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# The new lease standard

Are the investors and the IASB of the same opinion regarding the allocation of expenses?

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**Abstract**

The International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) have jointly released an exposure draft regarding a new lease standard. According to the exposure draft, the new lease standard will result in significantly changes in lease accounting. The most important change is that the current operating lease contracts will be recognized in the statement of financial position, and that the expenses will not be recorded on a straight-line basis. This paper aims to bring clarification about if investors and the IASB are of the same opinion regarding the allocation of expenses associated with an operating lease contract during the lease term. By empirical testing, the authors concluded that the investors do not share the IASB's view regarding the allocation of expenses associated with an operating lease contract. Accordingly, if the new lease standard will be implemented, the authors find that the accounting information will be less useful from an earnings perspective.

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# Table of contents

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1 Introduction	<b>5</b>
1.1 Background	5
1.2 Problem discussion	6
1.3 Aim	9
1.4 Scope	9
2 Literature review	<b>10</b>
2.1 Accounting framework	10
2.2 Attitude of users	13
2.3 The concept of constructive capitalization	15
2.4 Capitalization effects	17
2.5 Efficient market and value relevance	21
3 Research design	<b>24</b>
3.1 Literature Review	24
3.2 Development of the regression model	24
3.3 Estimations for capturing the capitalization effect	26
3.4 Data collection	33
3.5 Sample	35
3.6 Regression diagnostics	35
4 Empirical Findings	<b>37</b>
4.1 Descriptive statistics	37
4.2 Regression results	37
4.3 Hypothesis testing	38
5 Discussion	<b>39</b>
5.1 Further research	42
Bibliography	<b>43</b>
Articles	43
Books	45
Electronic Resources	45

# 1 Introduction

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## 1.1 Background

This paper examines if professional investors share the International Accounting Standards Board's (IASB) view regarding the expenses associated with operating lease contracts. Furthermore, we will discuss the potential implications if professional investors and the IASB are not of the same view.

The globalisation process has increased the demand for standardized accounting rules that would lower entities accounting and financing costs. The IASB and the FASB<sup>1</sup>, which are considered the world's most important standard setters, have responded to that demand. By the year of 2002, the IASB and the FASB agreed to start a convergence project with the purpose to make the accounting information more harmonized. In the context of the harmonization process, the IASB and the FASB released an exposure draft regarding leases, with the aim to release a new, joint lease standard by the year of 2011 (Marton et al. 2010).

There are significant differences between the IASB's current lease standard (IAS 17), and the proposed exposure draft. In short, IAS 17 makes a distinction between two types of lease obligations, operating leases and finance leases. If the lease is classified as finance, the lessee must recognize an asset and a liability associated with the lease commitment, but if the lease commitment is classified as operating, the lessee do not recognize any asset or liability associated with the lease. If a lease is classified as operating, the expenses are distributed straight-line over the lease term, but if a lease is classified as finance, the expenses are higher in the beginning of the lease term and lower at the end. Therefore, the two types of lease commitments will affect the net income differently for any given accounting period.

The new standard according to the exposure draft will treat nearly all lease obligations equal, in a way that has similarities with the current accounting rules for finance leases. The IASB claims that the new standard, in accordance with the exposure draft, would harmonize with the definitions of assets and liabilities in the Conceptual Framework,

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<sup>1</sup> The Financial Accounting Standard Board is the American counterpart to the IASB (Nilsson 2010).

which the existing IAS 17 fails to do. The new standard would, according to the IASB, increase the comparability between entities, which is one of the qualitative characteristics specified in the Conceptual Framework.

There have been several researches in the lease field. According to Beattie et al. (1998), operating lease commitments represented 39% of the recognized liabilities among UK entities. Moreover, the aggregated value of operating lease assets in Europe was €685,6 billions during the year of 2009, which equals approximately 20% of their equipment investments (comment letter: Leaseurope). Beattie et al. (1998), Durocher (2008), Fülbier et al. (2008), among others have shown that key ratios such as return on assets and debt to equity will be improved by not recognizing an asset and a liability. The combination of the frequent using of operating leases and the impact on key ratios are reasons that we believe help explain the big interest regarding leases among academics.

## **1.2 Problem discussion**

It is obvious that operating leases are a major financing source and that they can have a great impact on the financial reports if capitalized. Moreover, the respond rate to the exposure draft was very high, which further highlights the importance of the subject (comment letter summary). However, the responses from users of the financial reports were initially marginal. Since investors are considered the most important users according to the Conceptual Framework, the low response rate among professional investors can be seen as an issue since it increases the risk that a new standard deviates from users perceptions regarding the economical consequences of a lease contract.

Before, going any further with this paper, we want to clarify our assumptions regarding the professional investors' ability to assess economical consequences and their impact on security prices. We consider that large-sized professional investors have both the time and resources to, by available information, evaluate the economical consequences of a transaction or an event. Moreover, since the professional investors are trading with high amounts and in a high frequency, they will to a high extent affect security prices by their actions in the market (Chan et al. 1995). Besides the professional investors, the analysts also have time and resources to evaluate available information and convey their findings to less informed investors (Beaver 2002). Accordingly, we believe that the price of a security reflects investor's perception about transactions and events, and hence, the price can be seen as a predictor for economical value. The previously

assumption does not mean that unavailable information would be reflected in the market price.

There are several studies that have examined how investors consider operating leases in a shareholder risk assessments. The findings from Ely (1995) and Beattie et al. (2000) show that investors recognize both an asset and a liability associated with the operating lease obligation and that it affects their assessments of shareholder risk. They show that investors applied a sophisticated method, to a high degree consistent with the existing accounting standard for finance leases, which shows that the IASB and investors are of the same opinion that an operating lease contract should be classified as an asset and a liability.

However, as far as we are concerned, no studies have examined how investors adjust for operating leases in equity valuation. Boatsman et al. (2011) consider the little attention to how capitalization of operating leases might affect equity valuation surprisingly, since several papers have examined the impact on financial statements. Berk et al. (2007) states that the value of a firm can be derived from the present value of future cash flows available for its shareholders. Greenberg et al. (1986) shows that accounting earnings are generally a better predictor of future cash flows than current cash flow. Therefore, we believe that the earnings measure might be important for investors when making equity valuation. This is consistent with Fernández (2002) findings that investors use some valuation multiples based on accounting earnings in a higher extent than they use discounted cash flow models. Unfortunately, we believe that the new lease standard, if implemented, would worsen the usefulness of earnings as a predictor for future cash flow. The underlying motives for this assumption is that we consider the leased asset and the associated financing as part of the same contract, since an operating lease is a right to use an asset, not a phenomenon that has similarities with a purchase. That is, when an object is leased under an ordinary rental we consider the decrease in economical benefits in most cases equal for each accounting period under the lease term. Therefore, we are of the opinion that the current rental expense, which often equals the outflow of cash, is a good approximation for actual decrease in economical benefits and thereby the expense over an accounting period. This view is not consistent with the IASB's perspective, since the new lease standard requires an effective interest method for all leases. The consequences of the effective interest

method are that the recognized expenses would be higher in the beginning of the lease term and lower in the later part. We claim that this method does not, in an accurate way, reflect the decrease in economical benefits for leases with operating characteristics for any given accounting period. Accordingly, accounting earnings will be worsened as predictors of future cash flows. Therefore, we believe that the usefulness of accounting earnings will decrease since these will be less accurate as predictors for future cash flows and accordingly less useful for investment decisions whether to buy, hold or sell stocks. Since the accumulated accounting earnings will affect equity, we believe also that equity would be less relevant for investors in stock valuation during the lease term.

We want to make clear that it is the IASB's task to define under which circumstances an expense should be recorded, not the investors. The Conceptual Framework states that an expense can occur due to a decrease in economical benefits. However, from our point of view, investors are likely to be the best assessors of the economical consequences and thereby the expenses occurring from an operating lease contract since well-informed investors and analysts have extensive resources and the time. Therefore, the market price of a security would reflect the entire investors consensus perceptions.

According to the exposure draft, the new lease standard will provide investors with more information regarding the lease contract than the existing standard for operating lease contracts. Hence, the ability for investors to make assessments regarding operating leases might increase. However, we believe that the existing standard provides sufficient information for the investors to evaluate the operating lease contracts in quite a similar way, as if the new standard was already implemented. With the above assumptions in mind, we are able to draw the conclusion that professional investors perceptions about the economical consequences occurring from an operating lease contract, will be reflected in the market price.

If our assumptions regarding the consuming of economical resources occurring from a lease contract are consistent with the investors' opinion, the new lease standard will be inaccurate from an earnings and an equity perspective. Consequently, in order to create a new lease standard that match the investors' demand, it is important that investors agree with the IASB's view of consuming of economical resources occurring from an operating lease contract. Therefore, we find it interesting to investigate if investors and



the IASB are of the same opinion regarding the allocation of expenses associated with an operating lease contract during the lease term. In order to test this issue statistically, an operationally testable hypothesis is formulated as follows:

***Investors adjust for operating leases with respect to net income and equity in accordance with the proposed new lease standard***

### **1.3 Aim**

The primary aim of this paper is to bring clarification regarding if investors and the IASB are of the same opinion regarding the allocation of expenses associated with an operating lease contract during the lease term. As a consequence of achieving the primary objective, we will also be able to discuss the implications for the investors if the new lease standard will be implemented.

Hopefully, this paper will be of some interest for standard setters since it implicitly evaluates a part of the new standard.

### **1.4 Scope**

In this paper we focus on the investors' assessments of the lessees' lease accounting, accordingly lessors' lease accounting is beyond the scope of this paper. We examine the year 2007, since one of the criteria's for collecting entities to evaluate was that they applied IFRS in their consolidates. Furthermore, we wanted not to drop too many entities due to negative earnings or equity that otherwise would have caused "noise" to the model.

We have examined listed entities from the following countries: Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Rumania, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom.

## 2 Literature review

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### 2.1 Accounting framework

IAS 17 is the current international accounting standard regarding leases. According to IAS 17 (4) “ a lease is an agreement whereby the lessor conveys to the lessee, in return for payment or series of payments, the right to use an asset for an agreed period of time.” A lease can be classified as either finance or operating. “A finance lease is a lease that transfers substantially all the risks and rewards incidental to ownership of an asset” (4). “An operating lease is a lease other than a finance lease” (4). The standard gives several guidelines to help classifying the lease contract. The bottom line is that the substance of the contract determines the classification, rather than the legal form (10-13).

If the lease is classified as finance, the lessee must recognize an asset and a liability equal to the fair value of the underlying asset or, as the present value of the future minimum lease payments if that value is lower than the fair value of the underlying asset (20). The minimum lease payments consist of the payments that the lessee is obligated to transfer to the lessor during the lease term and the guaranteed residual value. If an option that gives the lessee a right to purchase the leased object to a price that is significantly lower than the market price, then, the fee for exercising to option will be included in the minimum lease payments (4). The lease term is equal to the length of the contract unless it is reasonable to assume that a renewal option will be exercised (4).

The discount rate used in the present value calculations of the minimum lease payments, is the implicit rate that makes the present value of the minimum lease payments equals the fair value of the leased object. That is the rate that the lessor charges the lessee for financing the lease object. If the implicit rate is unknown, the entity will use it's marginal interest rate, which is the interest rate the firm will pay if increasing debts. Any starts up amounts shall be included to the amount of the recognized asset (20).

The liability is reduced by the effective interest method. The effective interest method leads to that the minimum lease payments are disaggregated into one part interest

expense and one part reduction on the outstanding debt. The reduction on the outstanding debt is the difference between the interest component and the lease payment for the accounting period. The interest rate for the debt is the entity's implicit rate that is constant for the whole period. Since there will be a reduction on the outstanding debt for each accounting period, the interest expense will decrease for all the accounting periods until the end of the lease term. The leased asset will be depreciated/amortized in accordance with IAS 16 or IAS 38 and will be fully depreciated under the lease term unless the lessee will assume ownership after the lease period (27). For finance lease contracts based on contingent fees, the contingent rents will be recorded as an expense when occurring (25).

If the lease is classified as operating, the lessee shall not recognize an asset or a liability associated with the lease in the statement of financial position. The lease payments will cause expenses on a straight-line basis when occurring, unless another method better provides a fairer view of the consuming of benefits (33).

There are several disclosures requirements (in addition to meet the requirements of IFRS 7) for an operating lease in accordance with the standard. The lessee must disclose current rental expenses, payments falling due within one year, between two to five years, and beyond five years. Moreover, the lessee must provide a general description about all lease agreements of matter (35).

According to the exposure draft, the existing standard for leases has been criticised. By the 17 August 2010, the IASB and the FASB released an exposure draft of a new lease standard (exposure draft). In order to understand the underlying motives of the IASB during the process of developing a new lease standard and to understand the complexity of our aim, we believe it is appropriate to have at least basic knowledge about the Conceptual Framework. Hence, we will provide the reader with a summary of the most pertinent content of the Conceptual Framework and those parts that are particularly of interest for the new lease standard.

The main purpose with accounting information according to the Conceptual Framework is to provide useful financial information for the users. The Conceptual Framework specifies a whole range of potential users but states implicit that investors can be seen as the most important category since they provide entities with equity, hence, what is in

the interest of the investors is of interest also for the others. Accounting information is considered to be *useful* for investors if it can be used to make investment decisions whether to buy, hold or sell stocks (Conceptual Framework). The accounting information is useful for making investment decisions if it achieves certain qualitative characteristics, where *relevance* and *faithful representation* are the most important (QC5). The financial information is considered to be relevant if it affects users when making decisions by facilitating to predict future outcome and to provide feedback about past evaluations (QC6-QC9). Marton et al. (2010) claim that from an investor perspective, the information is relevant if it can be used to predict future cash flows. By empirical findings, Greenberg et al. (1986) prove that accrual based accounting is superior in estimating the entities ability to generate resources in the future compared to cash flows. Consistent with this finding, Fernández (2002) shows that valuation multiples containing accounting measures were more commonly used among analysts than the discounted cash flow model.

*Faithful representation*, which is the other key qualitative characteristic, is achieved if the information faithfully represents what one can assume it is representing. Moreover, the conceptual framework also provides four additional qualitative characteristics, which aim to clarify what characterize relevant and faithfully represented information. These are *comparability*, *verifiability*, *timeliness* and *understandability* (QC19).

According to the IASB, the existing lease standard does not meet the needs of the users because it fails to faithfully represent lease transactions in the financial statements. In particular, the standard does not provide investors with relevant information regarding rights and obligations that satisfying the definitions of assets and liabilities in the Conceptual Framework (exposure draft). Moreover, the sharp line between operating and finance leases might lead to that similar transactions can be recorded differently and omit complexity regarding the rights and obligations, hence, harm the comparability between entities. As a consequence, users are currently making adjustments to assess the real consequences in terms of assets and liabilities arising from operating leases (exposure draft).

According to the exposure draft, the current method where to divide leases' into either finance or operating lease will come to an end. Instead, the lessee shall recognize a

right-of-use asset and a liability equal to the present value of future lease payment during the lease term. The lease term is the longest period more likely than not to occur. If there are several potential lease terms, the lease term is estimated as the shortest of the longest terms that together exceeds a probability of at least fifty percent to occur. Options, contingent rentals, payments under term options penalties and value guaranties shall be considered in the lease term estimation. When estimating the lease payments, the lessee must consider the present value of all reasonably possible outcomes during the lease term. Thereafter, all the outcomes will be multiplied by its probability to occur, which gives an expected value equal to the weighted average of all the possible outcomes (exposure draft).

The discount rate used in the present value calculation is the implicit rate, if not known, the lessee's incremental borrowing rate. The liability is reduced by the effective interest method, similar to finance lease in IAS 17. The entity shall also recognize an amortizing cost on the right-of-use asset. The asset will be amortized on a systematic basis in accordance with IAS 38 (exposure draft).

If the leased asset is in the category of IAS 16 (property, plant and equipment), the asset can be revaluated at its fair value, provided that all the other assets within the category are also being revaluated. The revaluation will result in a gain or a loss in line with IAS 38. The lessee shall apply an impairment test at the end of each accounting period in line with IAS 36 (exposure draft).

If there are indications of significantly changes in the underlying factors that the estimations regarding the lease liability is based on, the lessee is required to reassess the value of the liability. Those factors are the lease term and the expected outcome of lease payments. As a consequence, if it is assessed that the lease term or the estimation about the lease payments have changed during the current or prior periods, an adjustment of the right-of-use asset is required and a profit or loss will be recognized. If the change relates to future periods, an adjustment of the right-of-use asset is required (exposure draft).

## **2.2 Attitude of users**

This section aims to depict the respondents' of the exposure drafts opinions regarding the new standard. The majority of the below comments are from the document

comment letter summary, issued by the IASB and the FASB. In order to give more depth in some particular questions, opinions from specific respondents are also presented. Moreover, since our paper focuses on investors' attitude to the proposed allocation of expenses, we put extra emphasis on users' answers about these issues.

According to the comment letter summary, most respondents were supportive to a jointly, new lease standard. Furthermore, the respondents appreciate that the existing "bright line" between operating and finance leases will disappear and therefore, lead to improved comparability between companies. However, there were concerns that new comparability issues would arise since additional judgements about the lease term and lease payments would be required (comment letter summary).

Almost all users report that they adjust for operating leases in the statement of financial position and accordingly support the underlying principle of the right-of-use model. However, some users admitted that they adjust with a simplified factor method and that a new standard would therefore provide better information. Furthermore, some users mentioned that they would continue to adjust the financial reports even if the standard is changed, since they want to derive asset and liabilities from real cash flows. Many respondents expressed concerns over the fact that all leases are treated similar to a purchase of an asset with one hundred percent debt, even if the lease has operational characteristics (comment letter summary). Credit Suisse agreed that the underlying ideas behind the expense allocation are true for a financed purchase of an asset, but questioned its appropriateness in an operating lease context, since it gives a false reflection of the economic consequences of a lease arrangement (comment letter: Credit Suisse). UBS are of the same opinion as Credit Suisse and therefore they questioned if the proposed method would bring additional information for users (comment letter: UBS).

According to the comment letter summary, users were concerned that the front loaded expense pattern would result in a deviation from the real cash flows occurring from the lease contract. They also consider the expense as rental in nature and claimed that the asset and the corresponding liability should be linked during the entire lease term, since they are part of the same contract, which implies that the asset can not exist without the lease commitments (comment letter summary).

The new standard advocates an amortization expense and interest expense instead of the existing operating rental expense. Some users are supportive to this approach since they are currently making those adjustments. However, not all of the users that are making the adjustments share the IASB's view regarding how to calculate the interest expense. The users that disagree with the effective interest method are making adjustments so that the total expenses associated with the leased object will be equal for each accounting period. Therefore, users advocated that the expense should be recognized on a straight-line basis in accordance with the existing method for operating leases. To achieve straight-line expenses while the effective interest method is applied, some users suggested annuity-based amortization of the asset (comment letter summary). A firm supporting this approach was Citigroup, which considered a clear linkage between the right-of-use asset and the liability during the entire lease term. Therefore, they argued that this connection should also be reflected in the income statement by equal expenses for each accounting period. With this approach, they also believed that the recorded expense would be closer to cash flow and thereby increase the transparency for users (comment letter: Citigroup). The IASB considered this approach in a discussion paper, but rejected it since they argue that an inconsistency with other financial liabilities would arise, which would reduce comparability. Moreover they did not in all cases see the linkage between the right-of-use asset and the liability after inception as well as they claimed that this approach required separation of operating and finance leases (discussion paper).

In summary, respondents in the comment letter summary supported the IASB's efforts to create a new lease standard, since they agree on the right-of-use model. They believed that the right-of-use model will have the potential to increase comparability and transparency. However, we cannot identify a unified opinion regarding the expense allocation regarding the new standard.

### **2.3 The concept of constructive capitalization**

The following section aims to illustrate the effects on the financial statements if operating leases are artificially transformed to finance leases. Besides, we outline Imhoff et al.'s (1991) (henceforth ILW) 'constructive capitalization' method, which is method for transforming operating leases to finance lease with only public information about future operating lease payments available. According to Boatsman et al. (2011),

ILW's (1991) method is sophisticated and frequently thought in an investment banking training and in M.B.A classes.

By capitalizing operating leases, a liability and an asset will be recognized in the balance sheet. In consistency with the existing standard for finance leases (IAS 17), ILW (1991) calculated the liability as the present value of the future minimum lease payments. From a theoretical perspective, ILW (1997) claim that the most appropriate discount rate for the present value calculation is the average implicit interest rate for the entire operating lease portfolio. Due to this rate is rarely disclosed for operating leases, qualified assumptions are required. In addition, since each year payment is not disclosed for the entire lease term, additional assumptions of these are necessary (ILW 1991).

Furthermore, consistent with existing standard for finance leases (IAS 17) and exposure draft, ILW (1991) claim that the liability will be equal to the asset at inception of the lease, but that their book values will differ in subsequent accounting periods. This effect occurs since the asset is depreciated straight-line over the lease term, while an effective interest method is required for the liability. Consequently, the asset will decrease constantly over the lease term, but the liability will decrease in a lower pace in the beginning of the lease term respectively in a higher pace in the latter part due to the effective interest method. This implies that 'constructive capitalization' of operating leases always has a negative effect on equity for the entire lease term.

ILW (1991) claim that the asset associated with the capitalization of operating leases is more difficult to estimate than the liability, since estimation of an average age of the operating lease portfolio is required. This estimation is necessary for determine the accumulated depreciation and thus the book value of the asset. By making assumption of the total and remaining lease life of the portfolio, estimations of the average age can be done. If the average age is known, the book value of the asset can be calculated by express it as a percentage of the estimated liability. Since the liability will exceed the asset, a deferred tax effect will occur, which mitigate the effect on equity (ILW 1991).

ILW (1997) argue that even if the effects on the income statement of capitalizing operating leases are less clear than those in the balance sheet, they cannot be ignored. By capitalizing operating leases, the rental expense associated with operating leases is



substituted by an interest and a depreciation component. Since operating lease rental expense is in most cases constant over the lease term and the interest expense decreases with time due to the effective interest method, there is a difference in reported expense if the lease is accounted as operating compared to if it has been capitalized (ILW 1997). Consequently, the interest and depreciation expense will exceed the operating lease rental expense in the beginning of a lease term and cause a negative effect on net income. According to ILW (1991), when operating lease rental expense equals total expenses associated with capitalized operating leases, a zero effect on net income will be obtained, but maximum effect on equity will arise. After that point, which occurs halfway in the lease term, operating lease rental expense will exceed interest and depreciation expense, giving an positive effect on net income and a decreased negative effect on equity.

The effect on net income can easily be derived from balance-sheet changes since the impact on net income equals the change in equity between two fiscal years (ILW 1997). This calculation is equal to adding back the operating lease rental expense to net income and reduce it with the depreciation and interest expense associated with capitalization of operating leases (ILW 1993).

Finally, it should also be noted that ILW's (1991) 'constructive capitalization' method is based on three important assumptions. First of all, straight-line depreciation is applied for all capitalised assets. Secondly, both the liability and the asset equal the present value of future minimum lease payments in the beginning of the lease term. Finally, after the last lease payment, both the liability and the asset are zero. In addition to these underlying assumptions, further estimations and assumptions are required for the timing of cash flows, interest rate, tax rate, remaining lease life and total lease life (ILW 1991).

## **2.4 Capitalization effects**

Several studies have examined capitalised operating leases' potential impact on the financial statements. These studies rely more or less on ILW's (1991) 'constructive capitalization' method. ILW (1991) investigate the impact on key ratios among fourteen US entities in industries that generally have a large amount of operating leases. Within each industry, similar entities with respect to their firm size were divided into pairs with one firm having a high amount of leases and one with a low amount. The obtained

results were unambiguous, return on assets and debt to equity ratio for firms that had operating leases to a large extent decreased with 34% respectively increased with 191%. For firms with a low amount of leases, the same ratios decreased with 10% respectively increased with 47% (ILW 1991). In the previous study, the impact of capitalizing operating lease was analyzed from a balance sheet perspective only. However, ILW (1997) argue in a subsequent paper that the income statement is significantly affected as well, which implies that incomplete adjustments can lead to inaccurate results and conclusions. Moreover, ILW (1997) point out that income statement adjustments are particularly important for firms with either increasing or decreasing operating lease portfolio. The conclusions regarding required income statement adjustments were based on a study examining the similar key ratios as in ILW's (1991) study.

Beattie et al. (1998) rely on ILW's 'constructive capitalization' method in order to investigate effects on a wide range of performance ratios if operating leases were capitalized. A sample of 300 UK companies was randomly selected. In contrast to ILW (1991), whom suggest general assumptions, Beattie et al. (1998) consider it pertinent to incorporate firm-specific assumptions on certain variables. Descriptive statistics indicate that the appearance of operating leases varied considerably between industries. For instance, unrecorded liabilities in the service sector represented 69 % of on-balance long-term debt, while the same number was merely 3% for the mineral extraction industry. Further, for the whole sample, evidence was found that profit margin, return on assets, return on equity, asset turnover and debt to equity ratio were significantly affected by capitalizing operating leases. For instance, return on assets decreased with 10,8% and debt to equity ratio increased with 92,8%. The extensive impact did also mean that the relative ranking between companies with respect to performance ratios was changing. However, the results did also reveal that the impact on the performance ratios was not significant in certain industries.

Prior research has also in more depth explored the potential impact of capitalizing operating leases in sectors that are generally involved in off-balance sheet arrangements to a high extent. For instance, Goodacre et al. (2003) find that operating leases was 3,3 times higher than long-term debt in the retail industry. In accordance with Beattie et al. (1998), it was found that all performance ratios were significantly

affected, return on assets decreased with 2,8% and debt to equity increased with 196,7%. Moreover, Goodacre et al. (2003) show a reduction in net income equal to 7% and improvement in earnings before interest and tax with 23%.

Fülbier et al. (2008) contribute to the research by examine the effects of 'constructive capitalization' on German listed companies. The sample included 90 companies from three large German indices and similar to prior studies, ILW's (1991) method was modified to reflect firm-specific features. Consistent with other studies, it was found that operating leases are a large finance source for German companies. However, merely marginal impact was found on profitability ratios such as return on asset and return on equity as well as on net income and earnings before interest and tax. In summary, existing research provides evidence that operating leases are a large financing source and that certain performance measures will be affected if they are capitalized. Goodacre (2003) claims that these effects might affect investment decisions since relative performance of companies may change. Furthermore, he points out that even credit decisions could be influenced since loan covenants often are tied to ratios that might be affected (e.g. debt to equity ratio). In contrast to these conclusions, Fülbier et al. (2008) argue that the impact of capitalization of operating leases should not be overstated since the effects on performance metrics and valuation multiples are only moderate.

The above studies, merely investigate the impact on financial statements. According to Lipe (2001), researches examining users consideration of operating leases are in a high degree focused on the association between operating leases and shareholder risk. Further, Lipe (2001) believe that one possible explanation for investigating this association could be that finance theory sees a clear link between obligations to make payments and risk. Ryan (1997) claim that there is a association between shareholder risk, defined as volatility in stock returns, and the firm's total risk, which can be decomposed in an operating risk component and a financing risk component (Ryan 1997).

ILW (1993) examine whether American investors make adjustments for operating leases in shareholder risk assessments among companies in industries that generally have a high degree of operating leases. The motive for performing an analysis within a

sector relates to the risk that operating risk can vary among industries and thereby affect shareholder risk. Hence, to be able to exclude operating risk from the analysis and thereby isolate the financial risk's affect on shareholder risk, a sample from a single industry is preferable (ILW 1993). The study's analysis was built on a regression model where shareholder risk, reflected as the volatility in stock prices, was regressed against financial leverage, expressed as debt-to-asset ratio (ILW 1993). Capitalization of operating leases was made with two different methods, ILW's (1991) 'constructive capitalization' method and a simple factor method. The results revealed that investors make adjustments for operating leases. However, variation in shareholder risk could better be explained by the simple factor method compared to ILW's (1991) 'constructive capitalization' method. Accordingly, ILW (1993) conclude that market participants do not fully consider operating lease footnote disclosures and argue that one possible explanation could be that they find it too costly to do sophisticated calculations.

Ely (1995) extend ILW's (1993) prior research by conduct a survey including different industries. In order to avoid the issue with varying operating risk among industries, Ely (1995) implement a control for this purpose by including the variable return on asset in the regression model. Furthermore, in contrast to ILW (1993), Ely (1995) express financial leverage as debt-equity ratio. Consistent with ILW (1993), Ely (1995) employ two alternative capitalization methods. The results show that investors consider operating leases in accordance with the existing accounting standard for finance leases in shareholder risk assessments. Ely (1995) draw this conclusion based on the finding that the alternative capitalization method had no marginal explanatory power.

Furthermore, Beattie et al. (2000) conduct a similar study in the UK market. In accordance with ILW (1993) and Ely (1995), Beattie et al. (2000) examine two alternative capitalization methods. In the first, Beattie et al. (2000) rely on Bettie et al.'s (1998) adjustments of ILW's (1991) 'constructive capitalization' method and in the second, a simple factor method was used. In consistency with the prior findings, Beattie et al. (2000) find that investors recognize a liability associated with operating leases in their shareholder risk assessments. In contrast to ILW's (1993), but consistent with Ely's (1993) findings, Beattie et al. (2000a) find that the simplified factor method did not reveal higher explanatory power than ILW's (1993) 'constructive capitalization'

method. Accordingly, the simple factor method had only greater explanatory power on shareholder risk compared to a more sophisticated capitalization method in the early study by ILW (1993). Beattie et al. (2000) conclude therefore that one possible explanation might be that investors have been more sophisticated over time. Furthermore, Beattie et al. (2000) also note that ordinary debt has significantly higher explanatory power for shareholder risk than operating lease adjustments and conclude therefore that operating leases are perceived less risky. Finally, Beattie et al. (2000) conclude that the market seems to be efficient since investors considered operating leases even for small and medium-sized companies.

## **2.5 Efficient market and value relevance**

There is plenty of evidence of the capital market being efficient. Gonedes (1997) states that the market reacts immediately when new information is released and as a consequence, all available information will be reflected in the market prices at all times. According to Fama (1965), the random walk theory states that in the efficient market, there are many intelligent investors who are all trying to maximize their profits by analyzing all available information, which is almost free for markets participants, in order to estimate the value of the securities. The competition among the investors will result in a situation where all the available information is reflected in the market price, both events that have already occurred and events that the market participants expect yet to come.

Beaver et al. (1973) examine if the market participants considered non-cash effects differences in accounting earnings. They compare entities with a straight-line depreciation with entities that applied an accelerated depreciation. Their findings indicate that entities applying the accelerated depreciating had higher earning multiples compared to entities using the straight-line method. The higher earning multiples disappeared when converting the earnings for the firms with accelerating depreciation, as if they were applying straight-line depreciation.

Kothari (2001) reviews research examining how the market participants react to earnings depending on which accounting method being used. His conclusion is that choice of accounting method does not affect the market prices since the authors do not observe any large price differences over time among entities that are applying different accounting methods. However, they did observe some abnormality when risk adjusting

the returns, but were not able to conclude that the observation was due to a minor lack in market efficiency, or if it was just a matter of difficulties to make assessments of long term returns.

In order to statistically evaluate whether investors consider specific accounting information in stock valuation, many recent studies relies on a concept called 'value relevance' (Beaver 2002). Simplified, value-relevance studies examine the connection between accounting information and market value of equity (Beaver 2002). The studies are based on theoretical valuation models in which accounting measures are incorporated. By expressing market value of equity as a function of accounting measures, both the coefficient associated with each independent variable, and the explanatory power for the whole function can be used in order to evaluate in what extent accounting information is associated with market value of equity (Barth et al. 2001).

Barth (1994) argues that value relevance studies can be used to test whether or not the accounting information is consistent with relevance and reliability, which are the two most important qualitative characteristics in the FASB Conceptual Framework. Since value-relevance studies can be used to investigate whether a particular accounting measure is significantly associated with a stock price, Barth et al. (2001) claim that value relevance can be seen as an operationalization of the concepts relevance and reliability specified in FASB's Conceptual Framework<sup>22</sup>. However, in order to test the consistency, one must accept a few assumptions. Barth et al. (2001) assume that the "true" value of equity is at all times reflected in the market price. Therefore, the market price of equity can be used as benchmark for the "true" value in order to test how well the accounting information lives up to the qualitative characteristics. However, Holthausen et al. (2001) state that one does not have to assume that the market is not able to make any errors, as they state that Barth et al. (2001) implicit states. In order to draw any conclusions from value-relevance studies, it is enough to accept the efficient market hypothesis. If one does not accept the effective market hypothesis, then the

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<sup>22</sup> We believe that the operationalization should also be valid in a European context since Nilsson (2010) states that IASC (the predecessor of the IASB) developed a Conceptual Framework that did not significantly differ from FASB's. Moreover, we consider the definitions of relevance and reliability under the FASB's conceptual framework rather similar to the qualitative characteristics relevance and faithful representation.

stock price would not be a good proxy for evaluating which accounting information that is of interest for the investors.

To sum up, value relevance studies can be used to examine how investors consider accounting information. However, in order to explain more than how much an accounting variable is affecting market prices, one have to assume at least the efficient market hypothesis.

## 3 Research design

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### 3.1 Literature Review

We have searched for articles in Business Source Premier (BSP) using the following keywords: “Value relevance”, “Capitalizing”, “Capitalizing operating lease”, “Constructive capitalization”, “impact on key ratios”, “valuation models used by analytics”, “valuation multiples”, “IAS 17”, “lease accounting”, “off balance sheet financing”, “disclosure vs. recognition”, “Efficient market” and “earnings vs. cash flow”. Thereafter, we reviewed journals that we perceive publishing high quality research articles. Among the journals, the following ones have been particularly useful for our research: Accounting and Business Research, Accounting Horizons, The Accounting Review, Journal of Accounting and Economics and Journal of Business Finance & Accounting.

### 3.2 Development of the regression model

This section aims to present the methods that have been used in order to achieve our aim. The primary aim of this paper, as presented in an earlier chapter, is to bring some clarification if investors and the IASB are of the same opinion regarding the allocation of expenses associated with an operating lease contract during the lease term. This will be achieved by testing our operationally testable hypothesis:

*Investors adjust for operating leases with respect to net income and equity in accordance with the proposed new lease standard*

Our hypothesis will be tested by an OLS regression analysis. The foundation for the regression analysis is a simplification of Ohlson’s (1995) model, used by Collins et al. (1997). In this model market value of equity is regressed on net income and book value of equity.

$$P_i = \alpha_0 + \alpha_{NI}NI_i + \alpha_{BV}BV_i + \varepsilon_i \quad (1)$$

$P_i$  is the average price per common share of firm  $i$  three to four months after the fiscal year end 2007.  $NI_i$  is the reported net income attributable to common shareholders per common share for firm  $i$  during the year 2007 and  $BV_i$  is the reported book value of



equity attributable to common shareholders per common share for firm  $i$  at the end of the fiscal year 2007.

Model (1) serves as a benchmarking model in which we add sufficient variables for testing our hypothesis. As stated in the problem discussion, we assume that investors are able to adjust the reported numbers in accordance with their perceptions about the economic consequences. Accordingly, if they consider that an allocation of expense in accordance with the proposed new standard is preferable, their perceptions would be impounded in market value of equity. In order to isolate the accounting difference between the existing straight-line expense allocation and the allocation pattern in accordance with the proposed new standard, we use the variables effect on net income ( $ENI$ ) and effect on book value of equity ( $EBV$ ). The reason for including effect on book value of equity is that the accumulated effect on net income is reflected in this variable. These variables are added to the benchmarking model.

$$P_i = \alpha_0 + \alpha_{NI}NI_i + \alpha_{ENI}ENI_i + \alpha_{BV}BV_i + \alpha_{EBV}EBV_i + \varepsilon_i \quad (2)$$

where the additional variables  $ENI_i$  is the effect on net income per common share for firm  $i$  during the fiscal year 2007 and  $EBV_i$  is the effect on book value per common share for firm  $i$  three to four months after the fiscal year end 2007.

In order to test our hypothesis we examine whether the variables  $ENI$  and  $EBV$  are useful predictors of  $P$ . In other words, if  $ENI$  and  $EBV$  are significant in the regression model. Therefore, we test if the following condition is satisfied:

$$\alpha_{ENI} > 0 \text{ and } \alpha_{EBV} > 0$$

If the above condition is true while the signs of the coefficients equal our expected, we can also conclude that investors adjust for operating leases with respect to net income and book value of equity in accordance with the proposed new lease standard. If the condition is not satisfied or the signs of the coefficients do not equal or expected, we can conclude that investors do not adjust for operating leases with respect to net income and book value of equity in accordance with the proposed new lease standard.

Since the capitalization effect on  $ENI$  can be either positive or negative, our expected sign of  $\alpha_{ENI}$  is ambiguous. On the contrary, as we have shown in section 2.3, the

capitalization effect on *EBV* is always negative. Therefore, we expect to get a negative sign of  $\alpha_{EBV}$ .

### **3.3 Estimations for capturing the capitalization effect**

This section contains an examination of the required estimations and assumptions for calculating the variables *ENI* and *EBV* in regression model (2). We also aim to discuss prior research' estimations and assumptions for capitalizing operating leases, as well as we motivate our selected estimations and assumptions. The foundation for the capitalization process is ILW's (1991) 'constructive capitalization' method. First of all, we want to clarify that this method is based on the accounting standards for finance leases. The reason for using a method based on the standards for finance leases is that we were not able to do some of the estimations that the new standard requires. The probability based calculations of the lease term and the lease payments required by the new standard is not possible to make, since the existing standard does not require disclosure of contingent rentals and other items that must be consider according to the new standard. Moreover, it is not possible to assess potential reassessments that will occur if the lessee considers that the factors that the lease term and lease payments were built on, have significantly changed.

However, our intention is not to examine if the investors are making adjustments exactly as if the new standard was already implemented. Instead, our aim is to investigate if investors share the underlying concepts regarding the allocation of expenses in terms of the effective interest method and amortizing of the asset. Despite the complex judgements in the new standard, we believe that the existing standard for finance lease are conceptually similar to the new standard, since both recognize an asset and a liability as well as both applying effective interest method and amortization. Furthermore, for entities with merely non-cancellable obligations, the recognition associated with the leased object should be quite similar under the existing lease standard and the new standard. Regarding the reassessment of the lease liability, we believe that the IASB's motives for mentioning the term 'significantly changes' in the reassessments guidance, was to prevent complex judgement for the lessee each year for every lease contract. Accordingly, we believe that reassessments would be rather rare in practice.

To sum up, we find our method based on ILW's (1991) 'constructive capitalization' sufficient in order to achieve our aim. We start by exploring the primary formulas for calculating the effect on book value of equity (*EBV*) and the effect on net income (*ENI*). Since the effect on net income (*ENI*) is calculated as the difference in the effect on book value of equity (*EBV*) between two years, the following calculations are done for both year 2006 and 2007. The effect on equity (*EBV*) is calculated as the difference between the asset and the liability associated with capitalization of operating leases:

$$EBV_i = (A_i - L_i) \times (1 - T_i)$$

where  $A_i$  is the asset associated with capitalization of operating leases per common share for firm  $i$  at the end of the year 2006 and 2007.  $L_i$  represents the liability associated with capitalization of operating leases per common share for firm  $i$  at the end of the year 2006 and 2007.  $T_i$  is our calculated tax rate for firm  $i$ .

The effect on net income (*ENI*) is estimated as the difference between the effect on book value of equity between two years:

$$ENI_i = EBV_i - EBV_{i2006}$$

where  $EBV_{i2006}$  is the effect on book value for year 2006. As outlined in section 2.3, ILW's (1991) 'constructive capitalization' method takes its starting point in estimating the liability associated with operating leases. The liability is calculated as the present value of the future minimum lease payments:

$$L_i = PV \sum MLP_i$$

where  $MLP_i$  is the future minimum lease payments for firm  $i$  at the end of the year 2006 and 2007.  $PV$  denotes present value.

The corresponding asset is derived from the liability and the proportion between them at a specific time is calculated as follows:

$$A_i / L_i = \left( \frac{RL_i}{TL_i} \right) \times \left( \frac{PVT L_i}{PVRL_i} \right)$$

where  $RL_i$  is the average remaining lease life for firm  $i$  at the end of the year 2006 and 2007 and  $TL_i$  is the average total lease life for firm  $i$  at the end of the year 2006 and

2007.  $PVTL_i$  represents the present value of minimum lease payments at leases inception for firm  $i$  at the end of the year 2006 and 2007 and  $PVRL_i$  is the present value of minimum lease payment over the remaining lease life for firm  $i$  at the end of year 2006 and 2007. When  $A_i/L_i$  is determined,  $A_i$  can easily be calculated:

$$A_i = \left( \frac{A_i}{L_i} \right) \times L_i$$

To sum up, the above formulas are essential for determine the effect on book value of equity ( $EBV$ ) and the effect on net income ( $ENI$ ). However, further estimations and assumptions are required to enable application of the formulas. ILW (1991) report that estimations and assumptions are required for the following items; timing of cash flows, interest rate, tax rate, remaining lease life and total lease life. The following section will review prior research assumptions and discuss our estimates on each required item.

In order to estimate the liability, estimation of the timing of cash flow is required. According to IAS 17, the lessee is at minimum obligated to disclose total operating lease commitments decomposed in amounts that falling due within one year, between two to five years and beyond five years. Consequently, the aggregated amount of commitments maturing between two to five years has to be disaggregated to yearly payments. According to Fülbier et al. (2008), a suitable assumption is that the payments decrease constantly between year two to five. Hence, the specific year's payment is calculated by multiplying the previous year's payment with a constant. We find Fülbier et al.'s (2008) assumption logical and therefore we rely on this. However, we reformulate Fülbier et al.'s (2008) original equation to suit our data procession.

$$MLP_{i,y+1} = \frac{MLP_{i,y}}{(1 + dg_i)}$$

where  $dg_i$  is a constant factor for firm  $i$  at the end of the year 2006 and 2007.  $y$  is the number of years, with the start of the year 2006 or 2007. Since the sum of each year's payment must equal the disclosed number of payments falling due within two to five years, the following condition must be satisfied.

$$MLP_{i,2-5} = \sum_{y=1}^4 \frac{MLP_{i,y}}{(1 + dg_i)^y}$$

However, some firms explicitly disclose each years commitment for year two to five, hence, we do not use the degression factor for those.

Due to payments that will occur beyond five years are disclosed as a lump sum, we allocate those to specific years. ILW (1991) suggest that the fifth year's payment can be divided into the sum of commitments maturing beyond five years, which will give an approximation of how many years the payments will continue at the fifth year's level. Thus, this method assumes that each payment beyond five years is equal to the fifth year's payment. This method has also been employed by Durocher (2008). We rely on this method since alternative approaches are either not applicable when IFRS is applied or not harmonize with our other assumptions. The number of years that the minimum lease payments beyond five years will continue at the fifth year's level is calculated as follows:

$$NY_i = MLP_{i_{5-}} / MLP_{i_5}$$

where  $NY_i$  is the number of years that the future minimum lease payments beyond five years will continue at the level of the fifth year's payment for firm  $i$  at the end of the year 2006 and 2007. When the calculation gives a  $NY$  not equal to an integer, we round up to the next year, which gives rise to a slightly under estimation of the liability. Moreover, in accordance with prior research we assume that each payment is done at year-end, giving an even more conservative estimation.

Further, ILW (1991) suggest an alternative approach for determine each payment beyond five years, which utilizes expected remaining lease lives. For instance, by assuming that the remaining life is fifteen years, the payments falling due beyond five years are spread equally over ten years. ILW (1991) suggest in the survey, that uniform remaining lease life can be applied to all companies with robust results. However, we find the uniform approach too simplified since it do not capture firm-specific conditions. Moreover, this approach do not harmonize with our method for determine remaining lease life, which is explored downwards. Beattie et al. (1998) also came to the conclusion that uniform lease lives are not appropriate since considerable disparities were found in lease patterns among entities. As a consequence, Beattie et al. (1998) refined the latter uniform assumptions to be more company specific, by categorizing the lease objects with respect to their total lease life. Since Beattie et al.'s (1998) research

was conducted in an UK context where operating lease disclosures were more suitable for analyzing a specific firm's lease pattern with respect to remaining lease life than the current IAS 17 is, we do not find this approach appropriate for our research.

In order to discounting the future payments to present value, an estimation of suitable discount rate is required. The most appropriate discount rate from a theoretical perspective is each firm's average implicit rate for the whole operating lease portfolio (ILW 1997). Due to the lack of information regarding operating leases, ILW (1997) argue that finance leases implicit rate can be applied. However, from a theoretical point of view, the interest rate for an operating lease should be higher than for a finance lease since the lessor takes a larger ownership risk in the first case (ILW 1997). Moreover, we believe in general that the objects held under finance and operating leases may differ which reasonably should result in a difference in the interest rate for the two kinds of leases. Consequently, we find it not appropriate to apply the interest rate on a firm's finance leases for its operating leases.

Furthermore, ILW (1991) claim that the historical average interest rate for long-term debt can be used as an appropriate approximation of the implicit rate. In ILW's (1991) and Beattie et al.'s (1998) survey, a uniform discount rate was applied for all entities. Durocher (2008) refined the uniform discount rate approach by consider company-specific creditworthiness. A company risk premium derived from Standard & Poor's credit rating was added to a prime rate obtained by a Canadian bank.

We find it most appropriate to use the interest rate for long-term debt as an approximation for the discount rate. In contrast to ILW (1991) and Beattie et al. (1998), we consider it pertinent to estimate firm specific discount rates. Since we have some concerns that Datastream do not provide rates for all firms as well as some rates might be unrealistic, we introduce a control enabling us to substitute missing or unrealistic values. As a control we calculate mean and standard deviation for the interest rates of each sector. We treat firm specific interest rates, which are two standard deviations from sector mean as unrealistic. Those as well as missing values are substituted with the sector's mean interest rate.

*If  $MIN_s > R_i > MAX_s$*

*$R_i = Mean_s$*

where  $MIN_s$  and  $MAX_s$  is the sector mean reduced (increased) with two standard deviations for sector  $s$  at the end of year 2006 and 2007.  $R_i$  is the five years average interest rate for firm  $i$  at the end of the year 2006 and 2007 and  $Mean_s$  represents the five years average interest rate for sector  $s$  at the end of the year 2006 and 2007. The reason to apply an average five-year interest rate instead of only a specific year's interest rate is that IAS 17 and exposure draft advocates a fixed interest rate determined at inception of the lease term. Since the leases in most cases are entered at different times implies that different interest should be used to discount the minimum lease payments to present value. By apply a five-year average interest rate, we aim to capture the effect of leases concluded at different times. The motive to use sector means instead of an overall mean for the entire sample is that we believe there is a significant disparity in the interest rate among sectors.

Regarding the tax rate, we claim that the most appropriate tax rate from a theoretical perspective is each firm's average corporate tax rate, where subsidiaries in other tax jurisdictions are considered. Companies following IFRS are obligated to disclose a comparison between effective tax rate and the average corporate tax rate (IAS 12, p. 81c, 84). Unfortunately, Datastream does not provide that information as well as the efforts for collect the information manually would be excessive. Therefore, we rely on prior research and apply an average effective tax rate. For instance, Beattie et al. (1998), Goodacre (2003) and Fülbier et al. (2008) used an effective tax rate<sup>3</sup> for each firm calculated as the mean of thirteen years.

Since the effective tax rate can vary considerably between years, we find it pertinent to calculate the average effective tax rates in order to get as close as possible the average corporate tax rates. By using average effective tax rate, the effects of extra ordinary items and differences between accounting accruals and tax accruals would be mitigated and we achieve a good approximation of each firm's average corporate tax rate. Our tax rate for each firm is based on the effective tax rate for the years 2005-2009 provided by Datastream. Consistent with the interest rate calculation, we raise concerns that Datastream would provide false effective tax rates as well as missing values for some companies. Therefore, for firms with an effective tax rate that exceeds the highest and is

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<sup>3</sup> The effective tax rate is calculated as paid income tax divided by pre-tax income.

less than the lowest corporate tax rate in OECD<sup>4</sup> 2007, the corporate tax rate, which is applicable in each company's market, is applied.

If  $LOECD > T_i > HOECD$

$$T_i = MT_m$$

where  $LOECD$  and  $HOECD$  is the lowest (highest) corporate tax in  $OECD$  during the year 2007. Equal tax rate was applied for both years.  $T_i$  represents the calculated tax rate for firm  $i$  and  $MT_m$  is the corporate tax rate in market  $m$ .

In order to calculate the asset associated with capitalization of operating leases, an estimation of the average age of the operating lease portfolio is required. Consequently, the average remaining and total lease life has to be computed for each firm. ILW (1991 and 1997) assumed uniform remaining and total lease life for the entire sample. As reported previously, Beattie et al. (1998) found considerable disparities in remaining and total lease life among UK companies, why he suggested consideration of firm-specific lease patterns. The leased objects were classified with respect to their total lease life. We do not find it appropriate to apply this approach since IAS 17 merely provides information about total future lease payments while the UK equivalent provides next year's total payment, decomposed in amounts with respect to expiry date of the leases.

Therefore, we apply a method where we assume that future minimum lease payments equalize future cost. This assumption allows us to derive remaining lease life from the previous estimated timing of cash flows. By multiply each year with the fraction of the payment for a specific year and the total future minimum lease payments and then sum it up will give the average remaining lease life<sup>5</sup>.

$$RL_i = \sum_{y=1}^{\infty} (MLP_{i_y} \times Y) / MLP_i$$

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<sup>4</sup> We use combined income corporate tax rate, which consider both central statutory income tax rate and sub-central corporate income tax.

<sup>5</sup> Imagine a firm with the following payment profile: €100 (year 1), €50 (2), €30 (3), €20 (4), €5 (5), total €205. Average remaining lease life =  $(1 \times (100/205)) + (2 \times (50/205)) + (3 \times (30/205)) + (4 \times (20/205)) + (5 \times (5/205))$ .  $RL \approx 2$ .



where  $MLP_{iy}$  is a year specific future minimum lease payment for firm  $i$  at the end of the year 2006 and 2007.  $Y$  denotes number of years beyond the end of year 2006 or 2007.  $MLP_i$  is the total future minimum lease payments for firm  $i$  at the end of the year 2006 and 2007.

Total lease life for each firm is simple to determine since we have previously determined when the future lease payments falling due, thus, we know when last payment will occur. Recall that one of the underlying assumptions for ILW's (1991) 'constructive capitalization' method assumes that the asset and the liability have a book value of zero after the last minimum lease payment, hence, the average total lease life is determined by the last payment.

To sum up, there are several estimations and assumptions required to calculate the asset and the liability and further the effect on net income and book value of equity associated with capitalization of operating leases. As shown in the previous section, we benefit from several prior articles as well as we make some own adjustments in order to get as close as possible to the exposure draft.

### **3.4 Data collection**

In order to estimate all the required items for calculating the effect on net income and book value of equity associated with capitalization of operating leases, several different data variables are necessary. The most accurate way to gather the data would be to collect it manually from annual reports. However, since we perform a regression analysis, which requires a very large number of observations, manual collection would be excessive. Therefore, we used the database Datastream Advance 4.0 (previously referred as Datastream) to obtain the required data.

We included the variable *WC07536 Accounting standards followed* to ensure that we only got firms applying IFRS in their consolidates. Moreover, since we of simplification reasons excluded firms with other fiscal year than calendar year, we had to add the variable *WC05350 Date of fiscal year* to detect those firms.

The variable *Market price - month close WCP* were used to gather values for the dependent variable, market value of equity, in equation 1 and 2. In order to avoid that special circumstances in a particular trading day give a misrepresented market value of equity, we collected two observations with an interval of one month and used the

average of them. The reason to choose a time between three to four months after the fiscal year end is to ensure that the financial reports have been available for investors.

Regarding the independent variable net income, we used net income attributable to common shareholders, since market value of equity reflects the price of buying a common share in the company. Therefore, we used the variable *WC01751 Net income available for common*. Accordingly, we used *WC03501 Common Equity* to achieve book value of equity attributable to common shareholders in the company.

Moreover, in order to collect information about future minimum lease payments for operating leases, we had to use six different variables (*WC18141-WC18146 Lease commitments year x*). Each variable represented a specific year's lease commitments, except the last one, which included all commitments beyond five years. Unfortunately, Datastream did not provide the lease commitments consequently, why great efforts were required to systematize the data for further use.

Since market value of equity reflects the price per share, outstanding common shares scaled all independent variables. Datastream provides a variable (*NOSH*) for this purpose. However, we compared the numbers provided by Datastream with those in the annual reports and found that, for firm's with more than one share series, only one of those were included. Hence, using *NOSH* would result in a biased estimate of the independent variables, since all common shares are not included. Consequently, we calculated outstanding common shares for each firm by dividing market capitalization by price. Those numbers turned out to better reflect outstanding common shares, although some numbers did not exactly equal the numbers in the annual reports.

In order to get data for our firm specific interest rate calculation, we applied the variable *WC08360 Interest rate - 5yr avg*. This variable generates the arithmetic average of the last five years interest rates, where each year is calculated as interest expense on debt divided by short and long-term debt. Moreover, numbers from *WC08346 Tax rate* with the selected years 2005-2009 was collected to enable our firm specific tax rate calculation. Datastream defines their tax rate variable as income taxes divided by pre-tax income, thus the effective corporate tax rate.

### **3.5 Sample**

We require a large sample to ensure that the outcome from the regression analysis is reliable. Therefore, we took off by searching for listed companies in Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Rumania, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, which resulted in 6396 firms. As we merely examine year 2007, each firm represents one observation. The number of observations decreased sharply when we applied our restrictions regarding obtained values for the set of required variables. After excluding firms with missing values of those variables, we obtained 795 observations.

Further eliminations of observations were required since it has been found that negative values of net income reduce the explanatory power of market value of equity (Collins et al. 1997). Due to that our scope is not to examine the negative values implication on the explanatory power, we find it relevant to exclude those observations and accordingly achieve a higher explanatory power. For the same reason, we also deleted observations with a negative value of book value of equity. With these exclusions, we ended up with 685 observations.

We raise concerns regarding the reliability of certain values provided by Datastream, which implies that our data set might contain incorrect observations. In an attempt to minimize the risk that false observations affect the regression outcome and later the conclusions, we considered observations with a Cook's Distance Measure greater than one as outliers. Basically, this method detects observations that have a disproportionate influence on the regression results, by taking into account both the leverage and the residual of an observation (Bowerman et al. 2007). By using Cook's Distance measure, we found that four observations were too influential on the regression output and were therefore excluded. Accordingly, our sample consisted finally of 681 observations.

### **3.6 Regression diagnostics**

Since we used a multiple regression model to answer our hypothesis, we needed to ensure that our model is consistent with the underlying assumptions about the error term in the model. One important assumption is that the variance of the error term is uniform. If it is not, heteroscedasticity is present, which invalidates the standard errors and accordingly the test for determine if a coefficient is significant (Newbold et al.

2010). To detect potential heteroscedasticity we used Breusch-Pagan's test and found that heteroscedasticity was present in our model. Accordingly, we were not able to determine whether the coefficients in the regression analysis are significant since the standard errors were false. A solution to this problem was to introduce 'White standard errors' which are not affected by heteroscedasticity while the coefficients from the ordinary least square regression remain unchanged (Verbeek 2004).

Furthermore, we raised concerns that our independent variables, net income and book value of equity, are highly correlated and to some extent dependent upon each other. If that is the case, it can be stated that multicollinearity is present among the independent variables. Severe multicollinearity can result in false values of coefficients as well as problems using the t-test for determine the significance of the independent variables (Bowerman et al. 2007). Consequently, we had to perform a test to ensure that multicollinearity is not present. For this purpose, we used variance inflation factors. The outcome revealed that some degree of multicollinearity existed between the independent variables. According to Bowerman et al. (1997), multicollinearity can be considered severe if the variance inflation factor for a certain variable exceeds ten and the mean variance inflation factor for all the independent variables considerably exceeds one (Bowerman et al. 2007). Since our variance inflation factors did not exceed the worrisome levels of multicollinearity, we did not have to adjust our model.

## 4 Empirical Findings

First of all, we want to present our finding. That is, we have found indirect proof that investors do not adjust for operating leases with respect to net income and equity in accordance with the proposed new lease standard.

### 4.1 Descriptive statistics

The following table provides descriptive statistics for the variables in the regression model.

Variable	Mean	Min	Max
<i>P</i>	34.1267	0.1050	540.5000
<i>NI</i>	2.6576	0.0013	58.3407
<i>BV</i>	17.0104	0.0332	248.8856
<i>ENI</i>	-0.0101	-2.1767	1.5141
<i>EBV</i>	-0.2613	-14.9577	-0.0000318

Number of observations: 681

All variables are measured in euro.

### 4.2 Regression results

The following table provides results from the regression analysis.

$$P_i = \alpha_0 + \alpha_{NI}NI_i + \alpha_{ENI}ENI_i + \alpha_{BV}BV_i + \alpha_{EBV}EBV_i + \varepsilon_i$$

Model Summary					
R <sup>2</sup>	Observations	F-value	Significance		
0.8612	681	132.83	0.0000*		
Independent variables					
Name	Coefficient	t-value	Significance	Std. error <sup>1</sup>	Exp. sign
<i>NI</i>	7.1193	8.48	0.0000*	0.839	+
<i>BV</i>	0.7331	4.87	0.0000*	0.1507	+
<i>ENI</i>	-5.2370	-0.66	0.508	7.9092	?
<i>EBV</i>	3.2724	1.38	0.168	2.3732	-

\*Significance at 1% level

<sup>1</sup>White standard errors, which are heteroskedasticity-consistent

As can be seen in table, the regression model is significant at the 1% level, and the high coefficient of determination ( $R^2$ ) shows that the dependent variable can to a high extent be explained by the independent variables. The independent variables *NI* (net income) and *BV* (book value of equity) are significant at the 1% level. That is, *NI* and *BV* have a significant impact on *P* (price). However, *ENI* (effect on net income) and *EBV* (effect on book value of equity) are not significant at the 10% level, which implies that these variables have no significant impact on *P*. The coefficient of *NI* is interpreted as follows,

if *NI* increases with one unit, *P* will increase with 7.12 units, *ceteris paribus*. Similarly, one-unit increase in *BV* will result in a 0.73 units increase in *P*. An interpretation of the coefficients for the variables *ENI* and *EBV* is not necessary since their coefficients are not significantly different from zero.

### **4.3 Hypothesis testing**

We have tested the following hypothesis: *Investors adjust for operating leases with respect to net income and equity in accordance with the proposed new lease standard.*

The hypothesis was rejected since *ENI* and *EBV* are not significant different from zero at a reasonable significance level. Moreover the coefficient of *EBV* turned out to be positive, implying that effect on book value of equity has a positive impact on price, which is not possible from a theoretical accounting perspective. Thus, although the coefficient had been significantly different from zero, we had been obligated to reject the hypothesis since the coefficient's sign turned out to differ from our expected.

## 5 Discussion

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The aim of this paper was to bring clarification about if investors and the IASB are of the same opinion regarding the allocation of expenses associated with an operating lease contract during the lease term. In order to achieve the aim we tested the hypothesis:

*Investors adjust for operating leases with respect to net income and equity in accordance with the proposed new lease standard*

The hypothesis **was rejected** and therefore we are able to manifest that investors **do not** adjust for operating leases with respect to net income and book value of equity.

Since the hypothesis was rejected we are able to conclude that: investors and the IASB **are not** of the same opinion regarding allocation of expenses associated with an operating lease contract during the lease term, given that our efficient market hypothesis is true.

Our assumptions about the efficient market, is quite similar to Gonedes (1997) and Fama (1965) versions of the efficient market. According to there views, investors will consider all available information, regardless of how it is presented. As a consequence, all the available information will be reflected in the share prices, at all times. Changes in share prices depend on new information only. Fama (1965) was referring to the random walk theory that assumes that all the market participants are well informed and due to the competition among them, all available information will be reflected in the share prices at all the time. We agree on the assumption that all the available information will be reflected in the market price at all times, however, we do not believe that all the investors have the ability to valuate the information that is available for everyone. We believe that it is the large investors, with resources and time that will ensure that the available information is reflected in the market prices. That assumption can be motivated with Chan et al.'s (1995) statement that large investors have impacts on the market prices since they are trading with high amounts and in a high frequency. Furthermore, Boatsman et al. (2011) states that ILW's (1991) 'constructive capitalization' techniques are frequently being taught in MBA classes and among investment bankers. That makes it reasonably for us to assume that professional

investors, with sufficient resources and time have the ability to evaluate the current information about operating lease contracts in a way quite similar to the proposals in the new standard. In order to make our assumption of the efficient market more understandable, we ask to consider the following example: if a less informed investor wants to purchase shares in an entity due to the fact that he is consider the share to be under valued, a more informed, professional investor who is able to evaluate all the information, will keep on selling shares until the to less informed investor runs out of resources, hence, market equilibrium will remain.

Now we intend to compare our findings with prior research. Recall that our finding is that *investors and the IASB are not of the same opinion regarding allocation of expenses associated with an operating lease contract during the lease term*. First of all, as far as we are concerned, no studies have examined the impact of a new lease standard from an equity valuation perspective. However, as presented in chapter two, several studies (ILW 1993, Ely 1995, Beattie et al. 2000) have investigated whether investors consider operating leases in a shareholder risk perspective. The relevant conclusions from the risk studies are that investors are recognising an asset and liability associated with operating lease commitments. That means that investors agree on the IASB's view on recognizing an asset and a liability. This is consistent with most of the users view in the comment letter summary. However, many users raised concerns regarding the profit loss pattern proposed by the new standard. Our empirical findings support these concerns. However, our hypothesis cannot give an answer how and if investors adjust for operating lease commitments, but we can say that investors are not making adjustment in accordance with the new standard.

So, what will happen if the IASB ignores the complaints from the users and release a new lease standard in accordance with the exposure draft. First of all, we consider the existing rental expense to give a fair picture of the decrease in economical benefits associated with an operating lease contract. Our view is in line with most of the users' views explained in the comment letter summary. However, the new standard would give an expense pattern that overstates the decrease in economical benefits in the beginning of the lease term and understates them at the end. According to Greenberg (1986), current earnings are superior to current cash flows in estimating future cash flows. We believe that if the new standard would be implemented, the earnings measure



might become less accurate in predicting future cash flows than the current earnings measure, due to that the accruals will make it harder to assess the firm's ability to generate cash flows in the future. The consequences of if the new lease standard would be implemented is that the accounting information from a profit and loss perspective, would be less relevant for both well informed investors and less informed investors. For the well informed investors, the information will be less relevant since they need to put efforts to do additional adjustments in order to capture the economical consequences from an operating lease contract. However, since they have time and resources to do the adjustments, the new standard will not affect the outcome of their valuations. On the other hand, the less informed investors that do not have the required resources to adjust the number will be making investment decisions based on less accurate information, hence, they will experience a decrease in the usefulness of the accounting information. This is unfortunate since the IASB states that the investors are the most important group of users (Conceptual Framework). We consider that this issue can be resolved by reconsider the profit and loss pattern, while keeping the "right-of-use" principle. It is clear that an asset and a liability shall be recognized in the balance sheet. To enable that while straight-line expenses is recorded in the income statement, the asset and the liability have to be equal for all accounting periods. This can be achieved by applying a mortgage-based amortization of the asset, since this approach will lead to that the amortization expense increase over time, which neutralize the decreasing interest expense. However, this approach has one major shortcoming, which is that the approach is only appropriate for operating leases. Accordingly, continued separation of operating and finance leases is required. The IASB did in fact consider this approach in the discussion paper, but unfortunately they rejected it. Although this approach would not give a uniform accounting for all leases, we consider it as the best alternative and therefore encourage the IASB reconsider their decision.

Before going on to the further research section, we would like the reader to pay attention to the following comments. When capitalizing the operation lease contracts, as if the new standard was already implemented, we did our best to use as reasonable assumptions as possible. However, there is no guarantee that our estimations are completely correct and errors in our estimations would significantly reduce the

reliability for our conclusions. Moreover, we have in a few cases discovered errors in the variables “lease commitments” provided by Datastream.

### **5.1 Further research**

Our findings indicate that the IASB and the investors seem to have different views regarding what characterize useful information in practice. This is worrisome since the IASB’s primary aim is to ensure that the users get access to useful information. We suspect that there is an expectation gap between what the investors demand and what the IASB consider that the inventors need. Therefore, we find it interesting to further examine if such expectation gap exists, and what can be done in order to reduce it.

According to our research, it is obvious that the investors are not sharing the IASB’s view regarding the profit and loss pattern for operating leases. However, we have not examined whether or not the investors view regarding finance leases’ expenses allocation are consistent with the IASB’s view. Therefore, we consider it relevant to examine this question in order to conclude if the problem with the potential expectation gap is isolated to operating contracts, or if it might be necessary with another comprehensive overview of the lease accounting.

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## **Electronic Resources**

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