensive data collection to capture all relevant information for the measurement.

<i>Nature of expenses</i>	Straight-line operating lease expenses recognized.	Depreciation charge for the leased asset recorded as well as an interest expense for the lease liability.	Operating leases treated same way as financial leases and as they are recorded they have to be depreciated and grow interest.	Assets and liabilities increase, key financial ratios change. Operating costs decrease and financing costs increase.
<i>Exemptions</i>	No exemptions regarding the amount or length of a lease.	Short-term leases of less than 12 months or low value leases exempted.	The new standard applies for all leases, only leases that are not material are exempted from disclosure.	Workload of accountants eased a little as small leases not disclosed.
<i>Disclosure</i>	Financial leases disclosed in the balance sheet, operating leases in the footnotes.	All kind of leases disclosed in the balance sheet. Additional disclosures for leases with complex features.	Leases are treated and disclosed equally, therefore disclosure requirements redefined.	Accountants have to be careful to capture data in such a way that it enables the fulfillment of the disclosure requirements.

3 PRIOR STUDIES ON OPERATING LEASES

This chapter marks the beginning of the literature review. First, in this chapter operating leases, their capitalization and its effects are discussed. Secondly, in the following chapter a theory of audit fee pricing is presented and audit fee determinants are discussed. Finally, the literature review is concluded with a paragraph about the effects of operating leases to audit fees, which leads us towards the hypothesis development.

3.1 CURRENT USE OF OPERATING LEASES

According to Fülbier et al. (2008) the separation of leases into operating and financial leases can result in incentives to favor operating leases to avoid on-balance-sheet debt. Operating leases are in favor of management as they make companies look more profitable and the current asset base more productive by excluding leased assets and related obligations from balance sheets. Leasing is a good alternative to buying an asset and financially distressed firms can lease without increasing debt amounts. By using operating leases managers are able to manage debt covenants.

Beatty et al. (2010) examined accounting quality and its effects on leasing. They found that firms with low quality accounting are more likely to lease assets than purchase them as they have limited access to capital investments due to liquidity constraints. Therefore poor accounting quality firms do not necessarily have lower total investments, they just lease instead of buying. Leasing services actually serve as a substitute mechanism for reducing financing constraints. Accounting information is less important in lease decisions when lessor's incentives to conduct due diligence are higher and in the existence of capital expenditure covenants, since bank's private information and monitoring can serve as substitute for accounting information and substitute the role of accounting quality. (Beatty, Liao & Weber, 2010)

Cornaggia et al. (2012) stated that contrary to assumptions, firms' decisions to choose operating leases as a form of financing do not depend on economic determinants and

traditional lease versus buy -decisions. They also tested whether firms use off-balance-sheet leases to strengthen their balance sheets, and found that firms' and industries that are not expected to get traditional economic benefits of leasing are increasingly using operating leases to benefit from hidden and manageable debt covenants.

Nurvani et al., (2015) found that economic determinants do not explain the increasing use of operating leases, but activities are mostly explained by the value of owned fixed assets, growth level and firm size. They supported the view of Cornaggia et al. (2012) that if operating leases cannot be explained with these determinants, then the management is most likely taking advantage of the hiding effects of off-balance-sheet leases to hide the amount of debt.

Therefore Cornaggia et al. (2012) provided support for the proposed changes by IASB and FASB, as the current operating lease accounting treatment affects corporate decision making. They also found that the use of operating leases has increased a lot during the recent years and the trend seems to concern all industries, which also gives incentives for new regulation.

There is evidence from around the time of the adoption of FAS 13 that companies restructured the terms of most capital leases to avoid the new capitalization requirements and recognition of long-term leases. (Imhoff & Thomas, 1988) Capital leases were substituted with operating leases and non-lease sources of financing in order to avoid capitalizing them. This kind of substitution is a very possible preadaptation consequence to the IFRS 16 that becomes mandated in 2019.

Krishnan and Sengupta (2011) studied the auditor perception of recognized versus disclosed obligations related to operating leases and unfunded pension obligations. They evaluated the relation between two pairs of obligations (on-balance sheet and off-balance sheet obligations) and audit fees and going-concern opinions. According to them this would be an important issue of auditors systematically disregard off-balance sheet obligations relative to on-balance sheet obligations, as it could contribute to the risk of audit failure. They found operating leases to be significantly, positively associated with audit fees, whereas financial leases are not associated. For pensions obligations the results were different, as both on- and

off-balance sheet obligations were positively and significantly associated with audit fees. Additionally, operating leases were seen to be associated with going-concern opinions but pension obligations were not, which led to the conclusion that firms that use off-balance sheet operating leases face some additional costs from increased audit fees and increased going-concern opinion, especially firms with important amounts of operating leases.

3.2 CAPITALIZATION OF OPERATING LEASES

Constructive capitalization method was developed by Imhoff, Lipe and Wright in 1991 as an answer to the problems of operating leases. They found that numerous firms in different industries reported very large non-cancellable operating lease commitments and those firms were in effect using significantly more assets to create revenues than they reported on their balance sheets, and they had also much more leverage than their reported debt to equity ratio would suggest. Constructive capitalization method (Imhoff et al., 1991) allows to get the amounts of unrecorded assets and debt if they were recorded on the balance sheet from their inception, and it is therefore widely used in academic literature to see monetary effects of operating leases.

Constructive capitalization affects assets, liabilities and net income. The capitalization method starts by estimating the amount of debt related to the lease. To estimate the debt that would be recorded if the lease was reported on the balance sheet from its inception, the schedule of minimum future cash flows for operating leases with remaining non-cancellable lease terms in excess of one year is determined. That amount is recorded for the next five years, following a single lump sum for all remaining payments after the fifth year. (Imhoff et al. 1991)

The amount recorded for liability is the same amount that would have been recorded had the lease been accounted as a financial lease. The minimum future cash flows are then discounted using an estimate of the firm's borrowing rate and an estimate of the remaining life of the leased asset. The result is an estimate of the present value of the remaining operating lease, the amount to be recorded as liability. (Imhoff et al. 1991)

After the liability is measured, the unamortized off-balance sheet asset is estimated by examining the relation between assets and debt. To assess the amount of the asset, an estimate of the weighted average total life of the leased asset as well as an assumed method of depreciation are required. Most assets are depreciated using the straight-line depreciation method, so it is applicable, but the total life of the asset is harder to assume. According to Imhoff et al. (1991) assets are usually between 60 and 80 % of the unrecorded liability, and it is reasonable to a rule-of-thumb of 70%. With these assumptions it is possible to get the asset that would be reported on the balance sheet, but the assumptions used in the calculation increase valuation errors in calculation and therefore assets are harder to measure than the liabilities.

The figure 1 below shows the relation between leased asset and liability during the life of the asset. The striped area represents the difference between the present value of the unrecorded debt and the present value of the unrecorded asset, and the difference is highest in the middle of the life cycle and zero at the inception and at the end. As is said, according to Imhoff et al. (1991) the asset percentage is usually between 60 and 80 % of the unrecorded liability. Present value of unrecorded assets decreases linearly, as the asset is depreciated in straight-line, as assumed. At the start, no payments are made yet, then during the first years the debt payments consist of mainly from the interest expenses and towards the end the amount of the principal debt payments grow. When lease terminates, the present values of both unrecorded assets and liabilities is zero.

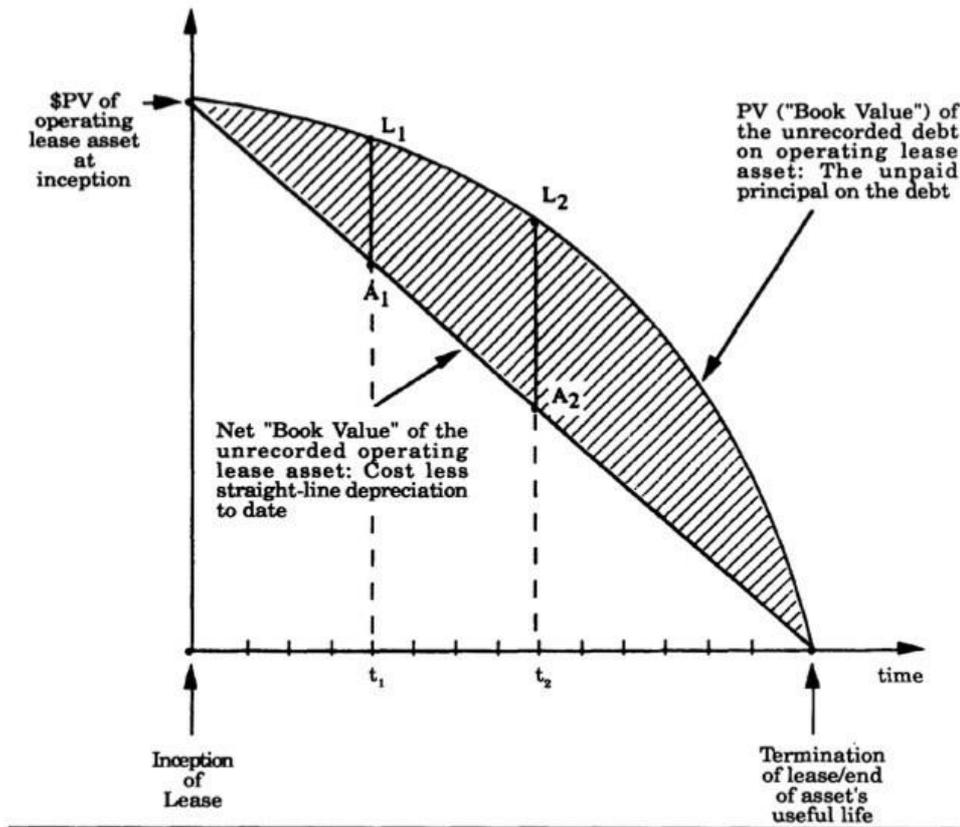


Figure 1: The relationship between the unrecorded operating lease liability and unrecorded operating lease asset

Now the capitalization effects to income statement are presented in the figure 2. The striped area represents the cumulative excess of financial lease's expenses over operating lease's expenses. The figure illustrates how expenses of financial lease are high at the beginning of the lease term, as for operating leases expenses are even throughout the years. The point t_2 represents time when periodic expenses of both kind of leases are equal, and it also is the point where financial lease's difference between liabilities and assets is at its maximum. Prior to this point the overall depreciation plus interest expenses under the financial lease accounting method exceed the operating expense resulting from the operating lease, and after the point the monthly rent costs from operating lease become greater than the sum of depreciation and interest expenses. This point occurs past the half way of the lease's life.

Capitalization of operating leases on the balance sheet will only have a small total effect on the period's income if the average age of a company's lease contracts is around t_2 . According to Imhoff et al. (1991), for a company with a stable portfolio of leases this will be the case, since the average lease is 50% of the way through its life, and thus the effects of capitalization to income statement are minimal. (Imhoff et al., 1991)

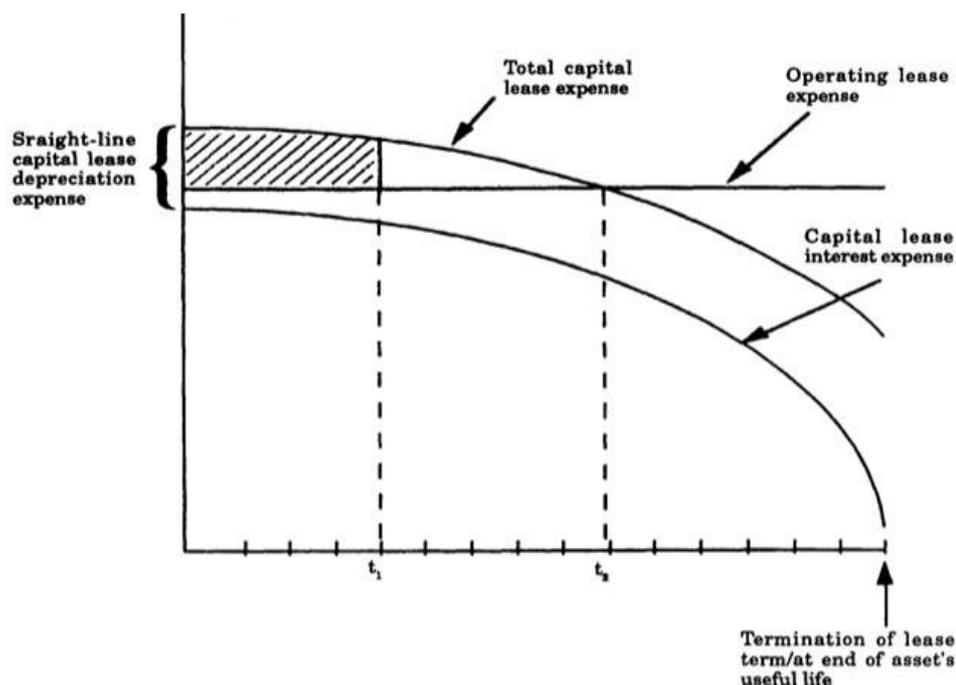


Figure 2: The relation between the total annual expense from the financial and operating leases

3.3 CAPITALIZATION EFFECTS ON FINANCIAL RATIOS

Companies have resisted the new IFRS 16 standard, as it forces them to disclose additional debt and affects their profitability ratios and debt covenants. The lease accounting changes will impact standard risk and performance metrics, which can be seen as being biased due to off-balance sheet items.

In addition to the obvious balance sheet effects, capitalization affects income statements. Two common performance measures, return on assets and return on equity, used to predict, compare and evaluate a firm's economic performance change by adjustments to net assets

and earnings. The effects of capitalization on these measures are systematic and lead to increased profitability (ROE) and decreased asset turnover (ROA). Also price-to-book (P/B) ratio and price-earnings (P/E) ratio that are popular comparative market multiples used to evaluate a firm are affected by capitalization. (Imhoff, Lipe, Wright, 1997).

Beattie et al. (1998) studied the impact of operating lease capitalization to accounting ratios and found that capitalization has a significant impact on profit margin, return on assets, asset turnover and gearing. The significant changes to key accounting ratios and shifts in company performance rankings suggests that capitalization affects interested parties' decisions and company cash flows. (Beattie et al., 1998) The data in their study was from 1994 and in the random sample of firms on average 39% of long-term debt was off the balance sheet. Since 1994, the average ratio of operating leases has grown and the results of capitalization have most likely become bigger.

According to Ge (2006) firms with high operating lease activities have declines in future profit margins as well as in future asset turnover ratios compared to low operating lease firms. Also, firms with low amounts of operating lease are more likely to be in financial distress and let lease contracts expire without replacing them. Therefore capitalization would have a bigger impact on firms' performance ratios depending on the amount of operating leases.

Fülbier et al. (2008) studied the German markets for listed companies and the impact of lease capitalization on financial ratios. According to Fülbier et al. (2008) the capitalization of operating leases has an impact especially on financial ratios based on assets and liabilities, which may trigger management incentives to restrain these effects. Nevertheless, they stated that the effects of capitalization are only minor and should not be overstated, and that many industries remain unaffected.

A study by Eisfeldt and Rampini (2009) suggests that more financially constrained firms benefit from the higher debt capacity of leased capital, and hence they will lease a larger fraction of their capital. When measuring the effects of financial constraints on investment cash flows, leased capital must be taken into account as otherwise results are likely overstated. Small firms tend to lease more, about half of their capital, and the higher debt

capacity of leasing is one important reason for that. (Eisfeldt & Rampini, 2009) This suggests that capitalization will affect firms that are financially constrained as they will have to make some changes when their current operating leases are capitalized. Also, capitalization will bring more transparency to financial statements as now the effects of financial constraints are likely overstated because of off-balance sheet debt.

3.4 CAPITALIZATION EFFECTS ON COMPARABILITY AND RELEVANCY

Imhoff et al. (1991) that first introduced the capitalization method for operating leases, stated that operating leases have a significant effect on risk and return measures, and thus constructive capitalization of long-term lease commitments enhances the relevancy and comparability of firm specific measures of risk and performance (Imhoff et al. 1991).

Cornaggia et al. (2013) stated that the average use of operating leases has increased 745% as a proportion of total debt from 1980 to 2007, while the use of capital leases has fell by half. The use of operating leases varies as many firms that do not use that kind of financing, and this distortion in the common risk and performance metrics affects comparisons of firms. According to Cornaggia et al. (2012), market participants relying on financial statements should not exclusively rely on balance sheet and income statement information, at the expense of important information in footnotes. Operating leases do not only move debt and assets off the balance sheet, and affect return on capital and debt-to-capital ratios, they also lead to underestimated firm risk and overstated performance if firms rely much on off-balance sheet items. (Cornaggia et al., 2012)

Nuryani (2015) found that constructive capitalization of operating leases significantly affects company's financial ratios and is relevant information in economic decision making. Therefore when operating leases are not capitalized, the relevancy of financial ratios will render financial statements biased thus misleading users of financial statements, as relevant information for decision making is omitted. Therefore, in order to compare firms, operating leases should be taken into account by capitalizing them. Nuryani (2015) concludes that regulation should be extended to require for companies to disclose operating lease information.

Jennings and Marques (2013) have studied how different amortization methods affect firms' comparability. Since capitalized operating leases have to be amortized or depreciated, this is a relevant study in this field. They studied the amortized costs of operating leases and compared straight-line amortization method to the present value amortization method. There had been arguments against the straight-line amortization of leases because the front-loading of expenses in this method does not reflect the economics of the lease asset and it makes within-industry comparability harder.

Hence Jennings and Marques (2013) compared these two amortization methods and their effects to firms' comparability within industries. They first argued that an accounting method that lowers the within-industry standard deviation can be said to enhance comparability, because that method results in similar companies appearing more similar. Then they compared these two amortization methods and their effects to comparability and found no significant difference between the methods. Their results showed no evidence in support of requiring straight-line amortization method for operating leases, and also did not show evidence in favour of present value amortization in response for the negative arguments to the straight-line amortization method. (Jennings & Marques, 2013)

3.5 CAPITALIZATION EFFECTS ON STOCK AND INVESTOR'S RISK ASSESSMENT

Beaver (1981) argued that it does not matter whether information is disclosed in the statement or in the footnotes, as stakeholders are wise enough to digest information from any sources and accurately reflect it to share prices. This is a rather contracting view to the more recent studies on information disclosure importance.

Imhoff et al., (1993) studied the importance of information disclosure in financial statements versus in footnotes for different user groups, and whether a bigger shareholder risk is associated with footnote disclosure. They divided financial statement users into two user groups – shareholders and management compensation committees, and the results of their study suggested that off-balance leases are incorporated in shareholder risk assessment but not in executive compensation decisions. Executive compensation is mostly based on measures such as return on assets net income and operating income, and there was little correlation between compensation and accounting measures adjusted for operating leases.

To conclude, the study found that the information usefulness of disclosures vary between user groups. (Imhoff et al, 1993)

Ge (2006) examined the effect of operating leases to earnings and stock prices, and found that investors seem to incorrectly assess the effects. Ge finds, that similar to on-balance-sheet accruals and external financing, operating lease activities are negatively associated with future earnings and stock returns, but investors seem to value them as if they were positively associated with future operating performance. The stock market mispricing of operating lease information is likely part of under-valuing the information value in footnotes, even though information in the footnotes contains incremental explanatory power in predicting future earnings and stock returns beyond balance sheet items. So off-balance-sheet operating leases have implications on future earnings and stock returns. Picconi (2004), suggested that firms might take advantage of investors' incomplete evaluating of pension information in the footnotes, and this supports Ge's finding of mispricing footnote information.

Fülbier et al. (2008) studied the effects of lease capitalization on listed German companies and the results were slightly different from most similar studies. They stated that capitalization requirements may motivate management to modificate lease contracts, change investment and financing decisions, increase earnings management to smooth ratio changes, but the effects on profitability ratios or market multiples are minimal as operating leases do not mislead equity investors.

A recent study by Dogan (2016) of operating lease effects to stock returns suggests that firms with more operating lease commitments earn a significant premium over firms with fewer commitments, and this premium is countercyclical. Firms that have higher levels of operating leases also have higher operating leverage, and consequently they are riskier and their cash flows are sensitive to business cycles. (Dogan, 2016) This implies that during a period of economic prosperity cash flows would be higher and that during recession the cash flows would be lower than for firms with lower levels of operating leases.

4 PRIOR STUDIES ON AUDIT FEES

4.1 INTRODUCTION TO AUDITING AND AUDIT FEES

Auditing provides independent assurance of the credibility of accounting information for third parties and therefore it is required by law. To have a good quality audit and a qualified audit opinion profits audited firms and therefore they are willing to pay for high quality audits. The growing complexity of business transactions and accounting standards increases auditing's potential to add value. (DeFond & Zhang, 2014)

An audit consists of 1) assessment of the overall risk and 2) planning and execution of audit procedures, which both require professional judgment and knowledge. Auditors are indeed experts working in accordance with a wide set of standards, but auditing still requires decision-making and real actions that expose auditors to possible underperformance, over-auditing or overcharging. These actions have implications for audit quality, efficiency and regulation. There does not exist a linear relationship with audit fees and audit quality. (Causholli, 2012).

From 2001, publicly traded companies in the United States are required to disclose amount and nature of audit fees paid to external auditors. This regulation aims to increase and maintain audit independence and objectivity as well as increase companies' reporting quality. (Dickins & Higgs, 2005) Also, in 2002 the European Commission recommended mandatory disclosure of audit fees and non-audit fees to enhance auditor independence and it led to revised regulation. (Griffin, 2006) Nevertheless, auditors are not required to disclose the attributes of their fees charged and many different circumstances and matters may affect audit fees, which is why they are interesting to study to find some pattern in audit pricing. Normally audit fees consists of costs and additional fee premiums. There exists many studies on audit fee determinants and the most relevant ones are cited in this literature review. This chapter starts with an audit pricing theory and continues with previous studies on audit fee attributes.

4.2 AUDIT PRICING THEORY

For every audit commission the client pays the auditor an audit fee, for the auditor to go through the financial and non-financial documents and state whether they give a fair and true view of the firm's financial performance or other concern. In this study the focus is on financial reporting and audit fees for auditing financial statements. Audits are conducted to provide third party assurance to stakeholders such as investors, because audits reduce the risks of material misstatements in financial statements and shareholders are then able to better evaluate risks and returns for their investments.

Simunic (1980) presented a model for audit pricing. The model suggests that an audit fee is a positive function of the firm-specific factors that increase an auditor's risk and the amount of auditing work required. The model calculates the minimum fee for different levels of audit quantity, which equals to the auditor's expected total cost, $E(C)$:

$$E(C) = cq + E(d)E(l)$$

Where:

c = the cost of external audit resources per unit

q = the quantity of resources utilized by the auditor

$E(d)$ = the expected present value of possible litigation costs or other losses

$E(l)$ = the possibility of the auditor having to make this period's occurred losses good from the audited financial statements.

$E(C)$, the auditor's expected cost, includes costs of resources used as well as costs for bearing risk of potential litigation and for having to make occurred losses good. So the audit fee consists of the amount of work used in the audit as well as firm-specific factors that increase the auditor's risk. Auditors have incentives to incorporate possible risks into the audit fees. High degree of leverage, poor liquidity and accounting losses are some firm-specific factors affecting the firm's risk and therefore also auditor's litigation risk, and they are likely to be included in the audit price. (Simunic, 1980)

The audit pricing model assumes that the auditor's expected costs are a function of the auditee's financial reporting system, since the cost parameter c includes all of the costs of a unit of q ; quantity of resources utilized. The financial reporting system affects for example leases that can be omitted from the balance sheet if they fall in the definition of operating leases. In a normal technical auditing model the auditor's audit program design is a function of the auditee's internal accounting system as well as the financial reporting system, and the quantity of auditing demanded by the auditee will result from an equalization of benefits and costs, as the audit service is an economic good to the auditee. Thus, there is a legal liability of auditing to stakeholders, which also drives the design of financial reporting system and audit process. (Simunic, 1980)

4.3 AUDITEE ATTRIBUTES

Size of the auditee is the most dominant audit fee determinant in all the audit fee literature. In practice, it is logical that audits of larger companies require more time and effort from auditors than smaller ones, which must have an effect on audit fees. According to Hay, Knechel and Wong (2006) the auditee size explains 70% of the audit fees. Typically the size is measured by the company's total assets and it is expected to have a positive relationship with audit fees. Also in some studies yearly sales are used as a variable for size, and it is expected to have a positive association with audit fees (Simunic, 1980; Hay et al., 2006).

The complexity of auditee firm is another widely recognized determinant of audit fee. The more complex the auditee firm, the more the audit process requires effort and time. (Simunic, 1980; Hackenbrack & Knechel, 1997; Hay et al. 2006) In literature, complexity of a firm is measured with many different metrics, of which a few typical ones being the number of subsidiaries, foreign subsidiaries, business segments, audit locations or Standard Industrial Classification (SIC) codes that make up the client. (Hay, Knechel, Wong, 2006) In Simunic's (1980) paper decentralization and diversification are examples of complexity, as they increase the number of decision centers in an organization whose activities need to be monitored.

The risk in an audit consists of audit risk and auditor's business risk. Audit risk is the risk that financial statements are materially misstated even though auditor issues an unqualified

opinion, and business risk is the risk of professional loss or injury due to litigation or such events affecting the auditor's business negatively (Thornton & Moore, 1993). Audit risk can be reduced by performing appropriate audit tests (Thornton & Moore, 1993; Stice, 1991), but business risk is seen as an inherent risk, which is an evident factor affecting the audit fee as companies charge higher hourly fees to compensate for the risk as they have to perform specialized audit procedures to compensate the risk (Stice, 1991).

Without charging extra for hourly hours, auditors would prefer to allocate their time to less risky clients and thus it would affect the working of audit markets (Simunic, 1980; Thornton & Moore, 1993). By increasing effort to reduce risks, auditors increase audit quality and audit fees, even though the effort can not eliminate litigation risk completely. Therefore studies suggest auditors may charge a fee premium to manage the residual risk from higher litigation risk. (DeFond & Zhang, 2014; Simunic & Stein, 1996)

Stice (1991) studied the litigation risks of auditors who were increasingly being sued, and identified several client related characteristics that were associated with lawsuits against auditors. The industry, asset structure, financial condition, market value and variability of returns each influenced the likelihood of litigation, and therefore increased the inherent risk related to an audit. According to Stice (1991) auditors should take these items into consideration when evaluating the appropriate risk level and audit fee.

Most frequently used metrics for the inherent risk are receivables and inventories, and 84% of studies show significant positive relationship between audit fees and the combination proxy of receivables and inventory. These balance sheet items vary a lot depending on different events and occasions and therefore their valuation requires forecasts of future events, which is complex, and specific auditing procedures are required for these accounts. (Simunic, 1980; Stice, 1991; Hay et al. 2006)

Simunic (1980) uses other metrics for risk, including loss in the last three years and net income scaled by total assets. Client profitability can also be another measure of risk, so the more financially unstable the client firm is the more risk the auditor bears and transfers to its fees. (Simunic, 1980) Debt ratio can be used to measure the risk of a client failing and leverage has been found to have an association with audit fees as the increased risk of

financial distress transfers into the fees. (Simunic, 1980) Leverage is usually measured by the ratio of debt to assets or by quick ratio. The expected association of fees with debt to assets is positive and association with quick ratio negative.

Profitability is usually measured by net income divided by total assets or by a dummy variable for the existence of a loss. The expected association between fees and return on assets is negative and the association with loss positive. (Hay et al. 2006) Both of these measures, profitability and leverage, have mixed results in relation to audit fees, but these attributes are still important when considering audit fee determinants and are proven to affect audit fees with a moderate certainty. (Dhaliwal et al. 2008; Simunic & Stein, 1996; Simunic, 1980; Hay et al., 2006)

Internal controls affect audit fees because they affect the whole reporting process, which then defines the auditing process. High quality audit is a function of high quality financial reporting, including high quality internal controls. (DeFond & Zhang, 2014) Investments on internal controls profit external reporting quality and therefore audit quality. (Thornton & Moore, 1993) Audit quality affects audit fees, so internal controls of the auditee firm can be seen to affect the audit fees.

Simunic (1980) found that loss exposures vary within industries and therefore industry can affect audit fees. Some industries are harder to audit (Simunic, 1980; Hay et al., 2006) and for example manufacturing companies with extensive inventory or receivables, which account for metrics of inherent risk, are riskier and harder to audit than financial institutions and utility companies. (Hay et al., 2006) A study by Peel and Roberts (2003) found that micro-firms operating in the highly competitive manufacturing sector in the UK were willing to pay a premium to be audited and preferred to be audited by a mid-tier or Big N auditor, with the latter charging higher premium. This implies that smaller firms are willing to pay to benefit from the reputation and signaling effect. (Peel & Roberts, 2003)

Some studies have shown a relationship between the form of firm ownership and audit fees. Some forms of ownership can be seen as more risky and therefore increase audit risks. The form of ownership affects the agency costs and auditor's potential exposures to liability. Ownership is usually measured by a dummy variable for public versus private company, a

stock versus mutual company or the existence of a major stockholder, with the first two proxies having significant positive results. (Simunic, 1980; Hay et al., 2006)

Other auditee related attributes affecting audit fees are improved corporate governance which implies that the control environment is more effective (Hay et al., 2006) and Board characteristics, since a more independent, diligent and expert board may demand higher audit quality through greater assurance and more audit work, which increases the audit fee as auditors pass additional costs on to the client. (Carcello et al., 2002).

Also, Redmayne et al. (2011) studied the association between audit committees and audit fees in the public sector. Their findings suggest that in the public-benefit sector audit committees are effective at reducing audit fees, when more auditing is required due to high risk resulting from current year losses or high business risk. Therefore, audit committees are an important governance mechanism that has importance in the audit process. They also found that for profit-oriented firms' audit committees are positively associated with audit fees, but the association is not significant. (Redmayne et al., 2011)

Krishnan and Sengupta (2011) conducted a study similar to this thesis, examining how auditors perceive off-balance sheet items, namely operating leases and pension obligations. Their findings suggest that client's off balance sheet items do have an effect on audit fees, but the effect is different for operating leases and pension obligations, as off-balance sheet leases are positively associated with audit fees whereas pension obligations have the same effect on audit fees whether on- or off-the balance sheet. (Krishnan and Sengupta, 2011)

A recent French study examined the effects of transitioning to IFRS on audit fees. Large French listed companies' were used in the study sample, and their transition into IFRS was found associated with a significant increase in the amount of audit fees. (Loukil, 2016) This implies that regulation and in particular changes in it can affect audit fees, and normal reasoning also supports the view that it certainly demands more time and effort to audit when new regulation has to be taken into consideration.

4.4 AUDITOR ATTRIBUTES

First auditor quality and its origins are discussed, and how it affects audit fees. High audit quality equals greater assurance of high financial reporting quality. (DeFond & Zhang, 2014) Audit market landscape has changed for clients and auditors during recent years because of the financial crises, growing standards and more complex transactions. It has evidently changed the supply and demand dynamics of audit markets as well as the drivers of audit quality as a result. So the higher audit quality gives assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics. (Dechow et al., 2010, DeFond & Zhang, 2014)

DeAngelo (1981) first suggested that auditor size and audit quality are related, when regulators and small audit firms argued that auditor quality is independent from firm size. Even though auditor size was known to affect the auditor choices by clients, it was seen as a result of less public knowledge of small firms. DeAngelo (1981) gives a definition of audit quality, containing both of these elements; 1) discovery of breach in the client's accounting system and 2) reporting of the breach. The discovery depends on the auditor's technological capabilities and the extent of audit procedures when the latter depends of the auditor's independence from the client, and the auditor's independence is higher with big auditor firms. Audit quality as such is hard and costly to evaluate as the probabilities of the two events are not directly observable and therefore auditor size is the best and least costly alternative to correlate with quality, as the size is publicly known information. Large auditors also have incentives to maintain a certain quality level because it allows them to charge higher fees and maintain reputation. (DeAngelo, 1981)

There is also more recent literature of audit size and quality. A study by Chan and Wu (2011) continued from DeAngelo's (1981) study and found that audit firm mergers in China increase audit quality if the auditor independence increases and therefore reporting of a breach becomes more likely (see DeAngelo's audit quality definition above). Contrary to Chan and Wu's (2011) study about mergers, Deng et al., (2014) found that joint audits of one big and small audit firm can decrease audit quality compared to a single big firm's audit. According to them, the information quality from a joint audit does not exceed the costs of the cooperation and is therefore unprofitable. In addition, André et al. (2015) found that joint

audits increase audit fees, but not through higher quality. In France joint audits are mandatory to improve the audit market, and by comparing listed companies in France, Italy and UK, André et al. (2015) found that audit fees were significantly higher in France. Since the quality was not better, mandated joint audits did not increase audit market efficiency.

Nevertheless, studies have suggested that larger audit firms provide higher quality auditing because they are independent and have more industry-specific expertise and knowledge within compared to smaller firms. (O’Keefe & Westort, 1992; Francis, 2004) Bigger auditing firms also have more incentives to provide high quality service as they have reputation to maintain (Dopuch & Simunic, 1980; Khurana & Raman, 2004). In the literature, the Big N – currently Big 4 – have been considered separately and compared with other auditing firms providing the same services, due to their apparent dominant position. This dominant position affects the pricing power of services provided by the Big N. (Campa, 2013)

The relationship between legal liabilities and audit quality is widely studied and the results seem to be similar, suggesting that higher litigation risk leads to increased audit quality (Radhakrishnan, 1999; Liu & Wang, 2006), and larger penalties for audit failures lead to higher audit fees and overinvestment in audit effort, and these in part decrease auditor shirking and audit failures. (Newman et al., 2005; Deng et al., 2014). Therefore, improved audit quality comes from increased effort and effort is compensated by higher fees. Nevertheless there are opposing results suggesting that higher litigation risk lowers audit quality because increased litigation costs do not affect audit effort significantly and it can lead to conservative or strategic reporting, which only decreases financial statement relevance and quality. (Deng et al., 2014)

The majority of studies indicating that the Big N 's provide better auditing than other firms show that this high quality auditing comes at the cost of clients as the firms do add a “fee premium” to their audit prices (Gonthier-Besacier & Schatt, 2007; Vermeer et al., 2009). This fee premium can be as much as 50% higher than the fees paid to smaller auditors, or even twice the amount, if client selection is controlled (Ireland & Lennox, 2002), and it is found across a variety of nations over the world (DeFond et al., 2000).

Big N auditors are also associated with measures that are related to improved reporting quality, and clients of large auditors give more frequent, timely, informative management forecasts and smaller absolute management earnings forecast errors, as well as have higher financial reporting quality (Francis & Wang, 2008; Ball et al., 2012; Francis et al., 2013; DeFond & Zhang, 2014) The market perceives Big N audited financial information as more valuable, as earnings response coefficients (ERC) are larger for Big N audited financial statements (Teoh & Wong, 1993). Before initial public offerings Big N auditors are better able to predict future delisting when compared to non-Big N auditors and therefore firms often switch to Big N auditors before going public (Weber & Willenborg, 2003; DeAngelo, 1981).

However, opposite results of the relationship between audit quality and Big N audit firms also exist, as several empirical studies (Petroni & Beasley, 1996; Chaney, 2004; Lawrence et al., 2011) question the good quality of Big N audit firms. Petroni & Beasley (1996) found no systematic difference between the audit quality of different size audit firms and they implied that small firms may even provide more effort to auditing some risky accounts.

Chaney et al. (2004) found evidence that the fee premium of Big N firms disappears after self-selecting the client, which is contrary to Ireland and Lennox's (2002) study suggesting that controlling the client selection can lead to highest audit fee premiums. Chaney et al. (2004) further argue that auditee firms do not even see Big N auditors as superior in terms of the perceived quality, for it to be able to affect audit fees and allow auditors to charge fee premiums.

The study by Lawrence et al., (2011) provided a new, challenging insight to the field of audit fee research, as it suggested the difference in audit quality does not depend so much on the auditor but more of the client characteristics. Big N companies have large and important client firms, which have more resources to invest in better accounting systems and internal control systems as well as have access to highly skilled professionals and directors affecting the audit department and committee, and they value these opportunities as they are under close media scrutiny. (Lawrence et al., 2011; Campa, 2013) In addition, a study of Big 4's in the UK argued that the structure of the oligopolistic auditing market is not competitive

and therefore high audit fees are result of the oligopolistic market power and not the result of better quality. (House of Lords, 2010b; Campa, 2013)

Hay et al. (2006) found that auditor tenure affects fees as clients may change auditors in order to get a lower fee from a new auditor, which may also be a strategic way for auditors to get clients. Auditor tenure is usually measured by a dummy variable reflecting auditor change and actual duration of current auditor's tenure. Evidence supports the view that audit fees are lower in relative new audit engagements.

Also the location of the auditor affects audit fees in some countries, as auditors from the metropolitan centres charge higher costs. (Hay et al. 2006) Zaman et al. (2011) found positive association between audit fees and audit committee effectiveness. Also, Ittonen and Petri (2012) found the sex of the auditor to affect charged fees, as according to them women charge more, possibly due to adding extra work required or increasing the risk premium. Auditor's financial distress and financial restatements are also found to affect audit fees, and for financial restatements they are less likely for firms with higher fees (Simunic, 1980; Blankley et al., 2012).

There are many additional attributes affecting audit fees, for example some external attributes related to the audit environment, the economic situation or increased regulation, and the purpose of this literature review is to give an extensive insight to audit fee research, therefore only including all of the most important and relevant studies.

5 HYPOTHESIS DEVELOPMENT

After the theories and prior findings discussed, I am able to develop and present my research hypothesis. The hypothesis is based on the assumptions and findings of existing literature, and my research questions are following:

1. *Are operating leases relevant to auditors and do they contain incremental explanatory power when capitalized? If they are relevant, what kind of effect do they have on audit fees?*
2. *Are the effects of assets and capitalized operating lease assets equal to audit fees?*

Auditing is valued and demanded because it provides independent assurance of the credibility of accounting information, and therefore adds value to financial statements. (DeFond & Zhang, 2014) Auditor examines essential documents related to a statement and gives a view on how well the financial statement presents a true and fair view of the firm's performance. Auditing provides stakeholders assurance to properly evaluate the company.

Auditors, in exchange of auditing, charge audit fees according to the effort and time needed to perform the audit. Auditors have incentives to incorporate possible risks and costs into the audit fee, as audit fee is usually determined before the audit. (Simunic, 1980) Just as auditing, capitalizing operating leases can be seen as a legal liability to stakeholders, most specifically to investors, as both of the actions help investors better evaluate the possible risks and returns of a company. Ge (2006) found that investors seem to misprice footnote information, even though it contains incremental explanatory power in predicting future earnings and stock returns beyond balance sheet information.

By bringing operating leases to the balance sheet the transparency of the financial statement increases as company's funding methods are exposed. Capitalization affects positively investors' risk and firms' performance calculations by lowering their required effort to evaluate a firm's true situation, (Cornaggia et al., 2012) and this might reflect to auditing also. The more a firm discloses and gives available information, and therefore reduces risks, the less it requires audit procedures performed, and this decreased effort leads to lower audit fees. (Stice, 1991; Simunic & Stein, 1996; DeFond & Zhang, 2014)

In audit fee studies the most important and almost unanimously recognized audit fee determinants are auditee related, i.e. the size, complexity and risks of the auditee firm. Also, some auditor related determinants are widely recognized, i.e. the auditor size and quality. There are many different attributes found to affect the audit fee and for many of them there exists mixed results, but I find it evident that changes in the auditee firm's reporting and financial statement disclosure affects the auditing process and thus the audit fees.

Operating leases are favourable and important to many companies, which implies that information about them is valuable to investors and that audited information is even more valuable. Capitalization brings off-balance sheet operating leases from the footnotes to the balance sheet and this increased reporting disclosure increases transparency of the financial statement, which helps auditors by lowering business risk. Reduced risk usually leads to lower audit fees. (Stice, 1991; Thornton & Moore, 1993, DeFond & Zhang, 2014) Capitalizing operating leases on to the balance sheet affects the asset and liability based profitability ratios, as well as changes the expense structure. (Imhoff et al., 1991; Jennings & Marques, 2013)

When operating leases are constructively capitalized, the assets related to the lease contracts are to be recognized as depreciable assets and liabilities on the balance sheet. After capitalization, total assets contain all the assets related to operating leases. Therefore it is reasonable to assume that the effects of total assets and constructively capitalized operating lease assets are similar to audit fees, as they are part of the same audit fee attribute; total assets. In audit fee studies, total assets are the most usual proxy for client size, which is the most important audit fee determinant. (Hay et al., 2006) Because total assets are expected to have a positive effect on audit fees, capitalized operating lease assets are also expected to have a similar positive effect on audit fees as they become part of total assets when capitalized.

Based on the arguments presented above as well as the prior studies discussed, I expect capitalized operating leases to be relevant to auditors and have incremental explanatory power over audit fees. Also, I expect the effects of capitalized operating lease assets and total balance sheet assets on audit fees to be equal. The hypotheses for this study are:

H1: Operating leases are relevant to auditors and constructively capitalized operating leases contain incremental explanatory power over audit fees. Capitalized operating leases correlate positively with audit fees.

H2: Capitalized operating lease assets and total assets have an equal effect on audit fees and there is a linear relationship between them.

The method used to study the relationship of operating leases and audit fees is OLS regression analysis. If the results of the regression analysis suggest that capitalized operating leases have incremental explanatory power over the audit fees, then it implies that the new IFRS 16 standard forcing companies to recognize operating leases in their balance sheet would benefit auditors. If the effects of capitalization would have negative value to audit fees, so that capitalization of leases would lower the audit price, the new IFRS 16 regulation and capitalization of leases would still be positive for auditors because they profit from increased relevancy of financial statements.

The increased relevancy through capitalization could be thought to decrease audit fees, as capitalization increases transparency and decreases some possible risks, but I assume it to increase audit fees because when on the balance sheet an item needs to be audited which requires time and effort of some kind. When new items are capitalized on the balance sheet, auditors have more auditing to perform. Therefore if capitalized leases have an effect of any kind to audit fees, it is most likely that it is positive.

It is also tested whether the effect of capitalized operating leases to audit fees is equal to the effect of total assets to audit fees, and if it is, it would mean that when the effect of capitalized operating leases doubles, the effect of assets doubles also. Thus there would be a linear relationship between the variables and they would change equally. This would suggest that the overall amount of the assets would matter the most to auditors and audit fees, and not the content of the assets.

6 DATA, VARIABLE CONSTRUCTION AND RESEARCH MODEL

This study quantitatively analyzes the relation between audit fees and operating leases. The data is obtained from Compustat and Audit Analytics databases and it is collected from North American companies, excluding financing corporations with SIC code 6000-6999 because they usually do not have operating leases as they do not operate with equipment. A total of 731373 observations from the years 2000-2016 were used for the analysis, after omitting observations with missing values.

As firms are required by FAS 13 to report the minimum payments of non-cancellable operating leases for the following five years, as well as lump sum for thereafter years, I was able to get this data about operating leases from Compustat for chosen firms between the years 2000-2016. The method for calculating constructively capitalized operating leases from this data is presented below. By using this method I am able to get the test variables needed for the regression analysis.

The main independent variables studied are variables representing capitalized operating leases and assets ($\log\text{CAP_A}$ and $\log\text{CAP_LIAB}$), which were constructed using the method introduced by Imhoff et al. (1991). First, the capitalized lease liability is calculated. From Compustat, future lease payments for the next five years and a lump sum for all later years are obtained, and the first step is to discount those future lease payments and the lump sum with a borrowing rate to get the amount of estimated lease liability.

As borrowing rates are not available for the observations, I chose a reasonable constant 8% interest rate. The sum of the discounted lease liabilities represents the off-balance sheet lease liability that is capitalized (CAP_LIAB) and which is then transformed to logarithm ($\log\text{CAP_LIAB}$).

Secondly, the capitalized leased asset is estimated by examining the relationship between leased assets and debt (ARL). A few assumptions are necessary: 1) an estimate of the total life of the asset – it is hard to assess and therefore increases the errors in calculation, 2) a

method of depreciation – a straight-line depreciation is normally used for assets and therefore it is also assumed to be the case here, 3) an assumption that the leased assets are 100 percent financed by debt and that the value of the assets is zero after the last lease payments.

The straight-line amortization method recognizes that the value of the leased asset will decline more quickly after inception of the lease than the value of the lease liability, and the average ratio of the leased assets to the liabilities, ARL, is calculated for every observation by using the following formula:

$$ALR = \frac{\frac{1 - (1 + r)^{-N}}{r} \left(\frac{Rem}{N} \right)}{\frac{1 - (1 + r)^{-Rem}}{r}}$$

Where

ALR = average ratio of leased asset to leased liability

r = company's average borrowing rate, here 8%

N = number of years future lease payments are expected for

Rem = *N*/2

I assume the average borrowing rate to be 8 percent, as I assumed above in calculation the capitalized lease liability. I do not have information about the number of years, so I use a model by Jennings & Marques (2013) to calculate *N*:

$$N = 5 + \frac{Pmt_r}{Pmt_{t+5}}$$

Where

N = number of years future lease payments are expected for

Pmt_r = lump sum of lease payments for the years beyond the fifth year

Pmt_{t+5} = fifth year's lease payment

Then the previously calculated leased liabilities are multiplied with ARL to get the amount of capitalized leased assets (CAP_A), which is then transformed to logarithm (logCAP_A) to reduce skewedness of values and to help interpret the results. It is typical for audit fee studies to have variables transformed to logarithms to increase the linear relationship of variables to audit fees. A log-log model operates with percentages and an independent variables coefficient of -0,5 means that 1% increase in that particular variable decreases the dependent variable by 0,5%.

In addition to the test variable of capitalized operating leases, regression model also includes control variables that affect audit fees according to studies. Some of the control variables were obtained straight from Compustat or AuditAnalytics, and some were calculated based on other values obtained from the two databases.

Control variables include the book value of assets measuring the size of the audited firm (logAT), debtness measuring the riskiness and debtness of the firm (LT/AT), a dummy variable measuring auditor size (BIG4), a dummy variable measuring financial stability and risk of the firm (LOSS), a dummy variable measuring whether auditing is to be done at auditors' busy period (BusyPeriod) and finally a variable (year) that represents the year dummies of the data from 2000 to 2016, to control for the yearly differences of audit fees in our model.

Data obtained from Compustat contained book values of assets and liabilities, net income, financial year end and the year of the data. Dummy variable LOSS was obtained from the net income and BusyPeriod from financial year end. The dummy variable LOSS gets a value of one if the company had a negative net income last financial year and zero if not, and the dummy variable Busy Period gets a value of one if the company's financial year ends in December, otherwise it is zero.

From Audit Analytics I was able to get data about audit fees as well as auditors, and BIG4 dummy was made based on the auditor. The dummy variable BIG4 gets a value of one if the

auditing company if one of the Big four auditing firms – KPMG, EY, PWC or Deloitte, otherwise the value is zero. The dependent variable in this study is the logarithm of audit fees (logAF), which is obtained directly from Audit Analytics.

Below is the regression model used in this study, followed by a summary of all the variables and their expected signs.

Regression model:

$$\log AF_t = \log AT_t + \frac{LT}{AT} + \log CAP_A_t + BIG4_t + LOSS_t + BusyPeriod_t + year_t + e$$

Table 4: Variables used in the regression model

Variable	Description	Expected sign
logAFt	Logarithm of total audit fees at the end of fiscal year	
logATt	Logarithm of total assets at the end of fiscal year	+
LT/AT	Liabilities/assets; debtness	+
logCAP_At	Logarithm of capitalized assets at the end of fiscal year	+
BIG4t	Binary being 1 if auditor is a Big 4 and 0 if not	+
LOSSt	Binary being 1 if firm experienced financial loss previous year and 0 if no	+
BusyPeriodt	Binary being 1 if firm's financial period ends at December and 0 if not	+
yeart	Vector of the year dummies for 2000-2016	+

I expect total assets and debtness to have a significant, positive effect on audit fees. Also, I expect the effect to be positive for all of the other variables. Capitalized operating lease liabilities, logCAP_LIAB, as well as total liabilities were omitted from this model due to multicollinearity problems. Total liabilities correlated significantly with assets and

capitalized lease liabilities correlated significantly with capitalized lease assets, therefore it was necessary to omit variables related to assets or liabilities. Multicollinearity problems are discussed in more detail in the results chapter.

7 RESULTS AND FINDINGS

This paragraph presents the results and findings of the empirical analysis, starting from the descriptive statistics and then continuing with a correlation analysis, along with the multicollinearity issues discussed. Then the results of the regression model are presented and the findings are analyzed. Finally the possible hypothesis realization is discussed.

7.1 DESCRIPTIVE STATISTICS

Table 5 reports descriptive statistics for the final research variables, excluding the year dummies which are not relevant in this phase. Additionally, descriptive statistics of the original values before transformation to logarithm are included to give perspective, as well as the variable logCAP_LIAB which is omitted from the final analysis. Table 5 reports minimum, first quartile, third quartile, maximum, mean, median and standard deviation for all of the variables. The total sample size is 731373.

Table 5: Descriptive statistics

N=731373	Minimum	Q1	Q3	Maximum	Mean	Median	Std. Deviation
AF*	0	0.174	1.465	22.375	1.367	0.561	2.357
AT*	0	0	0.002	0.297	0.003	0.003	0.012
CAP_A*	0	0	0	0.003	0	0	0
CAP_LIAB*	0	0	0	0.004	0	0	0
logAF	5.226	12.101	14.209	16.923	13.157	13.260	1.507
logAT	-3.170	4.051	7.447	12.602	5.726	5.824	2.394
logCAP_A	-3.768	0.312	0.710	7.868	2.139	2.158	2.353
logCAP_LIAB	-3.727	0.440	3.888	8.171	2.368	2.406	2.416
LT/AT	0.028	0.628	4.172	16.065	0.620	0.512	0.805
BIG4	0	0	1	1	0.698	1	0.459
LOSS	0	0	1	1	0.397	0	0.489
BusyPeriod	0	0	1	1	0.694	1	0.460

* = value is in millions

First, the table 5 reports statistics for the original values in millions. For the variable audit fees (AF), the standard deviation of original values is higher than of logarithm values, but for all the other variables with original values it is much lower, almost zero or zero. Also the other statistics are close to zero or zero (millions) for the original values, except for the audit fees that have a great range of different values in the data, ranging from zero to 22 millions.

This proves that it was reasonable to transform these variables into logarithms because the monetary changes are not so easy to interpret as the percentage changes. Values are transformed to logarithms to reduce skewedness and to improve the normality of values, and without the transformation the descriptive table would show different, more radical values, that would further distort the results (see statistics of the original values in table 5).

Another thing that affects the data is that the tails of our data values were winsorized to 1 and 99 percent levels by changing the extreme values to minimum and maximum percent values. This simplifies and makes our regression analysis more reliable as extreme values are limited, but not deleted completely.

The dependent variable $\log AF$ ranges from 5.226 to 16.923, with the mean of 13.157 and median 13.260. There is some amount of variation in the amount of audit fees, but mostly they are in the upper part of the scale. The standard deviation for $\log AF$ is 1.570, as for the original values of AF it is 2.357, so the transformation to logarithm reduced the variation in audit fees.

The variable $\log AT$ has a standard deviation of 2.394, implying that there is quite much variation in the amount of assets and therefore in firm size. Three variables; $\log AT$, $\log CAP_A$, $\log CAP_LIAB$, have negative values as minimum, which means that the original data for assets as well as the results of capitalization calculations had very low minimum values close to zero, since values below one become negative when transformed to logarithm. By checking the original data obtained from the research base, it is visible that there are values of assets that are very close to zero. CAP_LIAB and CAP_A were calculated by using the constructive capitalization formula by Imhoff et al. (1991), and in the results of calculations there were values close to zero, which became negative when transformed to logarithm.

$\log LT$ was omitted from the final regression analysis, and it does not bring anything valuable to the descriptive statistics therefore it is not included in the table. Also, $\log CAP_LIAB$ was omitted from the regression model, but I chose to include it here as it contains interesting information and helps in interpretation of $\log CAP_A$. Logarithm values of capitalized assets and liabilities are at similar level, because $\log CAP_A$ is calculated from $\log CAP_LIAB$ and it is a percentage of $\log CAP_LIAB$.

The variable LT/AT , the ratio of total debt to total assets, measures the financial risk of a firm and the values range from the minimum 0.028 to the maximum 16.065, the average value being 0.62, median 0.512 and standard deviation 0.805. This shows that the majority of LT/AT values are closer to the minimum, i.e. that the amount of debt is mostly a bit lower than the amount of firm's assets, and that the maximum value is of a rare situation where debt significantly exceeds assets.

The dummy variables $BIG4$, $LOSS$ and $BusyPeriod$ get either zero or one as a value. For the variable $BIG4$, the mean 0.698 means that nearly 70% of firms were audited by a $BIG4$

auditor. For the variable LOSS, almost 40% of firms reported loss in the previous financial period. For BusyPeriod, nearly 70% of firms have a financial period ending in December, which makes the first months of a calendar year very busy as 70% of firms issue financial statements around the same time and they have to be audited, assuming all of them are obliged to provide a financial statement and get it audited.

7.2 CORRELATION ANALYSIS AND MULTICOLLINEARITY

7.2.1 Pearson and Spearman correlations

Table 6 shows Pearson and Spearman correlations for the regression model variables. Pearson correlation measures the linear relationship between two continuous variables and Spearman correlation measures the monotonic relationship that is the rank correlation between two variables. Both correlations get values between +1 and -1, where +1 means total positive correlation, -1 means total negative correlation and 0 means no correlation or relationship. So the sign of the correlation coefficient indicates the direction of the relationship and the number indicates the level of the relationship.

Pearson and Spearman correlations are sensitive to extreme data values, which I have winsorized by smoothing extreme values. It is important to keep in mind that it is not appropriate to proclaim a whole causal relationships between two variables only by their correlation, since this is not a controlled environment and also other matters affect the relationships.

As Pearson and Spearman correlations only measure correlations of two variables, the final regression analysis brings more significant results. Nevertheless, correlation analysis helps in detecting and interpreting important variables' relationships, and most importantly it helps detect multicollinearity, which is an unfavorable phenomenon in which two or more variables in a regression model are highly correlated.

If there is too much correlation between some variables, the results about individual predictor variables are biased, even though the overall results of the model are not affected, meaning that the independent variables still explain the dependent variable. Failure to detect and report multicollinearity can lead to misleading results and unrealistic interpretations of the

results. Therefore it is important to test for multicollinearity to be able to interpret the data from the regression analysis more carefully. (Vatcheva et al., 2016) For detecting multicollinearity, I analyse the correlations as well as examine the tolerance and variance inflation factor values of the variables.

Table 6: Pearson and Spearman correlations

Pearson correlations									
Spearman's rho	logAF	logAT	logLT	LT/AT	logCAP_A	logCAP_LIAB	BIG4	LOSS	BusyPeriod
logAF	1	0.783	0.765	-0.100	0.685	0.681	0.532	-0.320	0.081
logAT	0.795	1	0.956	-0.197	0.785	0.783	0.540	-0.440	0.097
logLT	0.777	0.967	1	0.015	0.781	0.779	0.498	-0.390	0.110
LT/AT	0.164	0.188	0.403	1	-0.093	-0.094	-0.128	0.162	0.034
logCAP_A	0.700	0.794	0.792	0.204	1	0.999	0.487	-0.341	0.013
logCAP_LIAB	0.697	0.793	0.792	0.206	0.999	1	0.485	-0.342	0.014
BIG4	0.538	0.538	0.506	0.017	0.490	0.487	1	-0.217	0.073
LOSS	-0.324	-0.437	-0.392	0.081	-0.343	-0.344	-0.217	1	0.035
BusyPeriod	0.078	0.097	0.106	0.086	0.014	0.014	0.073	0.035	1

From looking at the table 6 we are able to see that logCAP_A and logCAP_LIAB are strongly positively correlated for Pearson and Spearman correlations, which is expected as logCAP_A is calculated as a percentage from logCAP_LIAB. This almost perfect correlation implies there are collinearity issues if both of these variables are further included in the regression analysis. Also logAT and logLT are quite highly positively correlated, which is why logLT is omitted from further analysis.

The dependent variable logAF quite highly correlates with logAT, logLT, logCAP_A, logCAP_LIAB and BIG4. This would imply that audit fees correlate with client firm's size, auditor's size and the amount of client firm's capitalized operating leases. Also, logAF has negative moderate correlation to LOSS, which would imply that client firm's recent financial distress has an effect on audit fees. For both correlations, LT/AT and BusyPeriod have a light correlation with logAF, but the LT/AT value for Pearson is negative as for Spearman it is positive.

7.2.2 Collinearity statistics

Since there are strong correlations between the variables, multicollinearity analysis is needed. Multicollinearity between variables is analysed with tolerance and variance inflation factor (VIF). Tolerance measures multicollinearity and it calculates the interval within which a proportion of the sample falls, and VIF measures how much the variance of a variable increases because of multicollinearity. Tolerance is calculated as $1 - R^2_j$, where R is the coefficient of the variable j, and the minimum value for it is recommended to be 0.1. VIF is calculated as $1/\text{tolerance}$ and it should stay under the value 10, otherwise there is a multicollinearity problem.

Table 7: Collinearity statistics

1.	Tolerance	VIF
logAT	0.300	3.329
LT/AT	0.939	1.065
logCAP_A	0.368	2.721
BIG4	0.684	1.462
LOSS	0.794	1.260
BusyPeriod	0.949	1.053
2.	Tolerance	VIF
logAT	0.038	26.072
logLT	0.042	23.803
LT/AT	0.485	2.064
logCAP_A	0.002	622.556
logCAP_LIAB	0.002	617.889
BIG4	0.676	1.479
LOSS	0.788	1.270
BusyPeriod	0.946	1.057

Table 7 reports multicollinearity statistics for two different models. The first model (1.) is the research model used in the final regression analysis and the second model (2.) includes also some other variables to illustrate how they would distort the results if they were included. Table 7 indicates that there is no collinearity issues for the variables in the final regression model (1.), as tolerance is over 0.1 and VIF is under 10 for all of the variables. However, the collinearity results of model 2. including additional variables logLT and logCAP_LIAB which were omitted from the final regression analysis, show tolerances under 0.1 and VIF's over 10. By including them in the regression analysis the results would have been distorted as logAT and logLT are correlated and logCAP_A and logCAP_LIAB are very highly correlated. The Pearson and Spearman correlation table above also shows this unwanted correlation effect of the variables.

Table 8: Results of the regression analysis

Constant	Expected sign	Coefficients	T-value
Intercept		10.897	732.18
logAT	+	0.342	469.49
LTAT	+	0.072	57.92
logCAP_A	+	0.113	168.99
BIG4	+	0.562	222.76
LOSS	+	0.052	23.58
BusyPeriod	+	0.048	22.44
Year dummies	-	-1.241 to -0.061	-79.07 to -4.01

Significance <0.0001
R2 0.706
Adjusted R2 0.706

Coefficient measures the effect of an independent variable to the dependent variable. Coefficients are as expected for all the other variables than the year dummies. The signs are positive for all of the variables except for the year dummies. Some coefficients must be interpreted differently than coefficients in a normal linear regression, as the values are transformed to logarithm. The coefficient of 0.113 for logCAP_A means that when capitalized operating lease assets increase 1%, the logAF increases 0.113%. For logAT and LT/AT, coefficients are 0.342 and 0.072, meaning that 1% increase in those values increase the

logarithm of audit fees by 0.342% and 0.072%. The dummy variables BIG4, LOSS and BusyPeriod are also positive and thus audit fees increase when auditor is one of Big 4 audit firms, auditee has experienced loss in the previous financial year or the audit is performed at the start of the calendar year when auditors have a busy period. Year dummies are included in this table. Coefficients for year dummies from 2000 to 2016 are surprisingly negative for all of the years, but they range from -1.241 to -0.061 and increase little each year, suggesting that over the years audit fees have increased.

T-value measures the significance of the relationship of a variable to the dependent variable. For all of the variables the t-value is important, meaning that all of them have an effect on audit fees. Also, P-values measuring the statistical significance of variables were under 0.0001 for all of the variables, which confirms that all of the variables are significant. R-square measures the explanatory power of all the variables to the dependent variable, and an R-square below 85% indicates good explanatory power. A low R-square indicates that the model has more error and warns about vague predictions. The regression model has a R-square of 0,706 meaning that the chosen variables explain well the changes in the dependent variable. Adjusted R-square measures the explanatory power of only those variables that actually affect the dependent variable and it is always equal to or lower than R-square. The adjusted R-square being 0,706, same as the R-square, means that all of the variables significantly affect the dependent variable.

The linear relationship between the variables logAT and logCAP_A was also tested to see whether the effects of both variables are equal. If there would be a linear relationship, then their coefficients would be equal and a certain increase or decrease in one of the variables would result in a similar change in the other. The effects were tested along with the regression analysis and the results suggest there does not exist a linear relationship between the variables. The F-value measuring the ratio between the tested variables is 3331,31, which is significant and proves that the variables are not equal. If they were, their F-value would be 1.

Overall, according to the regression analysis, auditee firm size and the auditor's size or rather being part of Big 4 seem to be the most significant audit fee determinants. Their coefficients are the biggest and also their T-values are the most important, meaning that the relationships of those variables to audit fees are significant. Surprisingly, capitalized operating lease assets is the third most significant audit fee attribute, leaving behind debtness and previous financial loss of the auditee firm and busy period of the auditor. Thus it is reasonable to conclude that

capitalized operating leases do have an effect on audit fees and the effect is significant per se as when compared with the effects of other audit fee attributes.

8 CONCLUSION

8.1 DISCUSSION

The main objective of this study was to find out if capitalizing operating leases would affect audit fees. Second object was to test whether the effects of capitalized operating lease assets and total assets are equal. The main research method was OLS regression analysis, which I conducted after detecting possible collinearity issues. The dependent variables were chosen according to previous audit fee studies and the test variable was generated according to prior capitalization literature and own presumptions. The variables in the research model were the following:

logAT	– logarithm of client firm's total assets measuring the size of the client firm
LT/AT	– total debt to total assets, measuring for the client firm's riskiness
LOSS	– previous years financial loss, attribute of client firm's financial distress
BIG4	– auditor is part of BIG4 audit firms, attribute of auditor size and quality
BusySeason	– client's financial year ends in December, measures auditor's time and effort available for audit, i.e. Busyness of auditor
logCAP_A	– logarithm of capitalized assets, test variable measuring client firm's capitalized operating leases

I expected all of the variables to have a positive correlation with audit fees and it turned out to be the case, as all of them have significant explanatory power on audit fees. Prior studies have found client size to explain most of audit fee changes (Simunic, 1980; Hay et al., 2006) and

also in this study it was one of the most important attributes affecting audit fees, together with the auditor size and quality. Higher audit fees are expected when the audit quality is higher and the most common proxy for audit quality is the auditor's belonging to BIG N (4), which also is a proxy for auditor size. These firms are found to include a fee premium into their charges. My results also imply that the variable BIG 4 is a significant audit fee attribute, but surprisingly its effect exceeds the one of client size according to the coefficients, though t-value measuring attributes' significance to audit fees is of double amount for logAT measuring client size.

The results suggest there is a positive relationship between capitalized operating leases and audit fees. This means that when more operating leases are capitalized, it increases audit fees. This supports the results of a similar study that found operating leases to be significantly and positively associated with audit fees. (Krishnan & Sengupta, 2011) According to Krishnan and Sengupta (2011), off-balance sheet items contribute to greater financial risk for the client and thus greater business risk for auditors, which is then mitigated by passing the costs to the clients. They found operating leases to affect audit fees and financial leases to not affect audit fees. The results of my study show that capitalized operating leases increases audit fees, and it is partly due to bringing more risky items to the balance sheet because costs for bearing greater risk must be incorporated in the audit fee.

To answer the first research question, operating leases are relevant to auditors and contain important information, because their capitalization affects audit fees and therefore interests auditors. The hypothesis about the incremental explanatory power of capitalized operating leases and of their positive effect on audit fees is confirmed by the results. Nevertheless, there are other audit fee attributes affecting audit fees more, like the auditee size and risk which are the main explanatory variables for audit fees, but in the long run and in firms that have important amounts of operating leases to be capitalized the effects are bigger.

The second research question was about the relationship of total assets and capitalized operating lease assets, whether they have equal effects. Their relationship is proven to be nonlinear and therefore their effects on audit fees are not equal to the effects of total assets, even though capitalizing leased assets brings them on the balance sheet to total assets. The second hypothesis is therefore refused by these results. This further analysis of capitalized lease assets proves that capitalized leases have their own importance on the balance sheet and their

effects are not dependent on or similar to other balance sheet items of which total assets would have been the most probable item to have similar effects.

I expected the test variable $\log\text{CAP_A}$ to affect audit fees as prior studies and experiments show that capitalization of leases affects many parts of a firm's financial statement, and the financial statement being the main matter to auditors, changes in it must surely interest auditors. Therefore it is appropriate to assume that the current standards allowing companies to disclose operating leases only in their footnotes allow important information to be hidden from auditors and other interest groups.

The legislation of operating leases is changing as the new standard IFRS 16 *Leases* requiring companies to capitalize disclose is becoming mandated in January 2019. The use of operating leases has increased a lot during the years and for many firms and industries operating leases are an important way of acquiring machinery, therefore studying the implications of capitalizing operating leases is a timely subject.

This study gave an extensive review of operating leases and their legislation as well as presented the constructive capitalization method for operating leases. This study also presented an audit pricing model and discussed different audit fee determinants. After the literature review, in the empirical part a regression analysis was conducted to find out about the effects of capitalized operating leases to audit fees. The results gave a new audit fee attribute to audit fee research as the effects of capitalized operating leases are significant to audit fees. Also, the results are relevant in the field of operating leases because the significant effects of today will grow if companies are to capitalize important amounts of operating leases according to the upcoming IFRS 16. However, the significance of the effects might suggest that companies try to avoid capitalizing leases to avoid and minimize the negative effects it brings to the companies. The situation remains to be seen and in a few years the effects of the new standard and of the transition could be tested in practice.

8.2 LIMITATIONS

In order to correctly interpret the results, possible limitations must be taken into account. First of all, there are some general limitations that concern quantitative studies and those limitations also apply to this study. I have chosen the variables included in the study and excluded some variables that I do not consider relevant, even though they could affect the results of the model

if they were included. For example the provision of non-audit services by auditors is usually omitted from audit fee models, even though theory would suggest that charging non-audit fees would also affect audit fees. This problem is mainly due to the lack of public information or correct data. (Hay, Knechel & Wong, 2006)

Another common problem in addition to omitted variables in quantitative studies is the right selection of control variables. A linear relationship can be assumed too easily between a dependent and independent variable, even though the dependent variable would not be continuous. On the other hand, a continuous measure can be transformed to a constant dummy variable.

I have three dummy variables in the audit fee model, and with dummy variables that classify data into only two measures or outcomes, the simplification can be critical and sometimes affect the dependent variable too much. For example, according to Hay et al. (2006), the continuous dummy variable 'financial loss', cutoff at zero net income, may actually not be the best measure of riskiness. Nevertheless, I use it as a measure of risk, which together with a debt-to-asset ratio in my opinion forms a good pair of risk variables. Also the amount of operating leases is related to financial risk, as increased off-balance sheet obligations increase financial risks. (Krishnan & Sengupta, 2011),

Also, I have not included any attribute of client firm complexity in my regression model, even though in many studies client complexity is found to be one major attribute affect audit fees. In this study the main interest was in the relationship of operating leases and audit fees, and as I have included other important control variables measuring client size and riskiness, I chose to ignore the complexity factor.

Specifically in audit fee models, there is a certain possible limitation of results, the exclusion of demand attributes in audit markets. Governance mechanisms are a good example of demand attributes, since they can create more demand for external assurance, which increases demand of audits (Eilifsen et al., 2001) and further could affect audit fees. Literature is largely focused on supply attributes of audit markets, even though also demand attributes affect audit markets and pricing of services on them. Other variables than the client size have faced mixed results. These mixed results of important variables may be due to the above stated inherent problems of the production based audit fee model. (Hay et al., 2006)

The data in this study was obtained from Compustat and Audit Analytics databases. As the data is entered in the database, there is a possibility of errors. Also, I do not have absolute certainty of the reliability of the companies' data registered to databases. This study also contains some presumptions in calculations, including the estimated borrowing rate of 8% and the estimated average life of the leased asset.

Regardless of these limitations, the results of this study can be taken as an indication of a relationship between audit fees and operating leases. Many impressive, similar studies of audit fee determinants exist and this study contributes to the same topic with a new attribute, so I have no reason to doubt the research method and choices. This study contributes to the audit fee literature as well as to the operating lease literature by bringing new standpoints to both subjects.

8.3 FURTHER RESEARCH TOPICS

In 2019, companies are required to disclose operating leases on their balance sheet. Until then we can only estimate the results of capitalizing operating leases. In a few years, it would be interesting to study the actual effects resulting from the transition to the new standard IFRS 16. Have the capital structures of firms changed and have companies relying on operating leases modified their funding methods? As capitalizing leases affect the amount of debt and assets as well as some important profitability ratios, what kind of effect has this new standard had on investors' evaluations on firms, and do leases have a bigger role in assessing a firms potential? Also, the effects of capitalizing operating leases on audit fees could be confirmed through historical data analysis after a few years. This study focuses on the time prior to a regulatory change and thus studies afterwards could provide interesting evidence on the actual results.

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