

## THE FINANCIAL IMPACT OF THE PROPOSED AMENDMENTS TO IAS 17: EVIDENCE FROM BELGIUM AND THE NETHERLANDS

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### ABSTRACT

*Prior literature examined the financial impact of capitalizing operating leases by using the constructive lease capitalization method of Imhoff et al. (1991). The empirical evidence of these studies results in the perception that operating leases lead to off-balance financing, improvements of financial ratios and earnings enhancement in the U.K. (e.g. Beattie et al., 1998) and in the U.S. (e.g. Ely, 1995). Therefore, the IASB published in 2010 the exposure draft for the new standard on lease accounting (IAS 17). The most striking change is the elimination of the difference between finance and operating lease. Our study investigates the impact of the proposed adaptation for listed companies in Belgium and the Netherlands for 2008. Our results indicate that debt to equity ratio, return on assets and the current ratio are significantly affected by capitalizing operating leases. Furthermore, the results show that the impact on financial ratios differs among industries.*

✉ *International accounting, lease accounting, lease capitalization, financial ratios, listed firms*

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## INTRODUCTION

According to the World Leasing Yearbook of 2010, the total annual leasing volume in 2008 for the top 50 countries amounted for \$644 billion, yet many of those lease contracts do not appear in the financial statement or balance sheet of an entity since the categorization as operating leases. Operating leases have resulted in benefits since both leased assets and liabilities can effectively be kept off the balance sheet with only footnote disclosures of future lease obligations. Consequently, a finance lease which is treated as an 'in substance' purchase by the lessee and a sale by the lessor is less popular since it requires both leased assets and liabilities to be recognized on the balance sheet. However, the finance lease may produce a tax benefit because of a larger expense, interest plus depreciation, compared to an operating lease which only reports the lease payments as an expense. Based on the International Accounting Standard (hereafter IAS) 17 (IASB, 2008: Leases), managers can structure a lease to avoid the reporting of lease assets and liabilities. A finance lease is required when a transfer of substantially all the risks and rewards of ownership is made towards the lessee (IASB, 2008). The equivalent U.S. Standard (SFAS 13), which uses the term 'capital lease' rather than 'finance lease', introduces requirements for lease classification. A capital lease is defined when one of the following conditions is met: (1) the present value at the beginning of the lease term (not representing executor costs paid by the lessor) equals or exceeds 90% of the fair value of the leased item; (2) a transfer of ownership of the assets to the lessee at the end of the lease term; (3) a bargain purchase price is included; (4) the lease is equal to 75% or more of the estimated economic life of the asset (FASB, 1976).

Beattie *et al.* (2000) estimated that operating leases are approximately thirteen times larger than finance lease. Furthermore, a study of Beattie *et al.* (2004) note that the importance of operating lease for the top 100 listed U.K. companies is shown by the median ratio of operating lease liability to debt of 0.11 and the median ratio of operating lease liability to finance lease of 6.2. Concerns regarding the off-balance-sheet nature of operating leases have led the International Accounting Standards Board (hereafter IASB) and the Financial Accounting Standards Board (hereafter FASB) to consider treating all leases consistently. In July 2006, both standard-setting bodies put the leasing concerns on the agenda in order to develop new accounting standards for leases to ensure a complete and transparent recognition of assets and liabilities arising from lease contracts on financial statements. Both IASB and FASB agreed to measure the right-to-use assets and its lease obligations based on the present values of future lease payments using the incremental borrowing rate of the lessee at the inception of a lease. Furthermore, the IASB decided to abandon the distinction between finance lease and operating lease once a new standard is issued. Therefore, all leases will be treated as a finance lease. The underlying purpose of this study is to investigate the importance of leasing and the impact on the balance sheet of the new accounting

proposal. This proposal has important implications for the reported levels of indebtedness and for standard performance measures. Not only profit margins and return on assets would be affected but also gearing measures such as leverage would change if operating leases were required to be recognized on the lessee's balance sheet rather than disclosed in a footnote (Beattie *et al.*, 1998; Imhoff *et al.*, 1999). Moreover, lease capitalization could affect aggregate investor decisions (i.e. share prices) and managers' behavior (i.e. financing decisions and earnings management). The impact of a regulatory change on the accounting numbers is captured effectively by observing the change in key accounting ratios. We empirically investigate these economic consequences of a change in regulation of lease accounting for Belgian and Dutch listed firms in the year 2008. A database of operating lease information is created from published corporate annual reports and operating leases are capitalized using the method proposed by Imhoff, Lipe and Wright (1999).

This paper forms an extension of prior research in three ways. First, this article contributes to the ongoing international debate concerning lease-accounting reform proposed by the IASB. Secondly, to our knowledge, no studies have empirically documented the evidence of the impact of the capitalization of lease accounting in a Belgian and Dutch setting. Furthermore, the question is asked whether the changes in financial ratios are statistically significant. Lastly, we look at the industry effect on financial ratios due to the proposed amendments. Also a possible country effect is being discussed.

The remainder of the paper is organized as follows: section 1 provides a brief review of the prior research concerning operating lease accounting. Section 2 discusses sample selection criteria and methodology. Then the empirical results are described in section 3. Section 4 summarizes the results and discusses the paper.

## **1. LITERATURE**

### **1.1. Lease accounting**

IAS 17 in its current makes a fundamental distinction between finance leases and operating leases. A finance lease is defined as a lease that transfers substantially all risks and rewards of ownership to the lessee. The standard setters provide the reader with a number of potential indicators to conclude that a lease is a finance lease. Some of these indicators require judgment (e.g. assessment whether the lease term is for a significant portion of the asset's economic life) which is not allowed under Belgian GAAP. Some of these indicators are quantified in Dutch GAAP (RJ 292) whereas IAS 17 only prescribes qualitative items. A finance lease is seen as an 'in substance' purchase by the lessee and a sale by the lessor. The asset will be

placed on the balance sheet of the lessee, presenting the value of the minimal lease payments together with the corresponding lease liability. The same recognition criteria are used in Dutch GAAP. Under Belgian GAAP, the lessee recognizes an asset and a liability for an amount equal to the capital portion of the future lease payments. As a result, the amount capitalized under IAS may differ from Belgian GAAP. The distinction between finance lease and operating lease is also found in Belgian and Dutch GAAP although there are some small differences. First, under Belgian GAAP a transaction will be classified as a finance lease if the capital portion of the lease payments reconstitutes the capital invested by the lessor in the leased asset. Secondly, the approach under IAS and Dutch GAAP is broader which implies the recognition of all assets compared to Belgian GAAP which excludes agreements with respect to intangible fixed assets and undeveloped land. Any lease that does not qualify for a finance lease is treated as an operating lease. This implies that underlying assets stay on the balance sheet of the lessor and the lessee only recognizes the rental payments as an expense. Under Belgian GAAP, the initial direct costs for operating lease are expensed (under IFRS these costs will be capitalized) as incurred whereas Dutch GAAP offers the opportunity to capitalize or expense the costs immediately in the profit and loss account. Under IAS and Dutch GAAP, operating lease payments must be charged to income on a straight-line basis over the term of the lease unless another basis is more representative, with additional footnote disclosure on the total minimum future lease rental commitments. These commitments are classified into “less than one year”, “two to five years” and “more than five years”. Although, all listed firms in Europe apply the same lease standard since 2005, a different interpretation of the standard is possible. As mentioned above, both countries apply different national regulations to account for leases. This could affect the way the IAS standard is interpreted. An interview with an IFRS expert of an international audit company pointed out that companies first make their annual reports according to national regulations and later on transform this annual report to IFRS. Consequently, the national accounts are used as a basis for preparing the IFRS accounts. Thus, national differences possibly lead to different interpretations of the same standard. In 2010, the IASB published their exposure draft concerning IAS 17. They suggest a new accounting treatment for operating lease which includes, among others, the elimination of off-balance sheet financing. Therefore, all operating leases would be brought on to the balance sheet, removing the distinction between finance and operating lease. It is expected that the final standard will be ready in the course of 2011.

## **1.2. Impact on financial measures**

The results of the study performed by Imhoff, Libe and Wright (1991) (hereafter ILW) indicate that lease capitalization leads to a material decline in return on assets (ROA) ratio for both high and low lease usage. The impact on the debt to earnings (D/E) ratio was even more pronounced with an average increase of 191% for high lease usage and 47% for low lease usage. As a sequel on their 1991 paper,

Imhoff *et al.* (1997) demonstrated that the income effects of off-balance sheet lease financing can materially alter the impressions about the financial performance of firms. Ignoring the income effect of constructive lease capitalization would result in misleading ROA and return on equity (ROE). In addition, the use of disclosed operating lease liabilities in assessing the equity risk was investigated by Imhoff *et al.* (1993). In this study the mean unrecorded lease liability was \$689 million for the airlines and \$194 million for the grocery companies using the modified Imhoff *et al.* (1991) capitalization method. Moreover an increase of debt to total assets ratio of 16.2% and 15.2% was found respectively for airlines and grocery firms. Other, more recent research also made use of the capitalization method of Imhoff *et al.* (1991). For instance, Beattie *et al.* (1998) adopted firm-specific assumptions concerning the remaining lease life, proportion of unrecorded lease asset to liabilities and the effective tax rate for a sample of 232 U.K. firms. A significant difference was found between seven financial ratios before and after capitalization of operating leases. Generally, it is believed that, due to the increased cost of depreciation of the asset and interest expense, lease capitalization has a negative impact on earnings. Consequently, a negative impact was expected on profit margin, ROE and ROA. Only the latter was negative, since the two other ratios had a positive impact from lease capitalization. Another recent study of Bennett and Bradbury (2003) investigates the impact of constructive capitalization on the financial statement of 38 firms listed on the New Zealand Stock Exchange in 1995. The results suggest that capitalization will have a material impact on the balance sheet since 22.9% of the total liabilities were not reported. Additionally, a decline in ROA was noted. The latter two studies did not report on the impact of lease capitalization on earnings and did not separate firms into positive and negative income firms when computing the mean of post capitalization ROA. The paper of Duke *et al.* (2009), on the other hand, provides additional insight into firm's motivation for using operating leases by partitioning the sample of 366 firms listed in 2003 S&P 500 index into negative and positive income impact subgroups. The researchers found that the top quartile positive subgroup experienced an 18% increase in income while the top quartile negative subgroup had an 11% decline in income. Furthermore, 11.13% of the total reported liabilities were avoided by using operating leases. Moreover, the results indicate that the solvency measurement financial ratios such as D/E and debt/total assets have been significantly improved by reporting leases as operating leases. Ely (1995) applied a model derived by Modigliani and Miller (1958, 1963) to the accounting data. The model stated that the standard deviation of the stock price, namely the equity risk, is related to the standard deviation of the return on asset, namely the asset risk and the D/E ratio or the financial risk. This model was used to investigate whether the operating lease information is reflected in the equity risk. However, the capitalization of operating leases was not taken into account.

The common finding of all prior research investigating the impact of lease capitalization is that it results in a significant increase in unreported lease liabilities and therefore has consequences on the firm's financial ratios. Since we are interested in comparing our results to prior studies (i.e. Bennett and Bradbury (2003) and Duke *et al.* (2009)), we selected ratios on which was extensively relied upon.

Therefore, the following hypothesis is expressed:

*H1: Lease capitalization will have a significant influence on a firm's financial ratios.*

### **1.3. Cultural difference**

International harmonization may be defined as a political process which aims to reduce differences in accounting practices across the world in order to achieve compatibility and comparability (Hoarau, 1996). In Europe, the European Union was created to assure a free market for goods and services. Therefore, a uniform set of commercial laws were established to facilitate the creation of a common market. Consequently, the Commission has drawn up two accounting directives (the Fourth and Seventh Company Law Directives) which have been implemented in the legislation of each member state to produce a uniform set of accounting standards among the member states. The Fourth Company Law Directive has as main objective to present a true and fair view of the firm's assets, liabilities, financial position and profit and loss. Standardized formats are provided to present the balance sheet, profit and loss account and notes.

Furthermore, it combines Anglo-Saxon and Continental accounting traditions since member states have a different accounting background. In the current debate on international accounting harmonization researchers often refer to these different accounting models. On the one hand, Anglo-Saxon accounting argues that they are better equipped to inform capital market participants (Epss & Oh, 1997). Continental accounting, on the other hand, supports the prudence principle (Hoarau, 1995). If a country accepts international rules for listed companies, they are wary of the impact of international standards on the financial reporting rules for non-listed companies, especially for tax purposes. Many criteria are found for determining different clusters of nations in other accounting systems. Nobes (1983) for the first time classified a variety of national accounting systems of developed Western countries through hierarchical families. They found that The Netherlands were micro-based, mainly theoretically influenced by business economics, whereas Belgium was categorized under macro-uniform tax-based class, like Spain, France and Italy. Douppnik and Salter (1993) argue that, among others, The Netherlands and Belgium were misplaced in the classification system of Nobes (1983). They found that The Netherlands fall under a micro-based class, but with a U.K

influence and Belgium, part of the macro class, should be placed separately from Spain, Italy and France.

Another study of Herrmann and Thomas (1995) investigated the impact of the 4<sup>th</sup> Directive on the harmonization in different European countries. They found that European countries could be divided into two categories: those with a legal influence (e.g. Belgium) and those with an economic influence (e.g. the Netherlands). Based on these previous studies, we could conclude that Belgium and the Netherlands never appear in the same category, regardless of which categorization was used. Since capital markets have become increasingly globalized, the need for more relevant and reliable accounting information in the international arena increased. As a result, the process of international accounting harmonization has entered a new phase. Starting January 1, 2005 all listed companies in the European Union must prepare their consolidated accounts in accordance with International Financial Reporting Standards (hereafter IFRS) issued by the IASB.

In 2010, the IASB published the exposure draft on the new accounting treatment for leases (IAS 17). Consequently, both the Netherlands and Belgium will have to impose in the near future the new IAS 17 standard to all listed companies. Since previous research classified both countries in different accounting groups, we expect that the impact on the lease capitalization and therefore on the firm's financial statement will be different. Furthermore, we base this statement on an interview with an expert of a big 4 audit company. He stated that companies first prepare their financial statements according to the national regulations and afterwards 'translate' their financial statements taking the IFRS standards into account.

*H2: The impact of lease capitalization will be different in the Netherlands and Belgium.*

## **2. RESEARCH DESIGN AND METHODOLOGY**

### **2.1. Sample selection**

The sample consists of 128 companies listed on Euronext Brussels and 116 companies listed on Euronext Amsterdam at April 2010. From 2005 onwards the financial statements for listed companies in Belgium and the Netherlands are conducted according to IFRS standards. Since the purpose of this study consists of investigating the impact of capitalizing off-balance lease as proposed in the discussion paper by the IASB and FASB, entities without operating leases were withdrawn from the sample. Furthermore, the banking industry was removed from

the sample since the sector specific reporting methods. Consequently, the financial statements of 44 companies were collected from the National Bank of Belgium for the income year 2008. For the Netherlands, 40 financial statements were collected. Some firms were withdrawn from the sample due to the unavailability of some key values in order to determine the capitalization of operating lease. This procedure results in a total sample of 31 Dutch companies and 35 Belgian companies.

The firms are required to disclose future operating lease rental in three ways: within 1 year, years 2-5 and over 5 years. This footnote disclosure is used to estimate the impact of capitalizing operating leases on the balance sheet and income statement. Two methods of lease capitalization exist. The first method uses heuristic capitalization that has been developed and used by analysts. Imhoff *et al.* (1993) suggest that the heuristic method substantially overstates the potential lease assets and liabilities. The use by analysts could be explained by the fact that the heuristic method is less costly than fully utilizing note disclosures. The second method follows the constructive capitalization developed by Imhoff *et al.* (1991) which requires estimating the amount of debt and assets that would be reported on the balance sheet if the operating leases had been treated as finance leases from their inception. The latter method is applied to the data.

## **2.2. ILW method for estimating the lease liability**

Imhoff *et al.* (1991) described the pioneering work on the procedures of constructive lease capitalization. Their sample existed of 14 companies in seven industries where two companies of the same size in each industry were studied. Each pair is different in magnitude representing high and low operating leases. The lease liability is estimated as the present value of future cash flows under the operating lease. If future lease rentals are reported as one amount for different years, we assume equal payments over the specified period of time. This assumption is conservative since the lease rental obligations almost always decrease over time. It could be explained by new leases added to the existing operating leases. In order to determine the duration of the future cash flows we sum the cash flow payments for year 1, years 2 to 5 and more than 5 years and divide it by the cash payment of the first year. It slightly deviates from the method used by ILW where a procedure is suggested that takes the fifth future year's minimum cash payment and divides it into the 'beyond five years' out total to approximate how many years the payments would continue at the level of the fifth year's payment. The reason for the adaptation of the procedure consists of the unavailability of information about the fifth cash payment in the financial statements of Belgian and Dutch listed firms. Ely (1995) reports that a 25-year lease term is representative for her sample of U.S. firms. To discount the lease cash flows, a procedure described by ILW (1997) is used where the weighted average interest rate for the finance lease of a company is estimated. It implies that for each company the finance lease payments scheduled for 2008 are separated into an

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interest part and a capital part. The interest is divided by the entire value of the finance lease which results in an interest rate. Because a higher ownership risk remains with the lessor in the case of operating leases, we might expect the interest rate for operating leases to be slightly higher. For some companies, it was not possible to calculate the interest rate according to the previous described procedure due to unavailability of information. In *Figure 1*, an illustrative example is shown. The interest rate is calculated by dividing the finance lease < 1 year less current liabilities by the present value of the finance lease at December 31, 2008. This results in an interest rate of 10%. Next, the duration of the cash flows is determined. The total amount of operating lease is divided by the amount of operating lease in 2008. To determine the estimated unrecorded debt, the scheduled cash flows are multiplied by a present value factor. To calculate this factor, the interest rate and duration of cash flows are used. Multiplying the present value factor with the scheduled cash flows, the present value of the cash flows is obtained. The total sum results in the estimated unrecorded debt.

*Figure 1: Estimating the lease liability*

		<b>Finance Leases</b>	<b>Operating Leases</b>
<b>2008</b>	<b>&lt;1year</b>	403,000	4,646,000
<b>2009-2013</b>	<b>≥1 and ≤5</b>	4,207,000	7,078,000
	<b>&gt; 5</b>	1,522,000	0
<b>Total</b>		<b>6,132,000</b>	<b>11,724,000</b>
<b>Less imputed interest</b>		4,536,000	
<b>Present Value at December 31, 2008</b>		1,596,000	
<b>Less current portion</b>		251,000	
<b>Long-term portion</b>		1,345,000	
<b>Interest rate</b>		0.0952	
<b>Duration of Cashflows</b>		3	
<b>PV of Operating leases</b>	<b>Scheduled Cash Flows</b>	<b>Interest rate Present Value Factor</b>	<b>PV of Cash Flows</b>
<b>2008</b>	4,646,000	0.9130	4,242,000
<b>2009-2013</b>	2,359,333.33 3	2.2898	5,402,343
<b>Estimated unrecorded debt</b>			<b>9,644,343</b>

### 2.3. ILW method for estimating the lease asset

Imhoff *et al.* (1991) provide a mechanism for estimating the unrecorded asset after estimating the unrecorded liability. The unamortized unrecorded operating lease asset is expressed as a percentage of the remaining unrecorded operating lease liability at various stages of the assets' weighted average remaining useful life. This implies that for a given total lease life ranging from 10 to 30 years and a marginal interest rate between 8% and 10% and an expired lease life from 20% to 80% the ratio of asset balance to liability balance could be taken out of the table. In this research, for each individual company a firm specific annuity factor is calculated in order to determine the unrecorded lease asset assuming that the remaining life is 50% of the total life. The estimated unrecorded asset is calculated by multiplying the estimated unrecorded debt with the ratio of asset to liability. This ratio can be expressed as:

$$\frac{PV_A}{PV_L} = \frac{RL}{TL} \times \frac{PVA_{FL}}{PVA_{RL}}$$

where:

- $PV_A$  = present value of unrecorded asset,
- $PV_L$  = present value of unrecorded debt,
- $RL$  = remaining lease life,
- $TL$  = total lease life,
- $PVA_{FL}$  = present value annuity factor for 1€ at  $r\%$  for  $n$  years for the total lease life,
- $PVA_{RL}$  = present value annuity factor for 1€ at  $r\%$  for  $n$  years for the remaining lease life.

In *Figure 1*, the necessary information to calculate the estimated unrecorded asset is given.

### 3. MAIN RESULTS

In *Table 1* the descriptive statistics of the total sample (Belgium and Dutch firms) were reported. The total lease life is on average 8 years and ranges from 4 to 26 years. This result is in line with previous research of Bennett and Bradbury (2003) in which the maximum total lease life was lower compared to the Imhoff *et al.* (1997) study. This could be explained by the use of the reported future operating lease payments based on the rental of the current operating assets. Since it could be expected that the operating lease will increase by additional lease contracts the real operating lease term will be higher. The average increase in total liabilities caused by capitalization of operating leases is 5.80% whereas the average increase of mean lease asset is only 3.00% on the pre-capitalization assets. The marginal interest rate is on average 6.03%. The estimated unrecorded debt (EDU) due to capitalization is on average 123m€.

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*Table 1. Descriptive statistics on the sample*

VARIABLE	MINIMUM	MAXIMUM	MEAN
Total assets (in 000)	14,675	81,313,000	3,789,420.26
Total liabilities (in 000)	6,405	63,758,000	2,756,213.08
EUD (in 000)	149	2,398,757	122,839.16
Ln EUD	12	22	16.39
EUA (in 000)	142	2,051,755	101,911.53
Ln EUA	12	21	16.28
Total lease life	4	26	8.42
Marginal interest rate %	1	26	6.03
Ratio of asset balance to liability balance	68	99	89.61
% increase in total assets	0	22	3.00
% increase in total liabilities	0	32	5.80

### 3.1. Impact of capitalization on key accounting ratios

Ratios are widely used by investors, analysts and loan officers to study the financial statements of companies. To assess the potential impact of capitalizing operating leases on the balance sheet and income statement, the ROA, D/E and current ratios were investigated (see *Table 2*). The debt to equity ratio increases from 2.03 to 2.20. The current ratio on the other hand falls from 1.44 to 1.39 after capitalization. On average, the ROA remains before and after capitalization equal to 0.09. Bennett and Bradbury (2003) found that the current ratio decreased from 2.11 to 1.8 and the return on assets decreased from 12.6% to 11.5% which results in the same conclusion as our study.

In *Table 3* the financial ratios are shown by industry, for which the same general conclusion can be made. To investigate whether these observed differences are significant, a paired sample t-test was conducted. *Table 4* shows that the mean difference between the D/E ratios and current ratios before and after capitalization are significantly different from zero at a 0.001 significance level. Moreover, the difference in ROA is significant at the 0.001 significance level. The mean difference between the ratios before and after capitalization is also measured for each industry separately, of which the results are shown in *Table 5*. For the manufacturing industry the mean difference between all the ratios are significantly different from zero at the 0.001 significance level. However, for the chemical and pharmaceutical industry only the mean difference between the D/E ratios and current ratios before and after capitalization are significantly different from zero at a 0.05 significance level. The food and beverages industry will also be influenced by the proposed amendments to the lease standards since the difference in D/E ratio is significant at a 0.05 significance level. Additionally, all other industries will not be affected by the proposed changes of the standards.

Table 2. Descriptive statistics on the financial ratios

Variable	Minimum	Maximum	Mean
D/E before	0.17	6.90	2.03
ROA before	-0.27	0.30	0.09
Current ratio before	0.47	3.72	1.44
D/E after	0.18	7.12	2.20
ROA after	-0.27	0.30	0.09
Current ratio after	0.46	3.65	1.39

Table 3. Descriptive statistics on the financial ratios by industry

Industry	Variable	Minimum	Maximum	Mean
Food and beverages	D/E before	0.83	3.63	2.05
	ROA before	0.00	0.19	0.08
	Current ratio before	0.47	1.95	1.40
	D/E after	0.83	3.77	2.13
	ROA after	0.00	0.18	0.08
	Current ratio after	0.46	1.91	1.37
Services	D/E before	0.17	3.64	1.84
	ROA before	0.01	0.05	0.03
	Current ratio before	0.70	1.83	1.23
	D/E after	0.18	3.85	1.92
	ROA after	0.01	0.05	0.03
	Current ratio after	0.70	1.77	1.20
Retail and Transport	D/E before	1.25	1.95	1.67
	ROA before	-0.09	0.23	0.11
	Current ratio before	0.93	3.00	1.53
	D/E after	1.30	3.29	2.19
	ROA after	-0.09	0.23	0.09
	Current ratio after	0.80	2.21	1.34
Chemicals and Pharmaceuticals	D/E before	0.28	2.50	1.04
	ROA before	-0.27	0.30	0.06
	Current ratio before	0.79	3.72	1.94
	D/E after	0.31	2.51	1.10
	ROA after	-0.27	0.30	0.06
	Current ratio after	0.79	3.65	1.89
Manufacturing	D/E before	0.43	6.90	2.37
	ROA before	-0.05	0.25	0.09
	Current ratio before	0.53	2.80	1.30
	D/E after	0.47	7.12	2.54
	ROA after	-0.05	0.23	0.09
	Current ratio after	0.53	2.76	1.26
Telecommunications	D/E before	1.90	5.36	3.90
	ROA before	0.06	0.28	0.18
	Current ratio before	0.65	1.24	0.99
	D/E after	2.04	6.00	3.45
	ROA after	0.06	0.27	0.17
	Current ratio after	0.63	1.17	0.96

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*Table 4. Paired sample t-test*

Pairs	Mean	T	Sig.
D/E before - D/E after*	-0.170	-5.404	0.000
ROA before - ROA after**	0.004	3.607	0.001
Current ratio before - current ratio after***	0.051	3.952	0.000

\* D/E (Debt to equity) before = Liabilities / Total equity

D/E after = (Liabilities + EUD) / Total equity

\*\* ROA (Return on assets) before = EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization) / Total assets

ROA after = EBITDA / (Total assets + EUA)

\*\*\* Current ratio = Current assets / [(EUD / Total lease life) + Current liabilities]

*Table 5. Paired sample t-test by industry*

Industry	Pairs	Mean	T	Sig.
Food and beverages	D/E before - D/E after*	-0.084	-3.457	0.014
	ROA before - ROA after**	0.003	1.505	0.183
	Current ratio before - current ratio after***	0.032	1.924	0.103
Services	D/E before - D/E after*	-0.076	-1.065	0.399
	ROA before - ROA after**	0.001	1.230	0.344
	Current ratio before - current ratio after***	0.024	1.494	0.274
Retail and Transport	D/E before - D/E after*	-0.517	-1.848	0.138
	ROA before - ROA after**	0.018	1.401	0.234
	Current ratio before - current ratio after***	0.191	1.261	0.276
Chemicals and Pharmaceuticals	D/E before - D/E after*	-0.057	-3.149	0.008
	ROA before - ROA after**	0.000	0.241	0.813
	Current ratio before - current ratio after***	0.048	2.909	0.013
Manufacturing	D/E before - D/E after*	-0.179	-5.082	0.000
	ROA before - ROA after**	0.004	4.951	0.000
	Current ratio before - current ratio after***	0.040	4.513	0.000
Telecommunications	D/E before - D/E after*	-0.268	-1.423	0.291
	ROA before - ROA after**	0.010	2.037	0.179
	Current ratio before - current ratio after***	0.036	1.790	0.215

\* D/E (Debt to equity) before = Liabilities / Total equity

D/E after = (Liabilities + EUD) / Total equity

\*\* ROA (Return on assets) before = EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization) / Total assets

ROA after = EBITDA / (Total assets + EUA)

\*\*\* Current ratio = Current assets / [(EUD / Total lease life) + Current liabilities]

### 3.2. Regression analysis

To determine the impact of industry and country on the amount of capitalized debt influenced by the changes of IAS 17, a model was created.

$$EUD_i = b_0 + b_1 IND_i + b_2 SIZE_{it} + b_3 COUNTRY_i$$

where:

- $EUD_i$  = the estimated unrecorded debt of firm (i),
- $IND_i$  = a dummy variable to indicate to which industry a firm (i) belongs,
- $SIZE_{it}$  = the LN of the total assets of firm (i) at balance date (t),
- $COUNTRY_i$  = a dummy variable to indicate to which country a firm belongs (i), with 0 = Belgium and 1 = The Netherlands

In order to apply this model, the assumptions for linear regression must be fulfilled. One of the most important assumptions is the normal distribution of the error terms. Looking at the standardized residual plot of this model the error terms are not normally distributed. Therefore, the natural logarithm transformation was performed on our dependent variable with the intention of obtaining normality in the error terms. As a consequence our model is adjusted to the following:

$$\ln EUD_i = b_0 + b_1 IND_i + b_2 SIZE_{it} + b_3 COUNTRY_i$$

This model includes size as a control variable since it was found in previous research that this variable has a significant influence (Goodacre, 2003; Imhof *et al.*, 1997). The Pearson correlation matrix (*Table 6*) shows that size is not correlated with country. It is generally accepted that multicollinearity is considered to be present when the correlation score is above 0.80 (Gujarati and Porter, 2009). So looking at the correlations, all lower than the threshold value, multicollinearity can be excluded. Our model is able to explain 42.2% of the variation in  $\ln EUD$  (*Table 7*). When we take the amount of variables into account, an adjusted  $R^2$  of 35.2% is reported. Moreover, the VIF is calculated for all the independent variables and was found to be lower than 10, which means that no multicollinearity was present. Furthermore, we investigated the homoscedasticity of our model by applying the White-test. This test reported that our model is homoscedastic.

*Table 6. Pearson correlation matrix*

Variables		Country	Total assets
COUNTRY	Cor	1	-0.008
	Sig.		0.952
TOTAL ASSETS	Cor	-0.008	1
	Sig.	0,952	

*Table 7. Regression analysis*

Variables	Coefficients	T	Sig.
Constant	13.791	13.151	0,000
Food and beverages	1.144	0.877	0.384
Retail and transport	3.112	2.381	0.021
Chemicals and pharmaceuticals	0.946	0.807	0.423
Manufacturing	1.972	1.749	0.086
Telecommunications	3.774	2.510	0.015
Country	0.984	2.090	0.041
Total assets	0.946 <sup>-10</sup>	4.095	0.000
R <sup>2</sup>	0.422		
Adjusted R <sup>2</sup>	0.352		

### **3.2.1. Industry effect**

Previous research has documented industry effects associated with debt and leasing policy. Ang and Peterson (1984) found that the use of finance leases is different across industries and Sharpe and Nguyen (1995) document industry differences according to the use of operating leases. In order to analyze the industry effect in the model, dummy variables for each sector were added.

Different classification systems can be used to divide companies into sectors. First, the most commonly known are the SIC and the NACE codes. In the 1930's the Standard Industry Classification System (SIC) was created by the US Census Bureau, a department of the US government, responsible for gathering data about the nation's people and economy. By the 1990's however, the coding was dated and replaced by the North American Industry Classification System (NAICS) in 1997 (US Census Bureau, 2008). The European equivalent of the SIC is the NACE code.

Second, another method for allocating firms to different industries is based on the ICB classification system. Since the companies in our sample are listed on Euronext, the ICB classification is most appropriate. Euronext Brussels and Amsterdam assign the Belgian and Dutch listed firms in the ICB classification system based on their main activity. Allocation to the appropriate industries in ICB classification system is made in collaboration with the management of the companies. This resulted in the companies being allocated to 18 different industries. Those industries were further grouped into 6 categories. *Table 8* gives an overview of the different industries and the number of companies that were assigned to each industry for both countries. Most of the companies were found in the manufacturing industry. This is not surprising since a company is selected for this research if it had and operating and finance lease. Therefore, companies in the service industry (services and telecommunication) were less present.

To investigate whether industry has a significant influence on the lnEUD, a regression analysis was performed. Furthermore, a chi-square test was used to analyze whether a relationship exists between the different industries and both countries. The results of this test indicate no significant relationship, which means that our study is able to show the difference in industry apart from a possible country effect. Concerning the industry variables, almost all the dummy variables (except chemicals and pharmaceuticals, and food and beverages) are significantly different from the benchmark variable, namely services. A more in depth analysis of the different industries reveals that industry is an important variable in explaining the lnEUD since the significance in the linear regression. All industries have more operating lease and are consequently more affected by the proposed capitalization procedure compared to services.

Table 8. Industry classification

Industry	Icb	Classification	N
Telecommunications			3
	55	Media	
	65	Telecommunications	
Chemicals and pharmaceuticals			13
	05	Oil and gas	
	13	Chemicals	
	45	Health care	
Food and beverages			7
	35	Food and beverages	
Manufacturing			35
	17	Basic resources	
	23	Construction and materials	
	27	Industrial goods and services	
	95	Technology	
Retail and transport			5
	53	Retail	
	57	Travel and leisure	
Services			3
	86	Real estate	
	87	Financial services	

### 3.2.2. Size effect

Large firms are more likely to be financed with debt compared to smaller companies due to more diversity and consequently more stable cash flows. Furthermore, smaller firms are likely to face higher costs in obtaining external financing due to information asymmetry. Sharpe and Nguyen (1995) found that leases solve these information asymmetries and result in lower financing costs.

Adams and Hardwick (1998) partially supported the negative relationship between size and operating lease by reporting that lease decreased until firm size grew to a certain level, but they also claimed that lease increased after the level. Thus, the impact of the amount of operating lease should be inversely related to firm size to a certain level. To measure the construct size, different proxies can be used. Based on a directive of Europe (2003/361/EG of the Commission of 6 May 2003) turnover, total assets and amount of employees are measures to determine the size of a company. Previous research on lease capitalization (for example Beattie *et al*, 2000) often used total assets as a proxy for size. Therefore, we decided not to use turnover or amount of employees to determine the size of a company. *Table 7* shows that size significantly affects the lnEUD. It is obvious that larger firms will be more influenced by the changes compared to smaller firms.

### **3.2.3. Accounting culture**

Moreover, *Table 7* shows that a country effect is present. The variable *country* has a significant influence on lnEUD (T-test on linear model parameter,  $p < 0.05$ ). As a result, Dutch companies will have a significant higher lnEUD than Belgium companies and Dutch companies will therefore be more influenced by the adaptation of IAS 17 than Belgium companies. This could be explained as follows. Since the Royal Decree of 8th October 1976, the accounting of leased assets in Belgium has been based on the principle of economic ownership. Any operation concerning equipment goods - for which the sum of the leasing payments fully restores the capital invested by the lessor, independent of whether there is a purchase option or not (the latter no longer being a decisive element in the qualification), - or for which the amount of the purchase option, if one exists, represents a maximum 15% of the invested capital plus interest and charges, is termed to be finance leasing. Therefore, it is possible that a lease will qualify quite easily for a finance lease. In the Netherlands, on the other hand, the difference between finance and operating lease is more in line with IAS 17. Consequently, a company will prefer an operating lease since the off-balance financing advantages related to it.

Another possible explanation for the difference between the two countries could be related to the difference in the lease market. Nevertheless, a research published by KPMG and Lease Europe (2010) on the European Lease Market revealed that the degree of penetration of leased financed assets is less than 10 percent in both the Netherlands and Belgium. This could be an indication that both countries have a similar amount of leases characterized only by a difference between the number of finance and operating lease. However, the country effect can also be explained by the cultural background of each country. Different applications of accounting standards in different countries could be due to environmental factors (Robinson & Venieris, 1996) such as legislation, political persuasion, separation of ownership and control, management and economic development. This could explain why the *country* variable is significant.

The same regression was performed replacing the dependent variable  $\ln EUD$  by  $\ln EUA$  which is calculated according the method of Imhoff *et al* (1999). The independent variables *industry*, *size* and *country* are still significant.

## CONCLUSION AND DISCUSSION

In March 2009, the Boards published a discussion paper in which the current views on lease accounting were placed. All stakeholders have the opportunity to describe their opinion on this paper concerning lease accounting. The European Financial Reporting Advisory Group (EFRAG) announced in their comment letter on the paper their concern about the replacement of the border between operating and finance leases with another border between service arrangements and leases (EFRAG, 2009). By the end of 2010, the exposure draft on IAS 17 was published in which the difference between finance and operating lease was no longer maintained. Consequently, in this study we want to investigate the impact on the financial ratios of Belgian and Dutch listed companies affected by the proposed changes of IAS 17. This paper does not postulate that financial analysts do not take additional information about operational lease, explained for example in the notes, into account. This research investigates the consequences of capitalizing operating leases on the balance sheet; apart from the fact that financial analysts could take the impact of capitalization into consideration. The results indicate that operating lease capitalization will have a significant effect on the D/E ratio, ROA ratio and the current ratio of listed companies. The proposed changes on IAS 17 will result in a significantly higher D/E ratio and in a lower ROA ratio and current ratio. We found that the impact will not be the same for all industries. The manufacturing industry, for example, will be more influenced by the changes than the telecom industry. Moreover, this research describes company characteristics that influence the level of unrecorded debt. A model was created in order to determine the existence of a country effect, controlling for a firm's characteristics. This revealed that the new accounting standard will have a different influence for both countries.

These results are relevant to international standard setters (the IASB) that might consider the impact of the proposed changes on IAS 17 described in the discussion paper by the boards. Furthermore, the results are of relevance to analysts in determining the impact of lease capitalization on financial ratios. Nevertheless, this research does not assume that investors and financial analysts are unsophisticated and therefore fail to understand the true financial implications of accounting data. We want to investigate the consequences of capitalizing operating leases on the balance sheet, apart from the fact that financial analysts could take the impact of capitalization into consideration. Moreover, to our knowledge, there is not yet a study relating accounting culture to the capitalization of operating leases.

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## **REFERENCES**

- Adams, M. & Hardwick, P. (1998) "Determinants of the leasing decision in United Kingdom listed companies", *Applied Financial Economics*, vol. 8, no. 5: 487-494.
- Ang, J. & Peterson, P.P. (1984) "The leasing puzzle", *Journal of Finance*, vol. 39, no. 4: 1055-1065
- Beattie, V. A., Edwards, K. & Goodacre, A. (1998) "The impact of constructive operating lease capitalization on key accounting ratios", *Accounting and Business Research*, vol. 28, no. 4: 233-254
- Beattie, V.A., Goodacre, A. & Thomson, S. (2000) "Operating leases and the assessment of lease-debt substitutability", *Journal of Banking & Finance*, vol. 24, 2000: 427-470
- Beattie, V.A., Goodacre, A. & Thomson, S. (2000) "Recognition versus disclosure: an investigation of the impact on equity risk using operating lease disclosure", *Journal of Business, Finance and Accounting*, vol. 27, no. 9: 1185-1224
- Beattie, V.A., Goodacre, A. & Thomson, S. (2004) *Leasing: Its financing role and accounting treatment*, London: Institute of Chartered Accountants in England and Wales
- Bennett, B. K. & Bradbury, M. E. (2003) "Capitalizing non-cancelable operating leases", *Journal of International Financial Management and Accounting*, vol. 12, no. 2: 101-114
- D'Arcy, A. (2001) "Accounting classification and the international harmonization debate – an empirical investigation", *Accounting, Organizations and Society*, vol. 26, no 1: 327 – 349
- Doupnik, T.S. & Salter, B.S. (1993) "An empirical test of a judgmental international classification of financial reporting practices", *Journal of International Business Studies*, vol. 24, no. 1: 41-60
- Duke, J.C., Hsieh, S. & Su, Y. (2009) "Operating and synthetic leases: Exploiting financial benefits in the post-Enron era", *Advances in Accounting, incorporating Advances in International Accounting*, vol. 25, no. 1: 28-39
- European Financial Reporting Advisory Group (EFRAG) (2009), *IASB/FASB Discussion Paper Leases*, London

- Ely, K. (1995) "Operating lease accounting and the market's assessment of equity risk", *Journal of Accounting Research*, vol. 33, no. 2: 397-415
- Epps, R. W. & Oh, J.W. (1997) "Market perception of foreign financial reports: differential earnings, response coefficients between U.S. and foreign GAAP", *Journal of International Accounting, Auditing and Taxation*, vol. 6, no. 1: 49-74
- FASB (1976) *Accounting for leases, statement of financial accounting standards no. 13*. Stamford, CT: Financial Accounting Standards Board
- Goodacre, A. (2003) "Operating lease finance in the U.K. retail sector", *The International Review of Retail, Distribution and Consumer Research*, vol. 13, no. 1: 99-125
- Gujarati, D.N. & Porter, D.C. (2009), *Basic Econometrics (Fifth edition)*, New York: McGraw Hill
- Herrmann, D. & Thomas, W. (1995) "Harmonization of accounting measurement practices in the European Community", *Accounting and Business Research*, vol. 25, no. 1: 253-265
- Hoarau, C. (1995) "International accounting harmonization, American hegemony or mutual recognition with benchmarks?", *European Accounting Review*, vol. 4, no 2: 217-233
- IASB (2008) *Leases. IAS, vol. 17*, London: International Accounting Standards Board.
- Imhoff, E.A., Lipe, R. C. & Wright, D.W. (1991) "Operating leases: Impact of constructive capitalization", *Accounting Horizons*, vol. 5, no.1:51-63
- Imhoff, E.A., Lipe, R. C. & Wright, D.W. (1993) "The effects of recognition verses disclosure on shareholder risk and executive compensation", *Journal of Accounting, Audition, and Finance*, vol. 8, no.4:335-368
- Imhoff, E.A., Lipe, R. C. & Wright, D.W. (1997) "Operating leases: Income effects of constructive capitalization", *Accounting Horizons*, vol. 11, no.2: 12-32
- Kraus, A. & Litzenberger, R.H. (1973) "A State-Preference Model of Optimal Financial Leverage", *Journal of Finance*, vol. 28, no. 4: 911-922
- Leaseurope and KPMG (2000) *European leasing: a joint Leaseurope and KPMG publication*.
- Nobes, C. W. (1983) "A judgmental international classification of financial reporting practices" *Journal of Business, Finance and Accounting*, Spring: 1-19
- Othman, H. B. & Zeghal, D. (2000) "A study of earnings-management motives in the Anglo-American and Euro-Continental accounting models: The Canadian and French cases", *The International Journal of Accounting*, vol. 41:406-435
- Robinson, C. & Venieris, G. (1996) "Economics, Culture, and Accounting Standards: A case study of Greece and Canada", *Canadian Journal of Administrative Sciences*, vol. 13, no. 2: 119-131.
- Sharpe, S.A. & Nguyen, H.H. (1995) "Capital market imperfection and the incentive to lease", *Journal of Financial Economics*, vol. 39: 271-294
- Williams M. (2007) "Introduction of SIC 2007", *Economic and Labour Market Review*, vol. 1, no. 7:3-4