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Accounting, Auditing and Control

Master Thesis

The Impact of the new standard “IFRS 16 Lease” on value relevance of annual accounts.

Student: Harun Topal, 345775ht
Supervisor: Wal, R. van der
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Abstract

This study examines the value relevance of the IFRS 16 Standard 'Leases' on annual accounts of European Companies. Nowadays operational leasing is an important and generally used financing method. It facilitate companies to gain access to the use of fixed assets without purchasing themselves.

The IASB published IFRS 16 Leases in January 2016 with an effective date of 1 January 2019 with earlier application permitted. The new standard IFRS 16 will replace the current standard IAS 17. The new standard IFRS 16 requires lessees to recognize nearly all leases on the balance sheet which will reflect their right to use an asset for a period of time and the associated liability for payments.

The objective of this study is to examine whether the new standard IFRS 16 will impact the annual accounts.

The data is hand-collected of the operating leases in the consolidated financial statements of European companies. The figures and lease obligations of 2016 and 2017 are capitalized. For the value relevance observation of the year 2017 the lease obligations are been used for the observations of the years 2018 and 2019.

A value relevance measure of Ohlson model (1995) complies with the empirical methodology followed by Collins et al. (1997 and 1999) is used to explore the value relevance of the earnings per share and book value per share after apply of the constructive capitalization method of Imhoff et al. (1991).

The results provide evidence that the analysis has a significant increase in the assets and liabilities of the selected European Companies after capitalization. Because of the increase of the assets and liabilities will this affects the different financial ratios, especially D/A and D/E, which significantly increase when capitalizing the operating leases. The results are the same as prior literature on lease capitalization (Imhoff et al. 1991; Beattie et al 1998; Duke et al., 2009; Wong and Joshi, 2015).

The impact on the value relevance of the market value, with book value of equity per share and earnings per share for the European companies before and after the adoption of IFRS 16 adjustment, show that the value relevance of accounting information is improved. This result are the same as prior literature that presents that the adoption of IFRS improves value relevance Suadiye 2012; Van der Meulen et al; 2007; Karampinis and Hevas (2011) and Kargin (2013).

The obtained results provide that implementation of the IFRS 16 have an effect on the ratio's and value relevance of accounting information of European companies. Results from the regressions that were performed on the value relevance suggest that the BVPS are significant. The financial market will go through a passage where the operational leases will be in the picture as Hans Hoogervorst (2016) said "to help ending the guesswork of involved when calculating a company's often-substantial lease obligations". Furthermore Hans Hoogervorst (2016) says that it "provide much-needed transparency on companies lease assets and liabilities" and "improve comparability between companies that lease and those that borrow to buy."

Keywords: IFRS16, Value relevance (earnings per share and book value per share), operating leases, lease capitalization.

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1. Introduction

The objective of this research is to examine the impact of IFRS 16 Standard Lease on the relevance of annual accounts of European Companies.

In the international market as well as in all European countries lease is a very used product. There are two basic forms of lease, namely operational lease and financial lease. The difference is based on who owns the leased asset, who bears the expenses and running costs, whether there is a purchase option or not and which lease term is used. Operational leasing is an important and widely used financing method. It enables companies to gain access to the use of fixed assets without purchasing them themselves.

The current lease accounting model FAS 13 was introduced through the Financial Accounting Standard Board (FASB) announced in 1976. In the International Financial Reporting Standards (IFRS) context, the current standard (IAS 17) was announced in 1994 by the former International Accounting Standard Committee (IASC).

The International Accounting Standards Board (IASB) is an organization that issues international accounting standards. These international standards are called International Financial Reporting Standards (IFRS). Application of IFRS in the annual report must lead to a 'true and fair view' of the business performance and position of a company for users of annual reports. To increase the 'true and fair view', reporting guidelines are further adapted.
In 2008 former Sir David Philip Tweedie Chairman of the International Accounting Standards Board (IASB), from a speech at The Empire Club of Canada which it is often cited, says that *"One of my great ambitions before I die is to fly in an aircraft that is on an airline's balance sheet*", The comment was motivated by the fact that most airline companies use operating leases that are not shown on the balance sheet, but in the off balance sheet.

The IASB published IFRS 16 Leases in January 2016 with an effective date of 1 January 2019 with earlier application permitted. The IFRS 16 will replace the IAS 17. The new standard IFRS 16 requires lessees to recognize nearly all leases on the balance sheet. This will reflect their right to use an asset for a period of time and the associated liability for payments.

This new standard IFRS 16 will have the most impact on the balance of the financial statements of the lessees and will have little consequences for the lessors. The IFRS 16 has the following transition provisions (IFRS 16, 2016):

- Existing finance leases: continue to be treated as finance leases;
- Existing operating leases: option for full or limited retrospective restatement to reflect the requirements of IFRS 16.

Moreover, the FAS 13, American equivalent of IAS 17, was voted the worst standard ever (Reither, 1998). This assessment was made by members of The American Accounting Association / FASB financial reporting issues conference in 1996. Regarding Lee (2014) results of the analysis of U.S. companies indicate that the capitalization of operating leases will cause significant changes in the various financial ratios within corporate debt covenants. Lim et al. (2003) says, "Ratings agencies and finance textbooks agree that long-term lease obligations represent debt, regardless of the accounting treatment"
To process the operational leases on to the balance sheet gives the users a better insight into the performance of a company. This will also effect the decision on the companies of the users.

Value relevance is being defined by Suadiye (2012) as the ability of financial statement information to capture and summarize company's value. Value relevance is measured as the statistical relations between financial statement information and market values of a company. In a lot of studies the Ohlson model (1995) has been used to explore relationships among the market value of equity. The two main financial reporting variables has been identified as the book value of equity per share (BVPS), represents by the balance sheet and the earnings per share (EPS), represents by the income statement. These two accounting measures have a positive association with market value of a firm.

1.2 Research question

Research has been done on a wide range of determinants of IFRS 16 Leases, like the key ratios as the leverage, asset turnover, size, profitability and interest coverage. This research will focus on the value relevance of the IFRS 16 on the annual accounts.

Prior research has found evidence that IFRS 16 Leases impacts on the key financial ratios of balance sheet, leverage and solvency (Tahtah and Roelofsen (2016); Sarı (2016); Öztürk & Serçemeli (2016); Aktas et al. (2017) and Morales-Diaz (2018). This is in line with prior research of Durocher (2008) and Branswijck et al. (2011) which investigated the possible impact of implementing a new lease standard.

The three key implications on the financial statements after implementation of the IFRS 16 will be as follow;

1. **Increase total balance sheets:** The capitalisation of the off balance into the balance sheet will be for the companies better to recognize the present value of lease payments as lease assets and the lease payments as financial liabilities. The capitalisation will increase the assets and liabilities for companies. Furthermore, the equity will be change on behalf of the assumptions of the interest rate and depreciation period.
2. **Changes income statements:** The lease expenses under the IAS 17 mentioned as operating leases will be presented as depreciation on leased assets and interest expense on lease liabilities under the new standard IFRS 16. This will result in an increase of the EBITDA and EBIT but with little to no effect on profit before tax. This depends on the assumptions of the interest rate and depreciation period. For the entire period this will have no effect.
3. **Unchanged cash flow totals:** Under the IAS 17 the costs were presented under the operating expenses. After the new standard IFRS 16 this will be financing activities. This results in an increase in cash from operating activities with an offsetting decrease in cash from financing activities and the total cash flow will not change.

Regarding the different views of processing of operational lease contracts in particular, it is not easy to say that the introduction of IFRS 16 provides the desired effect. The EFRAG says that the users of financial reports will benefit due to increased transparency and comparability. This effect mainly relates to improving understanding of the main users of the financial statements, which are generally investors.

In contrast, the IFRS intended to improve the available information to the shareholders from the financial statements. Furthermore in the IFRS the conservatism principle is not mentioned in the basic principles. The fair value principle will be in place of the historic cost principle in most cases.
The reason of this is to give the investors more value-relevant accounting data. This means that the reported accounting data under the IFRS will be more value-relevant. On behalf of this, the research question is formulated as follows;

What is the main impact on the balance sheet of the new standard "IFRS 16 Lease" on the value relevance of annual accounts?

As indicated before there are three key implications after implementation of the IFRS 16. The main impact of the IFRS 16 will be on the balance sheet. At the introductory comments to the European Parliament, Hans Hoogervorst said that "the listed companies around the world have around 3 trillion euros' worth of leases, especially in sectors such as the airline industry, retail and shipping. Under current accounting standard IAS 17, over 85% of these leases are labelled as operating leases and are not recorded on the balance sheet". After the IFRS 16 this amount will be presented into the balance sheet.

1.3 Objectives and relevance

In January 2016 with an effective date of 1 January 2019, the IASB published IFRS 16 Leases. The new standard IFRS 16 requires lessees to recognize nearly all leases on the balance sheet which will reflect their right to use an asset for a period of time and the associated liability for payments.

The objective regarding the IFRS Foundation (2016) is that the standard sets out the principles for the recognition, measurement, presentation and disclosure of leases. The objective is to ensure that lessees and lessors provide relevant information in a manner that faithfully represents those transactions. This information gives the possibility to users of financial statements to assess the effect that leases have on the financial position, financial performance and cash flows of an entity.

As mentioned above, with the new standard IFRS 16: Leases, there is also the possibility to align lease contracts, so that the liability to be recognized is lower or completely eliminated. This can also be seen as a form of 'off balance sheet accounting'.
The new lease accounting standard will prevent 'off balance sheet accounting' in the area of lease accounting. The reason to prevent off balance sheet is the difficult task for investors and other interested parties to get a correct picture of the leased assets and associated lease obligations of companies. The new standard will have major consequences for companies with many operational lease contracts. This research will examine how this standard will look exactly like and what possible consequences for the annual accounts of a company it brings. The fact that IFRS is being applied in the European Union and the degree of topicality means that this topic is relevant.

The key benefits is the comparability across companies, because there is no difference in the presentation in the financial statements. The off balance sheet will also be presented into the balance. This will represents the underlying economic transactions more exact.

IASB Chairman Hans Hoogervorst (2016) indicated in the press release for IFRS 16 that “to help end the guesswork involved when calculating a company’s often-substantial lease obligations.” The analysts are now trying to estimate the companies operating leases and to add to the balance sheet to get a better picture of the health of the company, the guesswork like Hans Hoogervorst means. In place of the guesswork will with the new standard IFRS 16 end. Furthermore Hoogervorst (2016) says that it “provide much-needed transparency on companies lease assets and liabilities” and “improve comparability between companies that lease and those that borrow to buy.”

Regarding EFRAG the main reason for ongoing costs is the monitoring of capitalized operating leases and any maintenance costs of the IT and accounting systems. Users of financial reports would benefit due to increased transparency and comparability, but these would be limited in scope since most public capital market users and, to a lesser extent, users at lenders / lessors already undertake work similar to IFRS 16’s expected effect. Further a small minority of lessees can be expected to seek amendments to leasing contracts to maintain the existing off-balance sheet treatment.

An important element in an economic analysis is to understand how the behavior of market participants might change or evolve as a consequence of the policy change. There is an argument that if information on operating leases is publically available to all relevant market participants, then a change in the financial reporting of past transactions should not have any real effects on the economic behavior of the lessors or lessees, because the cash flow will not change.

The most affected companies would be the industries where a lot of off-balance sheet financing is presented. Industries like airlines, travel, transport and leisure, and retailers.

This study contributes to a better understanding of the implications and determination of the likely impact of the accounting change of the new standard especially for investors, boards, managers and standard setters in the industries mentioned before and for practitioners and financial statement users.

1.4 Methodology

The methodology for this research can be divided into two parts. First on base of the literature research and on the other hand empirical research. With the literature research there will be looked at the different processing methods. For the empirical research, a number of companies will be investigated about the effect of value relevance on the annual accounts. By performing a regression analysis it is examined whether the observed effect is significant or not.

The research question will be answered by analysing financial data of the years 2016 and 2017 of European Companies consolidated annual accounts for the purpose of detecting the impacts of the IFRS 16 on the value relevance of the annual accounts. The reason for choosing European Companies is that the companies have activities in airline, retail and travel/leisure sectors. The initial sample include 50 European Companies. Furthermore, the annual accounts of the early adopters will also be analyzed.

Value relevance

Value relevance of accounting information is been tested by the data which covers the period 2016 and 2017. The period is divided as pre-IFRS 16 for the years 2016 and 2017 and post-IFRS 16 for the years 2018 and 2019 to observe improvements on the value relevance of accounting information. The data will be collected from European Stock Exchange listed companies for the Market value per share (P), Book Value Per Share (BVPS), and Earnings Per Share (EPS).

The Ohlson model (1995) is used for discover the value relevance of accounting data for the given period. The model is been used by Suadiye (2012); Chandrapala (2013); Kargin (2013) and Chebaane (2014). Regarding Kargin (2013) The Ohlson model (1995) is used to test the samples in three perspectives. The first one is to test if the influential observations does contain with the value relevance of accounting data. The second approach is to investigate of the companies reported positive earnings of accounting data are value relevance. And finally the Ohlson model (1995) is applied to see the improvements in the pre- and post-IFRS periods on the value relevance of accounting information.

In research of the pre IFRS16 and post IFRS16 the annual accounts will be capitalized using the constructive capitalization approach to see the impact on the annual accounts.

Constructive capitalization

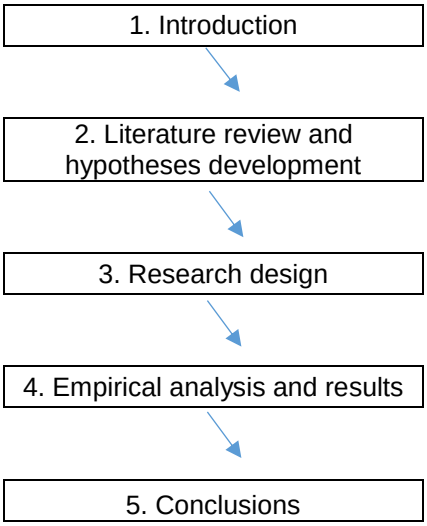
With the constructive capitalization method the impact on the balance sheet and on the profit and loss account determined by the future mentioned off balance lease obligation will be capitalized. This method is predominantly used in research into the impact on the annual accounts of activating obligations of off balance operating lease agreements. This mentioned method is also mentioned by Imhoff et al. (1997); Palepu et al. (2016); Fülbier et al. (2008) and EFRAG (2017).

1.5 Structure

The paper is structured as follows. Chapter 2 describes the theoretical base of the standard IFRS 16 Leases and the hypotheses will be discussed followed by the research design in chapter 3.

The next chapter, chapter 4, presents and discusses the empirical findings and results. Finally, the findings, limitations and recommendations for further research are provided in chapter 5. A complete overview of the research structure is provided in figure 1.

Figure 1 Research structure



2 Literature review and hypotheses development

Accounting research on leases, extends over several decades, and may be divided into the following five lines (Barone, Birt, and Moya 2014): economic consequences of accounting standards; determinant of leases; value relevance; leases valuation and the impact of leases on accounting ratios. This study will especially examine the impacts on the value relevance of IFRS 16 on company's financial statements.

First, a review of the current standard IAS 17 is given in section 2.1. Followed by the new accounting standard IFRS 16 in section 2.2. In section 2.3 the prior literature on value relevance will be discussed. The IFRS adoption will be discussed in section 2.4. Finally in section 2.5 a summary of the all the relevant literature is discussed.

2.1 Current Lease Standard IAS 17

40 years ago the current lease accounting model was introduced through a standard issued in 1976 by the FASB: Statement of Financial Accounting Standard (SFAS) 13 "Accounting for Leases" (now ASC Topic 840). In the IFRS context, the current lease standard (International Accounting Standards – IAS 17) was issued in 1994 by the former IASC4 (including a model similar to SFAS 13).

IAS 17 Leases (IASPLUS) prescribes the accounting policies and disclosures applicable to leases, both for lessees and lessors. Leases are required to be classified as either finance leases (which transfer substantially all the risks and rewards of ownership and give rise to asset and liability recognition by the lessee and a receivable by the lessor) and operating leases (which result in expense recognition by the lessee, with the asset remaining recognised by the lessor).

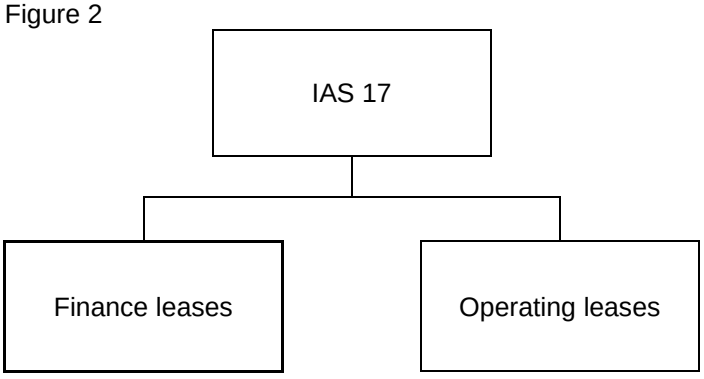
The objective of IAS 17 (1997) is to prescribe, for lessees and lessors, the appropriate accounting policies and disclosures to apply in relation to finance and operating leases.

Scope of the IAS 17 applies to all leases other than lease agreements for minerals, oil, natural gas, and similar regenerative resources and licensing agreements for films, videos, plays, manuscripts, patents, copyrights, and similar items. [IAS 17.2]

A lease is classified as a finance lease if it transfers substantially all the risks and rewards incident to ownership. All other leases are classified as operating leases. Classification is made at the inception of the lease. [IAS 17.4]
Whether a lease is a finance lease or an operating lease depends on the substance of the transaction rather than the form. Situations that would normally lead to a lease being classified as a finance lease include the following: [IAS 17.10]

There are two basic forms of lease, namely operational lease and financial lease. The difference is based on who owns the leased asset, who bears the expenses and running costs, whether there is an purchase option or not and what is the lease term. Operational leasing is an important and widely used financing method. It enables companies to gain access to the use of fixed assets without purchasing them themselves.

Figure 2



2.1.1 Finance leases

A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership.

Lessees [IAS 17.31]

- carrying amount of asset
- reconciliation between total minimum lease payments and their present value
- amounts of minimum lease payments at balance sheet date and the present value thereof, for:
    - the next year
    - years 2 through 5 combined
    - beyond five years
- contingent rent recognized as an expense
- total future minimum sublease income under no cancellable subleases
- general description of significant leasing arrangements, including contingent rent provisions, renewal or purchase options and restrictions imposed on dividends, borrowings, or further leasing

Lessors [IAS 17.47]

- reconciliation between gross investment in the lease and the present value of minimum lease payments;
- gross investment and present value of minimum lease payments receivable for:
    - the next year
    - years 2 through 5 combined
    - beyond five years
- unearned finance income
- unguaranteed residual values
- accumulated allowance for uncollectible lease payments receivable
- contingent rent recognized in income
- general description of significant leasing arrangements

2.1.2 Operating leases

A lease is classified as an operating lease if it does not transfer substantially all the risks and rewards incidental to ownership. In this lease, the asset is returned by the lessee after using it for lease term agreed upon.

Lessees [IAS 17.35]

- amounts of minimum lease payments at balance sheet date under no cancellable operating leases for:
    - the next year
    - years 2 through 5 combined
    - beyond five years
- total future minimum sublease income under no cancellable subleases
- lease and sublease payments recognized in income for the period
- contingent rent recognized as an expense
- general description of significant leasing arrangements, including contingent rent provisions, renewal or purchase options, and restrictions imposed on dividends, borrowings, or further leasing

Lessors [IAS 17.56]

- amounts of minimum lease payments at balance sheet date under no cancellable operating leases in the aggregate and for:
    - the next year
    - years 2 through 5 combined
    - beyond five years
- contingent rent recognized as in income
- general description of significant leasing arrangements

2.1.3 Criticism IAS 17

Moreover, the SFAS 13, American equivalent of IAS 17, was voted the worst standard ever (Reither, 1998). This assessment was made by members of The American Accounting Association / FASB financial reporting issues conference in 1996. Regarding Lee (2014) results of the analysis of U.S. companies indicate that the capitalization of operating leases will cause significant changes in the various financial ratios within corporate debt covenants. Lim et al. (2003) says, " Ratings agencies and finance textbooks agree that long-term lease obligations represent debt, regardless of the accounting treatment". There is no consensus of how to estimate the amount of debt represented by operating leases.

The results of Imhoff et al.(1991) demonstrate that the financial ratios change after the capitalization of operating lease which significantly affect decision making. The study results indicate that lease capitalization leads for both high and low lease usage to a material decline in return on assets (ROA) ratio. The impact on the debt to earnings (D/E) ratio was even more evidence that the average increase of 191% for high lease usage and 47% for low lease usage.

McGregor (1996) findings are that the current standards fail to account for the assets and liabilities identified with the rights and obligations that arise out of most "operating" lease contracts. McGregor suggested for the leases with an initial non-cancelable lease term with less than one year not to capitalize the leases.

Fülbier, Silva and Pferdehirt (2008) simulate the consequences on the financial statements of a set of listed German companies after lease capitalization. They conducted ex ante research, indicating the consequences of a possible future accounting reform. They investigate the impact on key financial ratios after capitalization. On the modified constructive capitalization approach originally developed by Imhoff et al. (1991; 1993; 1997) they based their simulation model. The results of them presents for a considerable number of companies, especially for the fashion and retail industry groups a material capitalization impact. Changes in financial ratios occur primarily in assets and liability relations, but they only observed minor effects can be observed for profitability ratios and market multiples often used for valuation purposes.

Duke et al. (2009) study have examined the companies of the S&P 500 index of 366 listed companies from various industries by applying the constructive lease capitalization to operating leases. The effects of capitalization for two sub-groups: companies with positive income and companies with negative income. Further they demonstrate that currently companies can hide billions of liabilities, enhance retained earnings, income, and ratios by reporting leases as operating. Duke et al. provides additional insight into company's motivation for using operating leases. The top quartile have positive subgroup experienced an 18% increase in income while the top quartile negative subgroup had an 11% decline in income under lease capitalization. Further there was also a significant negative impact on leverage performance ratios and liquidity.

Kostolansky and Stanko (2011) analyzed the leasing arrangements of the Standard and Poor's 100 companies under a variety of discount rates. The method by extracting Form 10-K information from the Management Discussion and Analysis note, the financial statements, and the leasing footnotes. They found a material impact on specific industries and on specific companies. Double digit increases and decreases in companies specific financial ratios will occur. Their findings also support the IASB initiative to capitalize operating leases, ultimately creating a more representative balance sheet. They agree with the Board that these leasing arrangements should be represented on the balance sheet if that statement is to reflect the company's full set of obligations.

Lim et al (2013) documented evidence on how the market evaluates the magnitude of operating lease obligations are reflected in the market's assessment of company's credit risk. On the other hand they have the similar impact as balance sheet debt on the yields of new bond issues.

Wong (2015) results show that financial statements of the selected Australian companies will change significantly when all lease assets and liabilities are capitalized. Further there is by the planning and formulating the strategies for practical implications of corporate managers and accounting practitioners to lessen the impact of this important change in lease accounting.

The Association of Chartered Certified Accountants (ACCA 2014) criticisms the IAS 17. Especially there are concerns that a lot of leases are not reflected on balance sheets, even with their clear financing element. Further the IAS 17 has been criticised for not reflecting economic reality. Known examples are the fleets of aircraft or rolling stock that do not meet the criteria for recognition as assets and liabilities by the lessee, and for which a lack of detailed disclosure is required in financial statements. The financial statements do not always reflect the underlying business reality, due to the difference between operating and finance leasing, respectively off- and on-balance sheet.

The chairman of the IASB Hans Hoogervorst, complained against the fact that the IAS 17 truly not reflects the economic reality. Two very similar transactions from an economic perspective could be reported very differently, namely on the balance sheet (financial lease) and off balance (operating lease) (Hoogervorst, 2016 Interview).
The former Chairman of the IASB Sir David Philip Tweedie, during a speech in 2008 to the Empire Club of Canada which it is often cited, says that "*One of my great ambitions before I die is to fly in an aircraft that is on an airline's balance sheet*", and he says that "*almost no one in the room has ever flown in a plane that was actually on the balance sheet of the airline company".*

The researches mentioned before show that the issues relation to IAS 17 are relevant. It is a difficult task for investors and other interested parties to get a correct picture of the leased assets and associated lease obligations of companies. Comparing companies that are actively buying leases and of companies therefore estimating the amount of off-balance leases. From this perspective, the new standard is an improvement. Nevertheless, it should be noted that direct adjustments of the standard to operational leases will have an impact that will be experienced worldwide and by many companies.

Prior researches as Imhoff et al. (1991) and Beattie et al. (1998) tried to demonstrate that constructive capitalization of operating lease affected decision making. The operating lease are conduct like a financing lease and the assets and debts are reported in the balance sheet with the constructive capitalization method. With this the impact of capitalization can be seen on the accounting ratios.

2.2 New accounting standard IFRS 16

"The new standard will provide much-needed transparency on companies' lease assets and liabilities, meaning that off balance sheet lease financing is no longer lurking in the shadows. It will also improve comparability between companies that lease and those that borrow to buy" (Hoogervorst, 2016).

IFRS 16 was issued in January 2016 and applies to annual reporting periods beginning on or after 1 January 2019.

At the Introductory comments to the European Parliament, Hans Hoogervorst said that "the listed companies around the world have around 3 trillion euros' worth of leases, especially in sectors such as the airline industry, retail and shipping. Under current accounting requirements, over 85 percent of these leases are labelled as operating leases and are *not* recorded on the balance sheet".

Hans Hoogervorst also thinks that the changes of the standard brings an 'eye-opening' for management and that the CEO's may be surprised at how many leases they have on the balance sheet and the knock-on effect that has in terms of finance.

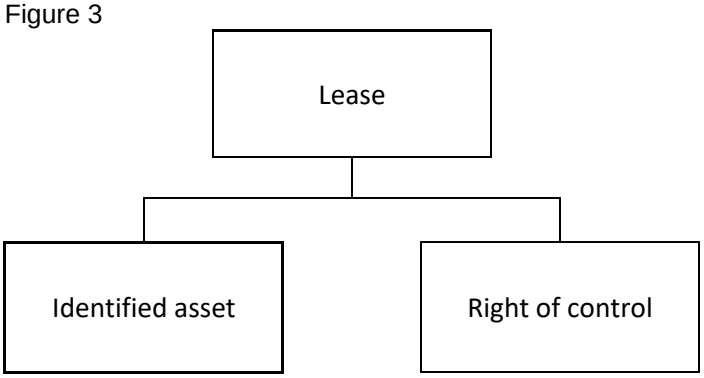
With this statement the impact of the new standard is cited in a very powerful way. The more transparent and clearer picture of a company will ensure that financial data have changed 'on paper'. The management of the company will have to take steps to provide the parties involved with an explanation for these 'new' figures.

IFRS 16 (IASPLUS) define how an IFRS reporter will recognize, measure, present and disclose leases. The new standard IFRS 16 provides a single lessee accounting model, requiring lessees to recognize assets and liabilities for all leases unless the lease term is 12 months or less or the underlying asset has a low value. Lessors continue to classify leases as operating or finance, with IFRS 16 approach to lessor accounting substantially unchanged from its predecessor the IAS 17.

The objective of the IFRS 16 is to establishes principles for the recognition, measurement, presentation and disclosure of leases, with the objective of ensuring that lessees and lessors provide relevant information that faithfully represents those transactions. [IFRS 16:1] The scope of the IFRS 16 Leases applies to all leases, including subleases. Except for a couple of points:

Identifying a lease if there is a contract, or contains, and if it conveys the right to control the use of an identified asset for a period of time in exchange for consideration. [IFRS 16:9]
Control is conveyed where the customer has both the right to direct the identified asset's use and to obtain substantially all the economic benefits from that use. [IFRS 16:B9]

Figure 3



An asset is typically identified by being explicitly specified in a contract, but an asset can also be identified by being implicitly specified at the time it is made available for use by the customer. However, where a supplier has a substantive right of substitution throughout the period of use, a customer does not have a right to use an identified asset. A supplier's right of substitution is only considered substantive if the supplier has both the practical ability to substitute alternative assets throughout the period of use and they would economically benefit from substitution. [IFRS 16:B13-14]

Accounting by lessees
Upon lease commencement a lessee recognizes a right-of-use asset and a lease liability. [IFRS 16:22]
The right-of-use asset is initially measured at the amount of the lease liability plus any initial direct costs incurred by the lessee. Adjustments may also be required for lease incentives, payments at or prior to commencement and restoration obligations or similar. [IFRS 16:24]
After lease commencement, a lessee shall measure the right-of-use asset using a cost model (unless specific conditions apply); less accumulated depreciation and impairment.
The lease liability is initially measured at the present value of the lease payments payable over the lease term, discounted at the rate implicit in the lease if that can be readily determined. If that rate cannot be readily determined, the lessee uses its incremental borrowing rate.
Variable lease payments that depend on an index or a rate are included in the initial measurement of the lease liability and are initially measured using the index or rate as at the commencement date, while other variable lease payments are recognized in profit or loss in the period in which the event or condition that triggers payment occurs, unless the costs are included in the carrying amount of another asset under another Standard.

Accounting by lessors
Lessors shall classify each lease as an operating lease or a finance lease. [IFRS 16:61]
A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership of an underlying asset. Otherwise a lease is classified as an operating lease. [IFRS 16:62]
A lessor recognizes assets held under a finance lease as a receivable at an amount equal to the net investment in the lease upon lease commencement.

2.2.3 Difference between IAS 17 and IFRS 16

To begin with the requirements relating to the definition of a lease in IFRS 16 there have been changed quite from those in IAS 17. After all the changes are not expected to affect conclusions about whether contracts contain a lease for the vast majority of contracts. The lease applying IAS 17 is generally expected to be a lease applying IFRS 16. (IASB, 2016). Under IAS 17 leases were mainly assessed by whether it is an operating lease or a finance lease. Under IFRS 16 it is an lease or it is not a lease.

Regarding the IASB, 2016 the IAS 17 focused on identifying when a lease is economically similar to purchasing the asset being leased (the 'underlying asset'). When a lease was determined to be economically similar to purchasing the underlying asset. The lease was classified as a finance lease and reported on a company's balance sheet. All other leases were classified as operating leases and not reported on a company's balance sheet. This are the off balance sheet leases. Off balance sheet leases were accounted for similarly to service contracts. In the income statement the company reporting a rental expense. This is the same amount in each period of the lease, a so called straight-line lease expense.

The biggest difference between the two standards are the accountancy treatment for lessees;
The IASB 2016 defined that all leases result in a company (the lessee) obtaining the right to use an asset at the start of the lease and, if lease payments are made over time, also obtaining financing. Accordingly, IFRS 16 eliminates the classification of leases as either operating leases or finance leases as is required by IAS 17 and, instead, introduces a single lessee accounting model. Applying that model, a lessee is required to recognize:
(a) assets and liabilities for all leases with a term of more than 12 months, unless the underlying asset is of low value; and
(b) depreciation of lease assets separately from interest on lease liabilities in the income statement.

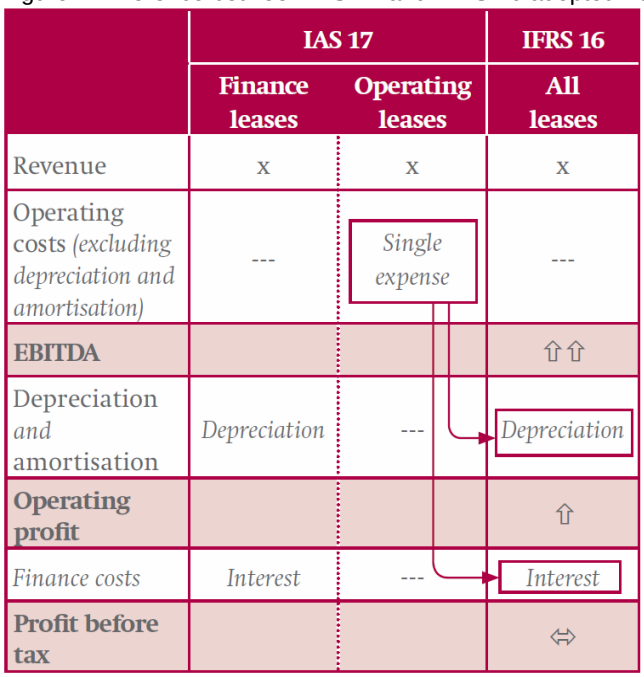
The right to obtain substantially all of the economic benefits [IFRS 16:B21] and the right to direct the how and for what purpose the asset is used [IFRS 16:B24a] are seen as the right to control the identified asset, which is different from the right of use stated in IAS 17.

The report of the IASB (2016a) briefly describes the differences for the balance sheet and profit and loss account compared to the existing standard IAS 17. For the balance sheet the IFRS 16 eliminates the classification of leases as either operating leases or finance leases for a lessee. In place off all leases are treated in a similar way to finance leases applying IAS 17. Leases are 'capitalized' by recognizing the present value of the lease payments and let see it as lease assets (right-of-use assets) or together with property, plant and equipment. If lease payments are made over time, a company also recognizes a financial liability representing its obligation to make future lease payments.

Further in the IASB (2016a) project summery the IFRS 16 most significant effect of the new requirements will be an increase in lease assets and financial liabilities. As a result for companies with material off balance sheet leases, there will be a change in the ratios of the company's assets and liabilities, for example the leverage ratios. For the income statement from the companies with material off balance leases, IFRS 16 changes the nature of expenses related to those leases. IFRS 16 replaces the typical straight-line operating lease expense for those leases applying IAS 17 with a depreciation charge for lease assets (included within operating costs) and an interest expense on lease liabilities (included within finance costs). With this change the lease costs of all leases are equalized.

The interest expense reduces over the life of the lease as lease payments are made and the depreciation charge is typically even. This results in a reducing total expense as an individual lease matures. The difference in the expense profile between IFRS 16 and IAS 17 is expected to be insignificant for many companies holding a leases that start and end in different reporting periods. As you can see at figure 4;

Figure 4 Difference between IAS 17 and IFRS 16 adopted from IASB (2016)



In short, with the introduction of IFRS 16, the old operating leases are processed as the financial leases are processed under IAS 17. This only applies to assets that are leased for more than 12 months. The depreciations usually go faster than the repayment of the lease obligation. As a result, there are temporarily relatively more obligations than assets, but at the end of the lease period this is completely the same again.

As mentioned above, the most important change in the IFRS 16 in comparison to IAS 17 is the new accounting model to be applied by lessees. When an company enters into a lease contract as a lessee, it will recognize a right-of-use (asset) and a debt (lease liability). The lease liability is initially recognized as the present value of future lease payments during the lease term. Because of the change the comparability between companies is easier.

2.2.4 IFRS 16 Research

There are several studies examining the expected change of the new leasing standard IFRS 16 which effectively eliminated the difference between operating and finance lease.

Durocher (2008) study developed and used a refined constructive capitalization method to tested the impact of operating lease capitalization of 100 Canadian listed companies on the financial indicators. The results indicate that capitalizing operating leases would lead to the recognition of important additional assets and liabilities on the balance sheet. It would therefore significantly increase the debt-to-asset ratio and significantly decrease the current ratio.

Branswijck et al. (2011) investigated the possible impact of implementing a new lease standard and eliminating the difference between operating and finance leases of the companies out 2008 in Belgium and the Netherlands. The results indicate significantly that capitalization of the operation leases influence the debt to equity ratio, return on assets and the current ratio. Furthermore it also differs among the industries of the impact on the financial ratios.

Wide range of research has been done on the IFRS 16 Leases, like the key ratios as the leverage, asset turnover, size, profitability and interest coverage. Some of these studies are shown below.

Tahtah and Roelofsen (2016) study used the constructive capitalization approach which is based on the disclosed operating lease commitments in financial statements. The study also shows that by geographical industry location the impact on financial ratios differs significantly.

Sarı (2016) study is an ex ante analysis research, simulating a predicted outcome of the new lease standard. The study uses the constructive capitalization method for Turkish retailing companies whose shares are publicly traded in the Istanbul Stock Exchange for the period 2010 until 2013. The new standard results indicate that some of the financial ratios have a statistically significant effect on (debt/asset, debt/equity, return on assets (ROA) and return on equity (ROE))

Öztürk and Serçemeli (2016) examine the transition of the new lease standard IFRS 16 on the Financial Statements of the airline companies in Turkey, especially the change in the basic ratios. The study results show that the assets and liabilities shall cause a significant increase after the reflection of the IFRS16 operating leases on the balance sheet. Because of this there shall be a significant increase in the ratio of the liability and asset, further there is a significant decrease in the return on asset.

Aktas et al. (2017) study is looked how the new standard IFRS 16 would affect financial statements of a public retail company BIMEKS Inc. and a public airline company Pegasus Inc. Further the possible effects of the new standard IFRS 16 on financial statements and financial ratios have been determined. The study results show when reported according the IFRS 16 that there will be a significant increase in the debt ratios of companies, especially for Pegasus.

Morales-Diaz (2018) study analyses the impact of the new accounting standard IFRS 16 on key financial ratios of the 646 European companies like the balance sheet, leverage, profitability, and interest coverage. The results are relating to the sector within the company operates. That there are important systematic impact on key financial ratios of balance sheet, leverage and solvency.

Conclusion of the result of the researches is that the financial ratios such as leverage, solvency and liquidity are likely to be affected by the IFRS 16 by capitalizing operating leases and are in line with prior researches.

The leasing period is expected to be an important determinant in future lease contracts. In order to minimize the impact of IFRS 16, lessees can choose to conclude contracts with a shorter life. In this way they manage to limit the lease obligations on their balance sheet.

2.2.5 Hypotheses development IFRS 16

In the previous section the theory of IFRS 16 and IAS 17 has been discussed. Now the hypothesis development will be discussed.

The main research question is whether *the main Impact on the balance sheet of the new standard "IFRS 16 Lease" on value relevance of annual accounts?*

Prior research has found evidence that IFRS 16 Leases impacts on the key financial ratios of balance sheet, leverage and solvency (Tahtah and Roelofsen, 2016; Sarı, 2016; Öztürk & Serçemeli, 2016; Aktas et al., 2017 and Morales-Diaz, 2018). This is in line with prior research of Durocher (2008) and Branswijck et al. (2011) which investigated the possible impact of implementing a new lease standard. To analyze the impact of the adoption of the IFRS 16 on the leverage, profitability and solvency, contrasting the first null hypothesis as follow:

H1: The adoption of IFRS 16 will have a significant impact on balance sheet, profitability and solvency ratios of companies

Prior literature show that some sectors like airline companies show more usage of the operating leases. Operating leases are in these sectors an alternative of the intense capital investment. This gives the companies an advantage of a more flexible structure of their liquidity. In the prior researches the retail industry is generally identified which is most affected by the implementation of the new lease accounting model (Durocher, 2008; Fülbier et al., 2008 and Tahtah and Roelofsen, 2016).

The companies which will proactively lobbying against new accounting models for lease operations are the large companies in sectors such as retail, airlines and hotels. Within this given information, the second null hypothesis will be as follow:

H2: The adoption of IFRS 16 will have significant impact on profitability and solvency ratios depending on the sector in which the company operates.

2.3 Value relevance

The first paper about value relevance is from Ball and Brown's study from 1968 and examined in an empirical way the relationship between income and earnings per share (EPS) of 261 companies in order to prove the usefulness of net income. The study have formalize the positive relationship between earnings information and security returns and disprove in the study that the net income is a 'worthless' figure. Where they have shown that the price of the shares responds to the publication of good news or bad news.

Beaver (1968) study investigates the perception of investors about the informative value of profit announcements and the extent of which investors use the profit announcements for making decisions of 143 companies for the period of 1961 until 1965. The investor's response is measured by analyzing both volume changes (more / less share sales) and price changes (stock price). They have found in the week of the announcement significantly strong evidence for value relevance in earnings information.

Ohlson (1991) has indicated in his introduction the following citation "*Without exaggeration, it can be said that the Ball-Brown (1968) paper has had an enormous influence on modern empirical accounting research. Their analysis has led to an informational perspective on accounting data*". Ohlson has emphasize the influence of the paper by Ball and Brown's.

In 1993 Amir et al. compromise of earnings and shareholder's equity is value relevant and which differences in accounting practices summarized in the components of the compromise are also value-relevant for the US companies.

According to the IASB (2018) relevance is the fundamental qualitative characteristics of useful financial information and the decisions made by users of financial information is relevant if it is capable of making a difference. If financial information has predictive value or confirmatory value it is capable of making a difference in decisions.

According to the FASB (2010) in the Conceptual Framework of the Statement of Financial accounting Concepts No. 8 the definition of relevance is that financial information is relevant only if it actually makes a difference in users decisions. Relevant financial information is capable of making a difference in the decisions made by users. To take a decision information may be capable of making a difference even if some users choose not to take advantage of it or already are aware of it from other sources.

Suadiye (2012) defined value relevance as the ability of information that is presented by financial statements to capture and summarize companies value for the period 2000-2002 historical cost and between 2005-2009 IFRS of 242 Turkish companies. Using the Ohlson 1995 model for the statistical relations between information that financial statements present and stock market values or returns.

Francis and Schipper (1999) study have 4 interpretations of value relevance. The interpretation 3 and 4 are described as that the statistical association between financial information and prices or returns.

On value relevance methods it is mostly the basic models of Ohlson (1995) which are used or develop and where the share price is linearly related to earnings per share (EPS) and book-value per share (BVPS). Furthermore a frequently used approach is the Easton and Harris (1991) where stock return is related to the earnings level and the earnings change over the prior periods. The difference is that the Ohlson model is a price model and the Easton and Harris model is a return model mentioned by Kothari and Zimmerman in 1995.

Kothari and Zimmerman (1995) provide a framework for the return model and price model and suggests that the price model are better specified. This area has become an outstanding research topic and most research preformed the Ohlson (1995) price model. The Ohlson model (1995) has been used successfully in a lot of prior researches well known are Collins et al. (1999), Collins et al. (1997) and Kothari and Zimmerman (2001).

In the researches of the Ohlson model (1995) is being looked at the adoption of relationships among the market value of equity by the two main reporting variables of the financial statements. The first one is the book value of equity per share (BVPS) represents balance sheet and the second is the earnings per share (ESP) represents income statement.

Collins et al. (1997) investigate the systematic changes in the value relevance of book values over time and earnings information by using the framework of the Ohlson model (1995). They reported that the combined value relevance has not declined and appears to have increased in the value relevance of earnings information and book values. Further the bottom line earnings has declined.

Holthausen et al. (2001) evaluate relevant literatures on the standard setting inferences of accounting information on stock prices and concluded that earnings and book values do not affect in the same manner the stock prices. Another study in the same year of Barth et al. (2001) evaluate how the information used by equity investors of the accounting amounts are provides insights into questions of interest to standard setters. They say that an accounting amount is to be value relevant if it is related with the company's market value. Furthermore if it has predicted significant relation with share prices and if the amount reflects information relevant to investors in valuing the company it will be value relevant. Financial statement user are capable of making a different decision if the accounting amount is relevant.

Prior literature on value relevance is that accounting information is relevant when the user decisions will be influenced. Especially the Ohlson model (1995) is been used to analyse the value relevance by relating the earnings per share (ESP) and book value per share (BVPS).

2.3.1 IFRS Adoption

The mandatory adoption of the IFRS implementation is applied in more than 116 countries worldwide of all listed companies. Regarding the impact of the IFRS on the value relevance a lot of literature has focused on accounting numbers and their value relevance.

In 1973 the International Accounting Standards Committee (IASC) established. The first version of the International Accounting Standards IAS, is published in 1987. In 2001 the tasks of the IASC were taken over by the International Accounting Standards Board (IASB). The IAS is expanded to the IFRS and the IFRS become more common worldwide. The use of the IFRS expectation is to ensure a better presentation of the company's performance and to improve the quality of the financial reporting. After the IFRS adoption a lot of researches have been done for the value relevance of the financial information. Some of the researches will be discussed below.

Callao et al. (2007) study on IBEX-35 companies in Spain looks on the effects of the new standards on comparability and relevance of financial reporting. The objectives are by seeking significant differences between accounting figures and financial ratios under the two sets of standards the Spanish accounting standards and the IFRS. The results obtained that local comparability has worsened. The study reveals that local comparability is adversely affected if both IFRS and local accounting standards are applied in the same country at the same time. Reforms to bring international

standards in place of local rules are therefore urgent. They also found that there has been no improvement in the relevance of financial reporting to local stock market operators because the gap between book and market values is wider when IFRS are applied. While there has been no gain in terms of the usefulness of financial reporting in the short-term, improved usefulness may be achieved in the medium to long-term.

Van der Meulen et al. (2007) argue that U.S. GAAP accounting information outperform IFRS after controlling for differences (value relevance and timeliness) in companies characteristics such as size, leverage and the company audit. Furthermore they attribute for the value relevance that there is not observed significant and consistent differences.

Barth et al. (2008) examines if the application of International Accounting Standards (IAS) is related with higher accounting quality of companies out 21 countries and particular focus turns around the accounting amounts prepared in accordance with IFRS reporting. They find generally evidence for a higher degree of value relevance among accounting amounts prepared in accordance with IAS than application of non-U.S. domestic standards.

Karampinis and Hevas (2011) investigated the mandatory adoption of IFRS upon the value relevance of earnings and book values of Greece. The results are that the IFRS adoption positively affected the value relevance of consolidated net income and book value. The study of Iatridis (2010) focuses on the UK companies and also provided that IFRS adoption leads to more value relevant accounting measures.

Bogstrand (2012) research indicates the value-relevance of earnings information and book values whether the adoption of IFRS has contributed to the accounting quality of 4.310 Scandinavian companies. The most researches related to the value relevance examines the implications of the increasingly all over adoption of IFRS among accounting standard setting and stock exchanges. The results indicate a significant increase of value-relevance in earnings information and book values in terms of economic decision to equity investors.

Tsalavoutas et al. (2012) examine the effect of the mandatory transition to IFRS on the combined value relevance of the equity and net income before and after of 1861 Greece companies. They find that the coefficients are significant higher with the IFRS and the explanatory power of value relevance between the two periods are significant.

Kargin (2013) examine the value relevance of accounting information in pre- and post-adoption periods of IFRS for the period 1998-2011 of Turkish listed companies. They find that the value relevance of accounting information has improved in the post-IFRS period for the book values and for the earnings there are no enhancements been observed in value relevance of earnings.

Chandrapala (2013) examine the effect of company size and ownership concentration on value relevance of earnings and book value of 924 in Sri Lanka for the period 2005-2009. The results of the pooled cross-sectional data regressions reported that the value relevance of ownership concentrated companies is higher than that of ownership non-concentrated companies and that the value relevance of earnings and book value is below average.

Cheng et al. (2013) examine the value relevance of earnings levels compared with the earnings changes in the return-earnings relations for the period 1979-2009 of 57.600 US companies. The results are that the ability of earnings changes for unexpected earnings is sensitive to a company's time-series earnings permanence property. Further the results support that earnings levels are a stable and better value relevant in the return earnings relations.

According to the previous investigation on mandatory IFRS adoption regarding the value relevance researches it can be seen that some researches have used the price model and other the return model or both for the book value and net income. To investigate IFRS impacts effects on value relevance researchers used different contexts.

Van der Meulen et al. (2007) argue that accounting information outperform IFRS after controlling for differences in companies characteristics. Prior research of the mandatory IFRS adoption in Europe are that the value relevance of researches are based on countries' legal origin code law versus the common-law and the accounting systems and the accounting conservatisms.

On the other hand, after the mandatory IFRS adoption. The value relevance literature declined to compare the value relevance of accounting information before and after the IFRS adoption. Or research has been done between the voluntary IFRS adoption and the mandatory IFRS adoption. Since the mandatory IFRS adoption the focus of the researcher is whether the accounting information is more relevant under the domestic standards or under IFRS (Barth et al., 2008; Tsalavoutas et al., 2012, Suadiye 2012, and Kargin 2013).

2.3.2 Hypotheses development value relevance

In the previous section the theory of the value relevance of the mandatory introduction of IFRS has been discussed. Now the hypothesis development will be discussed.

Prior research has found evidence that the value relevance can increase after the mandatory adoption of the IFRS (Barth et al., 2008; Karampinis et al., 2011). A number of other researchers found that the value relevance of earnings or book value of equity decrease after the adoption of IFRS (Callao et al., 2007; Tsalavoutas et al., 2012).

To know if the IFRS 16 is relevant for the users of the financial reporting and if it result in better decision making. Therefore, the following hypothesis is formulated;

H3: The adoption of IFRS 16 will have significant impact on the Book Value per Share (BVPS) and Earnings per Share (EPS)

The hypotheses of the mandatory introduction IFRS 16 are value relevant. Prior researchers like Barth et al. (2008) find evidence that companies out 21 countries applying IAS have generally lower earnings management and higher value relevance. Further after the introduction of the IFRS more timely recognition of losses there are compared to the pre-introduction local GAAP accounting. Also like Hans Hoogervorst indicated the IFRS 16 will “provide much-needed transparency on companies’ lease assets and liabilities” and “improve comparability between companies that lease and those that borrow to buy.” With this Hans Hoogervorst wants to make clear that decision making for the users of financial statements include extra information. The following hypothesis is formulated;

H4: *Accounting information is more value relevant in the post-IFRS 16 period than in the pre-IFRS16 period*

2.4 Summary

The literature shows that the IAS 17 is been criticized on especially the concerns that numerous leases are not reflected on the balance sheets. It is difficult responsibility for investors and other interested parties to get a correct picture of the leased assets. The new standard IFRS 16 will eliminates the classification of leases as either operating leases or finance leases for a lessee. This will provide a transparency on companies and comparability between companies.

Several studies have examining the expected change of the new lease standard IFRS 16 and the results of the researches (Sari, 2016; Ozturk et al., 2016; Aktas et al. 2017 and Morales-Diaz 2018) is that the financial ratios are been affected.

Furthermore, the literature regarding the value relevance present that in general value relevance is increasing for the earnings after the adoption of IFRS. The literature presents different results when it comes to the relationship between value relevance and capitalization of the leases. Most researchers (Suadiye, 2012; Tsalavoutas et al., 2012 and Chandrapala, 2013) detected that the implementation of IFRS has a positive association with value relevance.

3 Research design

In the prior section the literature review and hypotheses development is been discussed. In this section the research design will be explained. In section 3.1 the model development will be descripted while in section 3.2 the validity will be discussed and in the final section 3.3 a description of the sample selection.

3.1 Methodology

The methodology for this research can be divided into two parts. First the IFRS 16 will be capitalized on base of the constructive capitalization approach of Imhoff et al. (1991). By disclosing the operating lease commitments in the notes of the financial statements are capitalized into the balance sheet. Second the price model of the Ohlson (1995) will be used to examine the value relevance of the accounting information. By using the company's equity to examine the book value and earnings per share.

3.1.1 Constructive capitalization

In research of the pre IFRS16 and post IFRS16 of the operating leases into the financial statements the constructive capitalization method can be processed to see the impact on the financial statements.

With the constructive capitalization method the impact on the balance sheet and profit and loss account will be determined by the future mentioned off balance lease obligation will be capitalized. This method is predominantly used in research into the impact on the financial statements of activating obligations of off balance operating lease agreements. This mention method is also mentioned by Imhoff et al., 1997; Palepu et al., 2016; Fülbier et al., 2008; Branswijck et al. 2011; Wong et al 2015 and EFRAG, 2017. In Appendix 1 the constructive capitalization method developed by Imhoff et al. in 1991 is presented.

The calculating of the liabilities on the balance by using the constructive capitalization method which considers operating leases as finance leases regarding Fülbier et al. (2008). The model is based on a modified constructive capitalization approach originally developed by Imhoff et al. (1991) The method produces the off balance lease payments which having several contracts with different lengths on the balance as the present value of the future lease payments and disclosed in the notes.

In order to apply the method of Imhoff et al. (1991) specific assumptions are needed with regards to the remaining lease period, the interest rate, the asset and the effective tax rate.

The following assumptions are made;

- Regarding the interest rate the company-specific values are taken. When companies do not provide interest rates, the companies are excluded and the median is taken of those companies who do have an interest rate. The median interest rate is 6%. Normally the interest rate of the ECB would have been taken, but this is zero as of March 10, 2016 until now and because of this the company specific calculated interest rate has been used.
- The asset is depreciated using straight-line method of depreciation and expected useful life is 5 years.
- Regarding the depreciation method and the average total lease life. The sum of the lease obligations after year five is considered to have the same turnover as in the years 1-5. Example; In the years 1-5 the annual lease commitment was € 1.600 million (€400 million divided by 4), so the remaining 500 million after five years expire within two years. The remaining duration is estimated at 7 years.

3.1.2 Value relevance

As previously indicated the accounting information is relevant when it is significantly related to the equity. In order to provide which accounting information is needed to look to the relationship of the accounting information to the market value of a company the following assumptions are taken. To test the value relevance of accounting information, the data covers the period 2016 and 2017. To observe improvements on the value relevance of accounting information the period is divided as pre-IFRS 16 and post-IFRS 16. The market value per share (P_{it}) will be expressed by the Book Value Per Share (BVPS) and Earnings Per Share (EPS) and the data will be collected from European Stock Exchange listed companies.

Ohlson (1995) developed a model to look to the relationship of the accounting information to the companies value for a company for the given period and tests the samples in three perspectives. The first approach is to test value relevance of accounting data that does not contain influential observations. The second approach is to test the value relevance of accounting data for the companies that reported positive earnings. And the last approach is to test the value relevance of accounting information improvements in the pre- and post-IFRS periods.

The value relevance of the market value is going to be test with the Ohlson model (1995) and the perspectives. The model indicate a company's market value as a linear function of the book values/earnings and other value relevant information. The Ohlson model is used in this study with the methodology followed by Collins et al. (1997) and Collins et al. (1999). The model is specified as follows;

$$P_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 BVPS_{it} + \varepsilon_{it} \quad (1)$$

As indicated the Collins et al (1999) method is to investigate the relative explanatory power that earnings and book value individually have for stock prices. The following two methods are used for the IFRS mandatory and local accounting standards period.

$$P_{it} = \beta_0 + \beta_1 EPS_{it} + \varepsilon_{it} \quad (2)$$

$$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \varepsilon_{it} \quad (3)$$

The variables are defined as follow:
P_{it} = the stock price (market value) per share for company i at time t,
EPS_{it} = the earnings per share of company i at time t;
$BVPS_{it}$ = the book value per share of company i at time t;
ε_{it} = other value relevant information.

t = is 2017, corresponding to the years 2018-2019

3.2 Variables

The items for the independent, dependent and the control variables are used from the hand collected consolidated financial statements of the European Companies (Euro Stoxx 50).

The following models are designed;
Model 1 $EPS = \beta_0 + \beta_1 P_{it} + \beta_{2size} + \beta_{3Ind} + \varepsilon_{it}$

Model 2 $BVPS = \beta_0 + \beta_1 P_{it} + \beta_{2size} + \beta_{3Ind} + \varepsilon_{it}$

EPS = Earnings per share
BVPS = Book value per share
P_{it} = Market value of the equity
Size = total assets
Ind = Industry

Dependent variable

In this study the analyses are based only on balance sheet variables. Regarding Imhoff et al. (1991) the balance sheet are more material and easier to measure after the constructive capitalization. Typically for value relevance studies the dependent variable is the (P_{it}) market value of the equity. In this study the earnings per share ($\beta_1 EPS_{it}$) and the book value per share ($\beta_2 BVPS_{it}$) of the companies will be pointed as dependent variable.

Independent variable

The independent variable for the regression model is the (P_{it}) market value of the equity.

Control variables

The control variables have a relationship with the aspects along with the size (total assets) where a transformation to the log (ln) has been calculated and another control variable is the industry.

3.3 Validity and reliability

The Libby boxes (Libby et al. 2002) in appendix 1 shows the conceptual and operational variables belonging to the hypotheses. The Libby box shows the conceptual item the relevant relationship and for the operational item the accounting information.

Validity is seen as one of the most important characteristics of a good research instrument. Validity is concerned with the integrity of the conclusions that are generated from a piece of research. (Bryman, 2012). Validity can be divided into internal, external and construct validity. First internal validity can measures the between two or more variables the causality. A statistical test have been performed to look if t there is a significant change when capitalising operating leasing. Second the external validity is if the findings of the study can be generalized outside of the sample. In this the study the European listed companies are been investigated and they need to follow IFRS regulations. It can be generalized outside of the listed European companies if there are no enormous fluctuations on the use of operating leasing between large listed companies and the not listed companies in Europe which use IFRS. Finally the construct validity describe how good a test measures to its claims. Is the test constructed in a way that it successfully tests what it claims to test. The goal of the linear regression model is measuring the EPS and the BVPS when companies use the new standard IFRS 16. Appendix 1 shows the Libby boxes in a structured way which is used to test the relationship between new standard IFRS 16 and value relevance. The upper two boxes are the conceptual part of the variables. The bottom boxes shows the operationalisation of the variables.

Reliability refers to the consistency of a measure of a concept. The reliability of the study has a high reliability considering the descriptions and showing the research method and models step by step and further an appendix is been added. There is also a description considering the assumptions in the study, with examples of the interest rate and leasing time. Furthermore, all data are collected manually from the company's official websites. The collected data comes from consolidated annual reports of the companies which has high reliability considering it is checked by the auditors.

3.4 Sample selection

The research questions will be answered by analysing financial data (Consolidated financial statements) of the year 2016 and 2017 of European Companies (Euro Stoxx 50) annual accounts in conduct for the purpose of detecting the impacts of IFRS 16 on the value relevance of the annual accounts. The reason why European Companies is preferred is that the companies have activities in airline, retail and travel/leisure sectors. The initial samples includes 50 European Companies.
The process of the data collections is hand-collected from the consolidated financial statements 2016 and 2017 of European companies (Euro Stoxx 50).
All the observations contribute information for the variables which are used in the analysis of the total assets, total liabilities, equity and net income at the fiscal year end. Further the number of shares outstanding in the fiscal year end, rental commitments for the following 5 years (presented separately for each year).

4. Empirical analysis and results

This section presents the results of the statistical tests of the different hypotheses. The research design of the hypotheses will be explained separately for each hypotheses. This is because different models are used to test the hypotheses. Furthermore an explanation will be given about why certain models are used. All statistical test are performed by using SPSS 25.

First, section 4.1 covers the descriptive statistics for hypothesis H1 and H2. In addition, section 4.2 covers the assumptions. In section 4.3 the correlation analysis will be discussed. In section 4.4 the results of the regression analysis for hypothesis H3 and H4 are given. Finally, a summary of all statistical results is included in section 4.5.

4.1 Descriptive statistics

The table 1 presents the descriptive statistics for all variables used in the study.

Table 1 Descriptive Statistics for the variables used N=50

	Minimum	Maximum	Mean	Median	Std. Deviation	Percentiles 25%	Percentiles 75%
Equity 2017 P_{it}	6.435,00	137.021,00	40.231,53	27.408,50	32.235,02	15.121,75	55.475,50
Total Assets 2017 BVA	12.300,00	1.960.252,00	281.966,04	74.285,50	447.622,13	40.730,25	248.495,75
Total Liabilities 2017 BVL	5.373,00	1.853.043,00	241.734,51	48.219,50	425.767,41	21.354,25	172.002,25
Income 2017	-1.473,00	10.525,00	3.862,65	3.371,00	2.626,25	1.875,50	6.008,00
BVPS 2017	2,87	369,64	44,36	26,86	64,69	11,76	44,77
EPS 2017	-0,53	24,46	4,57	3,31	5,23	0,97	6,14

Table 2 Descriptive Statistics on the financial ratios N=50

	Minimum	Maximum	Mean	Std. Deviation
D/E IAS 17 2016	0,45	48,49	5,10	8,29
D/E IFRS 16 2016	0,55	48,89	5,24	8,34
D/A IAS 17 2016	0,31	0,98	0,67	0,18
D/A IFRS 16 2016	0,36	0,98	0,69	0,17
ROA IAS 17 2016	-0,13	0,16	0,03	0,04
ROA IFRS 16 2016	-0,13	0,15	0,03	0,04
ROE IAS 17 2016	-6,57	0,31	-0,04	0,94
ROE IFRS 16 2016	-6,61	0,43	-0,03	0,95
D/E IAS 17 2017	0,42	20,66	4,13	5,19
D/E IFRS 16 2017	0,50	20,71	4,25	5,19
D/A IAS 17 2017	0,30	0,95	0,66	0,18
D/A IFRS 16 2017	0,33	0,95	0,68	0,17
ROA IAS 17 2017	-0,04	0,17	0,05	0,04
ROA IFRS 16 2017	-0,03	0,15	0,04	0,04
ROE IAS 17 2017	-0,09	0,59	0,13	0,11
ROE IFRS 16 2017	-0,09	0,58	0,14	0,12

The expectation of hypothesis 1 is that the adoption of the IFRS 16 will have a significant impact on balance sheet, profitability and solvency ratios of European companies. To determine the potential impact of capitalizing the operating leases on the balance sheet and income statement, the D/E, D/A, ROA and ROA are investigated (see Table 2).

The debt to equity (D/E) ratio increases from 8,29 to 8,33 in 2016 and in 2017 from 5,18 to 5,19. The debt ratio (D/A) on the other hand falls from 0,18 to 0,17 in 2016 and in 2017 from 0,17 to 0,16 after capitalization. On average, the Return on asset (ROA) remains before and after capitalization as well as equal to 0.03. The Return on Equity (ROE) increase by 0,01 to 0,95 in 2016 and in 2017 increase by 0,01 to 0,12. Branswijck (2011) have found the same results.

The expectation of hypothesis 2 is that the adoption of the IFRS 16 will have a significant impact on profitability and solvency ratios depending on the sector in which the company operates companies. On Appendix IV the financial ratios are shown by industry. The debt to equity (D/E) has a high standard deviation for the service industry followed by the energy industry. This indicates that the data points are spread out over a wider range of values. The reason of this is that the banks in the service industry have high total asset on their balance sheet. The other industries have lower standard deviation this indicates that the data points tend to be close to the mean (also called the expected value) of the set. The exchange of the ratios have the same general conclusion, that after the capitalization the debt on equity (D/E) and debt ratio increases. The increase or decrease of the ROA and ROE after capitalization has to do with the amount of lease obligations. If the lease obligation has a low value than the income exchange is lower and on behalf of this the ROA and ROE increase. But if the lease obligations has a high value then the ROA and ROE decrease after the capitalization.

4.2 Assumptions

In table 1 presents the descriptive statistics. For the variables of BVA, BVL, BVPS and EPS of 2017 the standard deviations has a large value compared to its mean values. This illustrate that each sample of each variable is affected by extreme influential points (outliers).

Outliers also identified by the means that are large compared to the medians. Investigating the histograms (see appendix V) the extreme values of each variable confirms this. The outliers can change the statistical results from the regression analyses and because of this each sample of each variable needs to be corrected.
To detect the outliers the box plot (see appendix VI) is been used. The box plot is a standardized way of showing the distribution of data based on the five number summary: minimum, first quartile, median, third quartile, and maximum.

However, as expected based on descriptive statistics this change is distorted by a few outliers. Company 31 and 45 has a high value in the equity for the year 2017. Company 24 has a negative income for the year 2016. The hypotheses 3 and 4 going to be analysed on base of data from 2017. Company 31 and 45 are winsorized to the second high company. After winsorizing the results are shown in Table 3 Descriptive Statistics.

Table 3 Descriptive Statistics for the variables used N=50

	Minimum	Maximum	Mean	Median	Std. Deviation	Percentiles 25%	Percentiles 75%
Equity 2017 Pit	6.435,00	109.078,00	39.573,49	27.408,50	30.491,99	15.121,75	55.475,50
Total Assets 2017 BVA	12.300,00	1.960.252,00	281.966,04	74.285,50	447.622,13	40.730,25	248.495,75
Total Liabilities 2017 BVL	5.373,00	1.853.043,00	241.734,51	48.219,50	425.767,41	21.354,25	172.002,25
Income 2017	-1.473,00	10.525,00	3.862,65	3.371,00	2.626,25	1.875,50	6.008,00
BVPS 2017	2,87	369,64	44,36	26,86	64,69	11,76	44,77
EPS 2017	-0,53	24,46	4,57	3,31	5,23	0,97	6,14

4.3 Correlations

Appendix VII represents the Pearson correlations and the Spearman's rho for the 3 variables of the EPS per year and the 3 variables for the BVPS per year.

Pearson correlation is a measure of the linear dependency between two continuous variables and the Spearman's rank order correlation coefficient measures the monotonic statistical dependence between the ranking of two ordinal variables. Coefficients of Pearson and Spearman has a value between +1 and -1, and where 1 indicating the perfect positive correlation and -1 perfect negative correlation and the value 0 indicates the no linear correlation. Multicollinearity issues can be detected by correlation analysis. It can also provide evidence that supports the actual results of the research. The Pearson correlations are presented in Figure VII below left down corner and right top corner are Spearman's rho correlations coefficient.

The EPS for the Pearson correlations have a weak uphill positive linear with the P_{it} over the year 2017 and 2019. For the year 2018 it is 0,031 almost no linear relationship. Regarding the Spearman's rho there is almost a negative no linear relationship.
The BVPS of the years 2017, 2018 and 2019 are moderate uphill positively correlated with the P_{it}, appearing with the lowest value of 0.330 correlation for the Pearson and with the Spearman rho correlations is it 0,344 the lowest value.

The EPS 2017,2018 and 2019 are weak positively correlated with the size, appearing with the lowest value of 0,014 correlation for the Pearson and for the Spearman it is correlated with the lowest value of 0,043.

The BVPS has a weak uphill positive linear correlation with the size and industry and the EPS has almost no linear relations for the Pearson as well as the Spearman Correlations.

The P_{it} is strongly positively correlated with the size, appearing with an value of 0,852 correlation for the Pearson and with the Spearman correlations the lowest value is 0,880.
This is not surprising, as the P_{it} the equity also is changing when the size (assets) change. For the industry it has a weak uphill relations.

Finally the size and industry are moderated uphill positive linear relationship with each other with the lowest value of 0,401 for the Pearson correlations and for the Spearman's rho the lowest value is 0,303.

Correlation analysis indicates that the independent variable Equity (Pit) has a moderate correlation with the BVPS and a low correlation with the ESP. This is familiar because the BVPS is an balance value like the Equity. After all the BVPS has stronger positive correlation with Equity (Pit) than ESP. EPS has a lower correlation because the ratio is the outstanding shares divided by the income. From the year 2017 until 2019 the EPS is decreasing in the post IFRS 16 in 2018 and increase in 2019. This is because of the high interest in the year 2018 after this will decrease. Regarding the Equity P_{it} in relation with the BVPS the value increase over the years 2017 until 2019. This indicate that the study find evidence for hypothesis 3 that the adoption of IFRS 16 will have significant impact on the Book Value per Share (BVPS). It shows that the constructively capitalized operating leases have an increasing explanatory power on the equity values. Furthermore the correlations measure only correlation between two variables and the correlation results might not be as significant as the regression analysis. This we will see in the next section.

4.4 Regression

This section presents the results of the regression analysis. Table 4 presents the results of Model 1 and Table 5 the results of Model 2, for the yearly cross-sectional multi regression with the dependent variable the EPS/BVPS and for the independent (predictors) variable the Equity (P_{it}), size (siz) and industry (ind) for each year is been used.

The expectation of hypothesis 3 is that the adoption of IFRS 16 will have significant impact on the Book Value per Share (BVPS) and Earnings per Share (EPS). The coefficient estimates are calculated based on Ordinary Least-Squares (OLS) estimation which is presented in table 4 and figure VII for the EPS and table 5 and figure VIII for the BVPS.

The R^2 is taken as a set, the predictors equity, size and industry account for 1,4% in 2016 pre IFRS to 4,2% in 2019 post IFRS for the yearly cross-sectional regressions of earnings per share. A low R^2 indicates that the model explains none of the variability of the response data around its mean and if it was a high percentage than the R^2 indicates that the model explains all the variability of the response data around its mean. The R^2 of the BVPS is equal in the years 2017 until 2019. The variables are not significant in the pre-IFRS 2017 and post-IFRS 2018 the values are the changing from 6,2% to 2,5%, whereas $R2$ is decreasing in the post-IFRS period.

The adjusted R^2 for the EPS is for the years 2016, 2018 and 2019 negative. For the BVPS it is 3,8 in 2016 and increase the years after. There is a change in the years.

Whereas the R^2 value tells in the regression model how much variation in the dependent variable is accounted for. The adjusted value tells how much variance in the dependent variable would be accounted for if the model had been derived from the population from which the sample was taken.

However, the earnings per share (EPS) are not significantly different from zero in the periods. In each year the book value per share (BVPS) coefficient estimates are significant and positive ($p < 0.05$). The F test values are for the BVPS statistically significant in each year as well.

Multicollinearity also called collinearity is in a situation where one predictor variable in a multiple regression model is highly linearly related and is measured by the variance inflation factor (VIF). This is a model with multiple terms of variance in a ratio. The variance is divided in a model with one term alone, shown in table 4. O'Brien (2007) indicates that the VIF in the regression analysis is the times that the standard error is larger than in the case if there were no intra-correlations between the variable and the remaining variables. The Tolerance depends on the case, but when the VIF exceeds 10, then this indicates multicollinearity. This is also for Ohlson model. In table 4 the VIF value is less than 10, which are acceptable values.

Table 4 Yearly cross-sectional regressions on earnings per share

$EPS = \beta_0 + \beta_{1Pit} + \beta_{2size} + \beta_{3ind} + \varepsilon_{it}$

	Intercept	β_{1Pit}	β_{2size}	β_{3ind}	F	Sig	Adj R^2	R^2	VIF
2016 pre IFRS	7,511	2,02E-05	-0,527	0,386	0,221	0,881	-0,050	0,014	4,341
2017 pre IFRS	18,856	8,07E-05	-1,496	-0,034	1,022	0,392	0,001	0,062	4,102
2018 post IFRS	5,784	1,25E-05	-0,028	-0,454	0,385	0,727	-0,039	0,025	3,814
2019 post IFRS	10,706	5,60E-05	-0,616	-0,205	0,671	0,574	-0,021	0,042	3,805

Note: The sample consists of 50 companies in the Eurostoxx 50. All variables are scaled by number of shares outstanding. VIF for the Ohlson model. If VIF >10, it indicates multicollinearity.

Table 5 presents the results of Model 2 for the yearly cross-sectional regression with the dependent variable the BVPS and for the independent (predictors) variable the Equity, size and industry for each year is been used.

Table 5 Yearly cross-sectional regressions on book value per share

$BVPS = \beta_0 + \beta_{1Pit} + \beta_{2size} + \beta_{3ind} + \varepsilon_{it}$

	Intercept	β_{1Pit}	β_{2size}	β_{3ind}	F	Sig	Adj R_2	R_2	VIF
2016 pre IFRS	90,724	0,001	-8,582	3,782	1,638	0,194	0,038	0,096	4,341
2017 pre IFRS	125,799	0,001	-12,315	4,769	2,186	0,102	0,068	0,125	4,102
2018 post IFRS	39,654	0,001	-3,127	2,743	2,093	0,114	0,063	0,12	3,814
2019 post IFRS	46,914	0,001	-3,937	2,839	2,161	0,105	0,066	0,124	3,805

Note: The sample consists of 50 companies in the Eurostoxx 50. All variables are scaled by number of shares outstanding. VIF for Ohlson model. If VIF >10, it indicates multicollinearity

Industry

The industry is been added in the model to see the industrial classification of the company for the nature of the company's assets. To see which industry presents after capitalization an extremely impact on the assets.

Size effect

The size of a company is been added in the model to see weathered a large company is been financed with debt compared to smaller companies due to more diversity and consequently more stable cash flows. Additionally smaller companies are been faced with higher costs in obtaining external financing. Sharpe and Nguyen (1995) construct that operating leases solved these high financing costs. Prior research on lease capitalization like Beattie et al. (2000) used the total assets as a variable for the size. As the study of Beattie et al. this study also used the natural log of the total assets of the company.

It is generally assumed that the company's size has a significant impact on the value relevance of accounting information. The results provide evidence that company size indeed influences value relevance of accounting information in European companies in as pre as well as the post periods. These results are in line with the findings of Collins et al. (1997) which suggested that size of the company has influence on the value relevance of accounting information.

The low R^2 squared value indicate a weak linear fit for the model. Because of this the independent variables have been changed to only the EPS and BVPS. A linear regression analyses is been examined. Appendix IX presents the simple regression for models 1 and 2. The idea for the second approach is to test whether the models comprising the book values per share and earnings per share without the size and industry. This will explains better the market values of equity. The R^2 is also low and the P-value of the EPS is not significant but the BVPS is significant. Further the EPS and BVPS are changing over the years.

The expectation of hypothesis 4 is that the accounting information is more value relevant in the post-IFRS 16 period than in the pre-IFRS16 period. In Appendix VIII the coefficients for each year pre- and post IFRS 16 implemented data with the control variables size and industry are compared. The coefficients of β_1 and β_2 and β_3 shows changes or improvement in value relevance of accounting information after adoption of the IFRS 16 for the book value per share. For the earnings per share respectively the accounting information has decreased significantly in the post-IFRS 16 period. For the book value per share the coefficient of book value decreased. It can be concluded that value relevance of accounting information decreased significantly in the post-IFRS period for book value and earnings per share.

4.5 Analysis

The expectation of hypothesis 1 is that the adoption of the IFRS 16 will have a significant impact on balance sheet, profitability and solvency ratios of European companies. To assess the potential impact of capitalizing operating leases on the balance sheet and income statement, the D/E, D/A, ROA and ROA were investigated (see Table 2). The debt to equity (D/E) ratio increases and the debt ratio (D/A) on the other hand falls after capitalization. On average, the Return on asset (ROA) remains before and after capitalization as well as equal and the Return on Equity (ROE) increase. Branswijck (2011) have found the same results.

The expectation of hypothesis 2 is that the adoption of the IFRS 16 will have a significant impact on profitability and solvency ratios depending on the sector in which the company operates.
The debt to equity (D/E) has a high standard deviation for the service industry followed by the energy industry. The reason of this is that the banks in the service industry have high total assets on their balance sheet. The exchange of the ratios have the same general conclusion, that after the capitalization the debt on equity (D/E) and debt ratio increasing.

The expectation of hypothesis 3 is if the adoption of IFRS 16 will have significant impact on the Book Value per Share (BVPS) and Earnings per Share (EPS). The coefficient estimates are calculated based on ordinary least squares estimation. The variables are significant and in the pre-IFRS and post-IFRS the values are changing. In each year the book value's coefficient estimates are significant and positive ($p < 0.05$) for the BVPS. The F test values are also significant in each year. The multicollinearity is not a serious problem because for the Ohlson model a variance inflation factor (VIF) greater than 10 indicates multicollinearity.

The expectation of hypothesis 4 is that the accounting information is more value relevant in the post-IFRS 16 period than in the pre-IFRS16 period. In Appendix VIII the coefficients for each year pre- and post IFRS 16 implemented data with the control variables size and industry are compared. The coefficients of β_1 and β_2 and β_3 shows changes or improvement in value relevance of accounting information after adoption of the IFRS 16 for the book value per share. For the earnings per share respectively the accounting information has decreased significantly in the post-IFRS 16 period. For the book value per share the coefficient of book value decreased. It can be concluded that value relevance of accounting information decreased significantly in the post-IFRS period for book value and earnings per share.

5. Conclusions

The objective of this study was to examine the impact of the adoption of IFRS 16 on the value relevance of book values of equity and earnings per share. The dataset of this study comprised 50 company observations covering the period of 2016 and 2017. For the empirical analysis, this study employed the constructive capitalization method of Imhoff et al. (1991) and the value relevance model of Ohlson (1995) is used with the methodology followed by Collins et al (1997 and 1999).

The data is hand-collected of the operating leases in the consolidated financial statements of European companies. The figures and lease obligations of 2016 and 2017 are been capitalized. The 2017 value are expressed in the years 2018 and 2019

The findings of the analysis examine a significant increase in the assets and liabilities of these companies after capitalization. Of course, this affects different financial ratios, especially D/A and D/E, which significantly increased when capitalizing the operating leases. This is consistent with prior literature on lease capitalization (Imhoff et al. 1991; Beattie et al 1998; Duke et al., 2009; Wong and Joshi, 2015).

In order to give an answer to the research question what is the main impact on the balance sheet of the new standard “IFRS 16 Lease” on the value relevance of annual accounts? Is that the impact on the value relevance of the stock price (market value), with book value of equity per share and earnings per share for the European companies before and after the adoption of IFRS 16 adjustment the results are that the value relevance of accounting information is improved. This result is consistent with prior literature that shows the adoption of IFRS improves value relevance Suadiye 2012; Van der Meulen et al; 2007; Karampinis and Hevas (2011) and Kargin (2013).

Moreover, this study describes company characteristics that influence the level of unrecorded debt. The new accounting standard will have an influence for companies balance, income statement, ratios and accounting information. The effect over the entire period will be zero. Like the expectations, the study find significant change in the ratio’s and value relevance between the two periods.

Finally, it can be concluded that the results generally indicate that implementation of the IFRS 16 have an effect on the ratio’s and value relevance of accounting information of European companies. The financial market will experience a period in which the operational leases will be in the picture. As Hans Hoogervorst said “to help ending the guesswork of involved when calculating a company’s often-substantial lease obligations”. Furthermore Hans Hoogervorst (2016) says that it “provide much-needed transparency on companies lease assets and liabilities” and “improve comparability between companies that lease and those that borrow to buy.”

6.1 Limitations

Several limitations can be observed with this study, the first is that the new standard is effective for annual reporting periods beginning on or after January 1, 2019, with early application permitted but only if the entity is also applying IFRS 15, *Revenue from contracts with customers.* None of the analysed companies of the Euro Stoxx 50 have early adopt the IFRS 16.

Furthermore this study focuses only on companies in Europe (stock 50 index) and as such the results of the analysis may not be generalized to other continents.
Further, this study has only looked for two years, further research can be done for a longer period.

6.2 Suggestions further research

The analysis in this study raises a number of questions for future research. First, as indicated by the limitations, the study looked for two years, research for a longer period can be done.
Secondly, the changes in the industry regarding the effects of variation in the value relevance of the book values and earnings value of industries across time can be explored.

Finally this study is based on the price model and analysed the effect of earnings per share and book value per share of the equity. Future research should examine the value relevance by using the return model.

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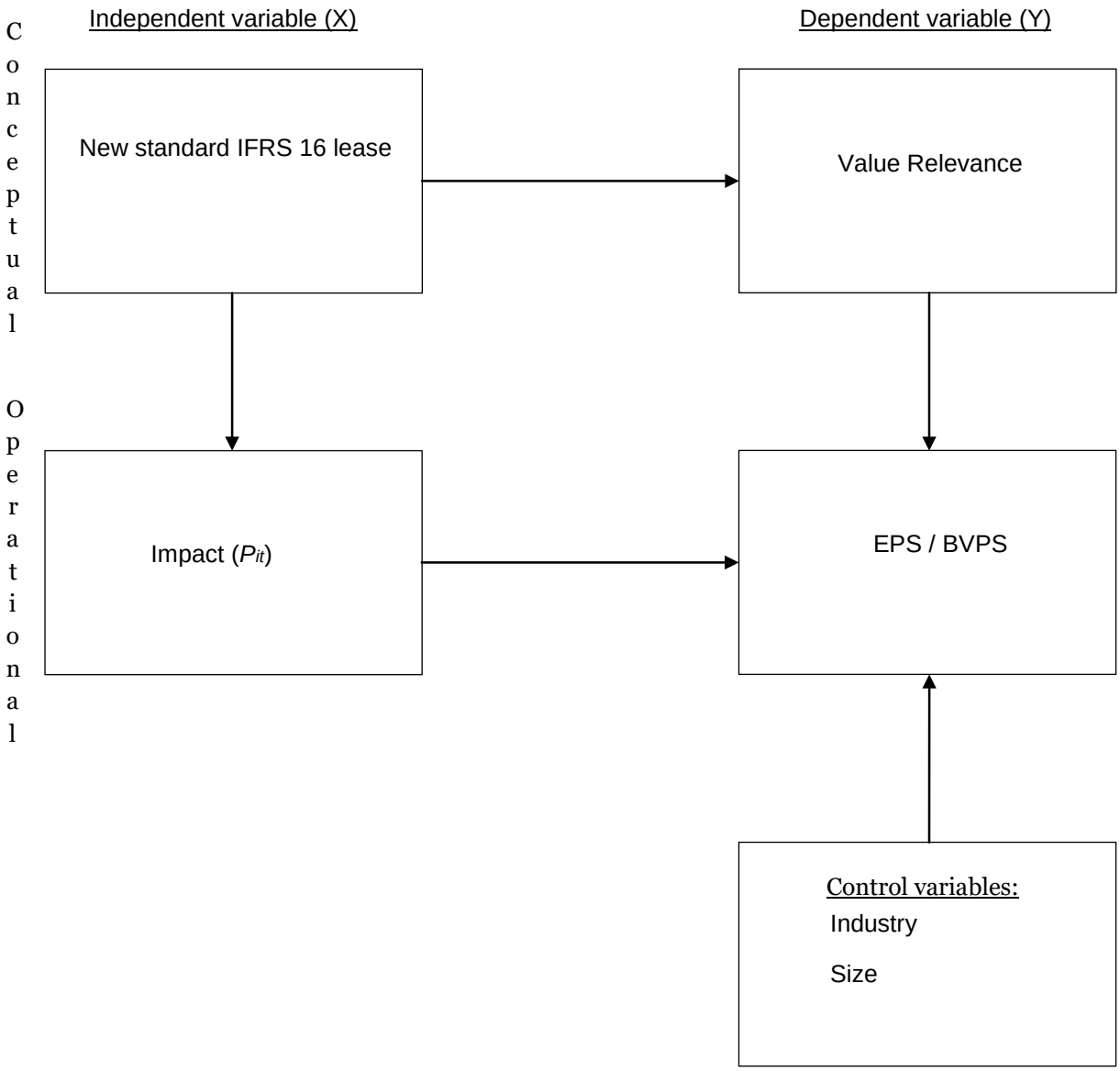
Appendix I : Predictive validity framework



Appendix II : Constructive Capitalisation

The constructive capitalization method is developed by Imhoff et al in 1991 and consists of six uniform assumptions to estimate the present value of the unrecorded liability and the accompanied asset.

Following Fülbier et al. (2008), the constructive capitalization model of Imhoff, et al. (1991; 1997), which simulates the effects of operating lease capitalization on assets, liabilities, equity, and the related income statement positions. Fülbier et al. (2008) estimate the off balance- sheet lease liability by calculating the present value of the future minimum lease payments (MLP). Calculating the off balance sheet asset book value requires the following assumptions for each single operating lease contract. Imhoff et al. (1991) not always explicated this;
(1) At the inception of the lease, the book value of the leased asset is equal to the value of the lease liability.
(2) At the end of the lease, the book values of the asset and liability are zero.
(3) The asset is depreciated using the straight-line method.
(4) The lease liability and the imputed interest are calculated using the effective interest method.
(5) Lease payments are constant over the lease term. Under consideration of further assumptions about discount rate (i)
(6) total (TL), and remaining contract lifetime (RL), the asset value is a function of the present value of minimum lease payments MLP at the lease inception (PVTL), i.e.,

Asset value = PVTL x RL/TL.

Since the current lease liability is equal to the present value of the MLP over the remaining lifetime (PVRL), the ratio of any lease asset to the corresponding lease liability at any time during the contract period is determined by:

RL/TL) x (PVTL/PVRL),

which is equal to

(RL/TL) x {[1 –(1 + i)–TL]/ [1 – (1 + i)–RL]}.

The difference between the lease asset and liability during the lease term causes a decrease of the equity position and an adjustment of deferred taxes. Because the lease liability always exceeds the lease asset during the term of the lease, equity will always be adjusted downwards.

Fülbier et al. (2008) says that according to IAS 17.56 (SFAS 13.16b provides more detail on this issue), all companies must disclose their future minimum (operating) lease payments (*MLP*) for the following year, for the years two to five and the years after the fifth. To isolate the per-year payments out of the information about the aggregated payments attributable to year two to five, a assumption of the geometric degression model in which the lease payments decline at a constant rate. Fülbier et al. (2008) determine a degression factor (dg) with the following characteristics:

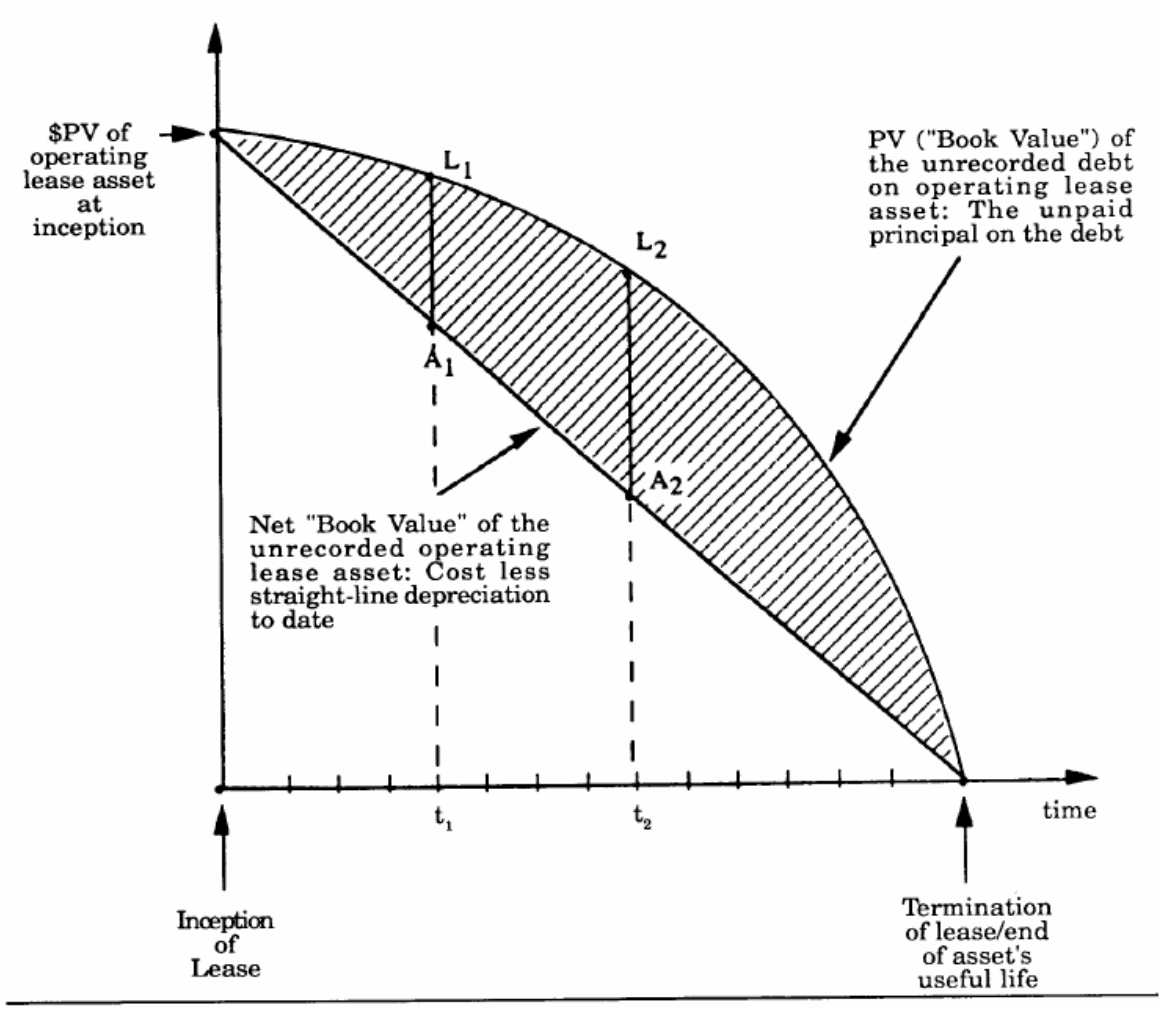
The degression factor is constant over five periods, with $MLP_{t+1} = MLP_t \times dg$.

Therefore, the known MLP_1 determines the unknown $MLP_2, MLP_3, MLP_4,$ and MLP_5. Furthermore, the sum of MLP_2 through MLP_5 must be equal to MLP_{2-5} reported in the annual report.

The degression factor is obtained from the following expression;

$$MLP_{2-5} = \sum_{t=1}^{4} MLP_1 \times dg_t$$

Figure 1 Constructive Capitalization Model. Adopted from Imhoff et al(1991).



The relation between the net book value of the unrecorded asset and the unrecorded liability over time is depicted in Figure 1. The Constructive Capitalization model gives an estimate of the off-balance sheet operating lease debt and asset and which are not equal during the lease life cycle.

The unrecorded lease asset and liability which are both equal to 100% of the present value (PV) of the future lease payments at the inception of the lease. This is because the model assumes straight-line depreciation method and the leased asset declines straightforwardly after the inception. In addition to lease payments that lessee pays to reduce the debt and pays interest. The model calculates the leased liability by using the effective interest method. This causes the difference between leased asset and leased liability and is at its greatest in somewhere in the middle of the leased assets life. At the termination moment of the lease term the unrecorded leased asset and related leased liability are equal again and are both zero after the last lease payment is done to reduce the debt and the leased asset is completely depreciated. Figure 1 illustrate the difference between the estimated asset and liability in different stages of the life cycle of lease.

Appendix III : Ratio definitions

Ratio:	Numerator:	Denominator:
Debt-to-equity (D/E)	*Liabilities*	*Equity*
Debt ratio (D/A)	*Liabilities*	*Asset*
Return on Asset (ROA)	*Net Income*	*Asset*
Return on Equity (ROE)	*Net Income*	*Equity*
Earnings per Share (EPS)	*Net income*	*Number of shares outstanding*
Book value per Share (BVPS)	*Stockholders equity*	*Number of shares outstanding*

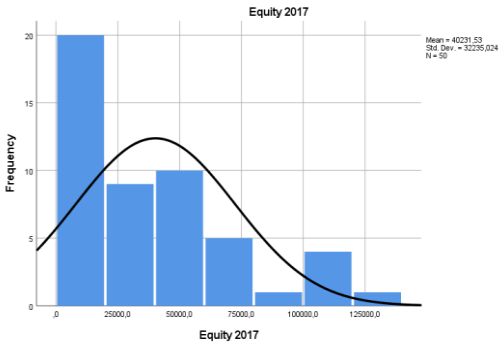
Appendix IV : Descriptive statistics by industry

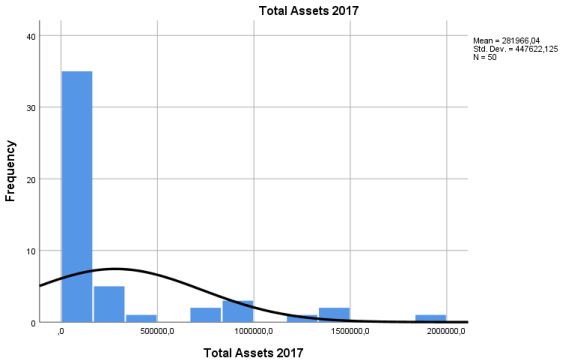
Descriptive Statistics on the financial ratios by industry 2017 N=50

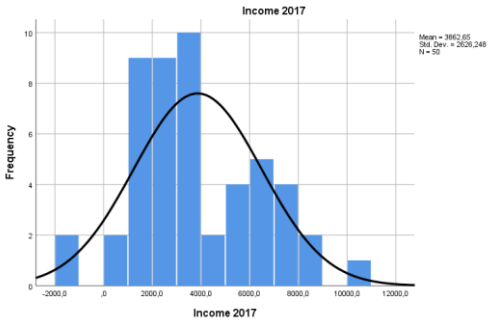
Industry	Varibale	N	Minimum	Maximum	Mean	Std. Deviation
Chemistry and Pharmaceutical	D/E IAS 17 2017	7	0,42	2,13	1,15	0,57
	D/E IFRS 16 2017	7	0,50	2,17	1,22	0,58
	D/A IAS 17 2017	7	0,30	0,68	0,51	0,13
	D/A IFRS 16 2017	7	0,33	0,68	0,52	0,12
	ROA IAS 17 2017	7	0,05	0,12	0,08	0,02
	ROA IFRS 16 2017	7	0,05	0,12	0,08	0,02
	ROE IAS 17 2017	7	0,12	0,39	0,18	0,09
	ROE IFRS 16 2017	7	0,12	0,39	0,18	0,09
Energy	D/E IAS 17 2017	6	1,13	7,34	2,66	2,34
	D/E IFRS 16 2017	6	1,17	7,35	2,70	2,33
	D/A IAS 17 2017	6	0,53	0,88	0,66	0,12
	D/A IFRS 16 2017	6	0,54	0,88	0,67	0,12
	ROA IAS 17 2017	6	0,01	0,07	0,03	0,02
	ROA IFRS 16 2017	6	0,01	0,07	0,03	0,02
	ROE IAS 17 2017	6	0,03	0,59	0,15	0,21
	ROE IFRS 16 2017	6	0,03	0,58	0,15	0,21
Food and retail	D/E IAS 17 2017	5	0,50	3,19	1,80	1,01
	D/E IFRS 16 2017	5	0,80	3,33	1,98	0,92
	D/A IAS 17 2017	5	0,33	0,76	0,60	0,17
	D/A IFRS 16 2017	5	0,44	0,77	0,64	0,12
	ROA IAS 17 2017	5	0,03	0,17	0,08	0,05
	ROA IFRS 16 2017	5	0,03	0,15	0,07	0,05
	ROE IAS 17 2017	5	0,10	0,42	0,21	0,13
	ROE IFRS 16 2017	5	0,09	0,41	0,21	0,14
Manufacturing	D/E IAS 17 2017	14	0,65	4,12	1,90	1,03
	D/E IFRS 16 2017	14	0,66	4,20	1,95	1,04
	D/A IAS 17 2017	14	0,39	0,80	0,61	0,13
	D/A IFRS 16 2017	14	0,40	0,81	0,62	0,13
	ROA IAS 17 2017	14	-0,04	0,12	0,05	0,04

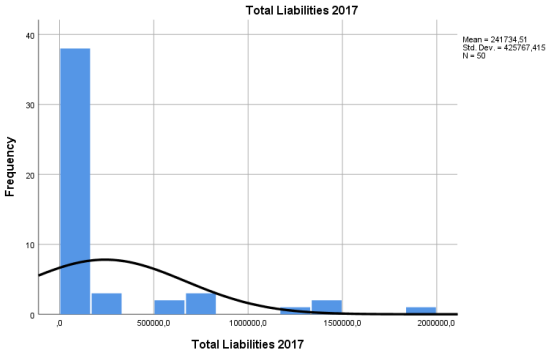
	ROA IFRS 16 2017	14	-0,03	0,12	0,05	0,04
	ROE IAS 17 2017	14	-0,09	0,37	0,14	0,10
	ROE IFRS 16 2017	14	-0,09	0,37	0,14	0,10
other	D/E IAS 17 2017	5	0,91	2,00	1,31	0,45
	D/E IFRS 16 2017	5	0,99	2,69	1,60	0,68
	D/A IAS 17 2017	5	0,48	0,67	0,55	0,08
	D/A IFRS 16 2017	5	0,50	0,73	0,60	0,09
	ROA IAS 17 2017	5	0,03	0,08	0,05	0,02
	ROA IFRS 16 2017	5	0,03	0,07	0,05	0,02
	ROE IAS 17 2017	5	0,07	0,21	0,13	0,06
	ROE IFRS 16 2017	5	0,06	0,19	0,13	0,06
Services	D/E IAS 17 2017	13	1,88	20,66	10,79	6,34
	D/E IFRS 16 2017	13	2,01	20,71	10,95	6,30
	D/A IAS 17 2017	13	0,65	0,95	0,87	0,10
	D/A IFRS 16 2017	13	0,67	0,95	0,88	0,09
	ROA IAS 17 2017	13	-0,00	0,02	0,01	0,01
	ROA IFRS 16 2017	13	-0,00	0,03	0,01	0,01
	ROE IAS 17 2017	13	-0,02	0,11	0,06	0,03
	ROE IFRS 16 2017	13	-0,02	0,41	0,09	0,10

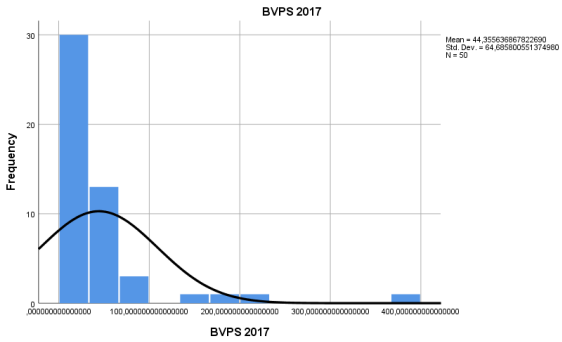
Appendix V : Descriptive statistics histogram used N 50

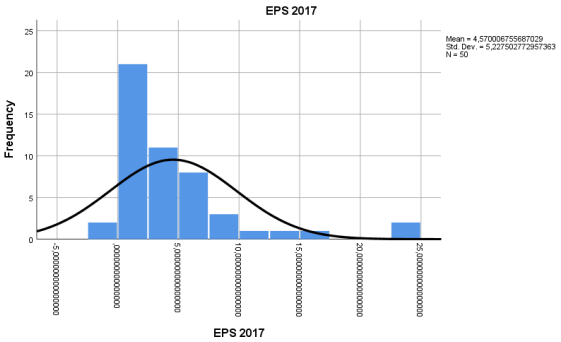




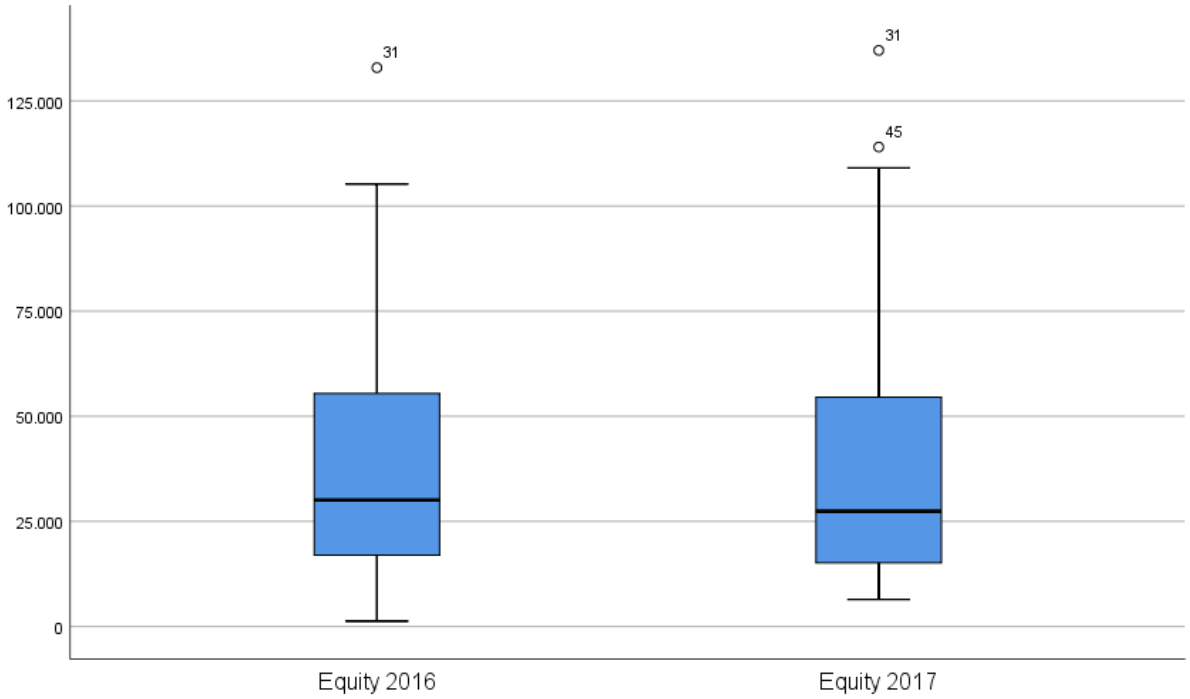


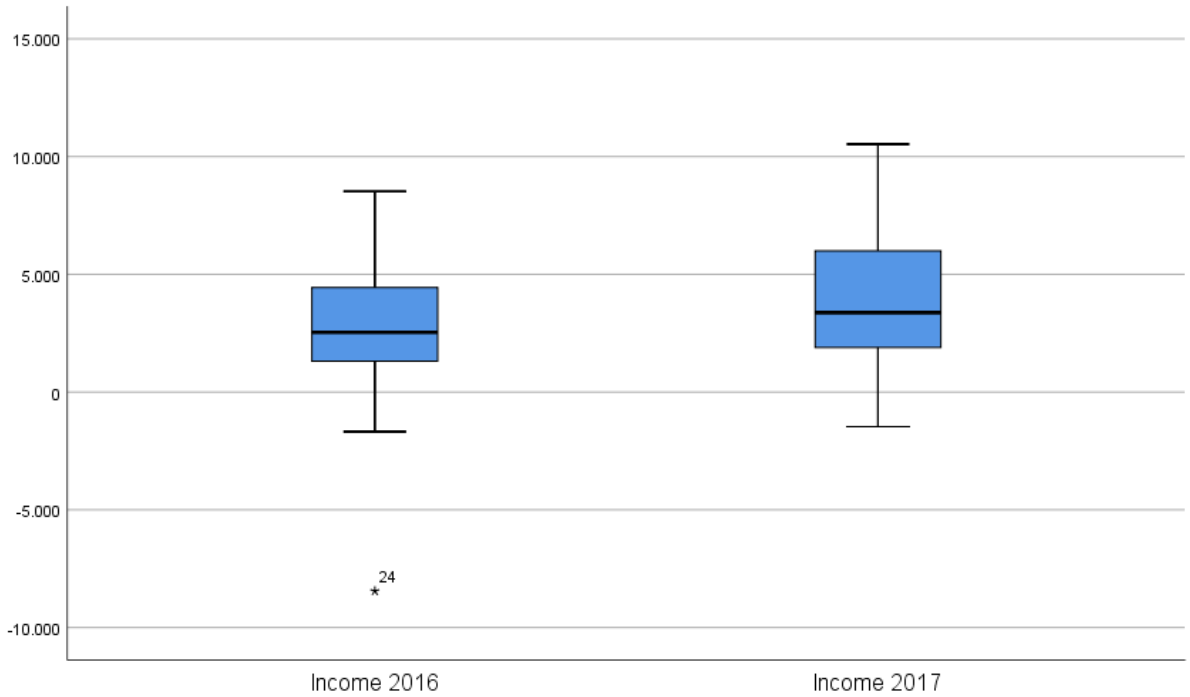






Appendix VI : Boxplot equity and income 2016/2017 used N 50





Appendix VII : Pearson correlations and Spearman's rho N 50

Correlations EPS 2017

	EPS 2017	Pit 2017	size 2017	industry
EPS 2017	1	-0,010	-0,100	-0,244
Pit 2017	0,142	1	,888**	0,277
Size 2017	0,014	,852**	1	,423**
industry	-0,072	0,275	,498**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations BVPS 2017

	BVPS 2017	Pit 2017	size 2017	industry
BVPS 2017	1	,344*	0,23	-0,01
Pit 2017	,330*	1	,888**	0,277
Size 2017	0,246	,852**	1	,423**
industry	0,142	0,275	,498**	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Correlations EPS 2018

	EPS 2018	Pit 2018	size 2018	industry
EPS 2018	1	-0,025	-0,043	-0,275
Pit 2018	0,031	1	,881**	0,249
Size 2018	-0,004	,854**	1	,309*
industry	-0,14	0,262	,402**	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Correlations BVPS 2018

	BVPS 2018	Pit 2018	size 2018	industry
BVPS 2018	1	,400**	,347*	0,014
Pit 2018	,340*	1	,881**	0,249
Size 2018	,287*	,854**	1	,309*
industry	0,146	0,262	,402**	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Correlations EPS 2019

	EPS 2019	Pit 2019	size 2019	industry
EPS 2019	1	0,063	0,045	-0,201
Pit 2019	0,172	1	,880**	0,246
Size 2019	0,097	,853**	1	,303*
industry	-0,041	0,255	,401**	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Correlations BVPS 2019

	BVPS 2019	Pit 2019	size 2019	industry
BVPS 2019	1	,398**	,340*	0
Pit 2019	,344*	1	,880**	0,246
Size 2019	,286*	,853**	1	,303*
industry	0,144	0,255	,401**	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Appendix VIII : Multiple regression model coefficients EPS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	7,511	11,669		,644	,523		
	Equity 2016	2,017E-5	,000	,121	,396	,694	,230	4,341
	Totalasset2016log	-,527	1,226	-,145	-,430	,669	,189	5,279
	industry3	,386	,496	,139	,779	,440	,677	1,477

a. Dependent Variable: EPS 2016

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	18,856	11,966		1,576	,122		
	Equity 2017	8,072E-5	,000	,471	1,628	,110	,244	4,102
	TotalAssets2017log	-1,496	1,256	-,382	-1,192	,239	,198	5,041
	industry3	-,034	,524	-,011	-,064	,949	,671	1,491

a. Dependent Variable: EPS 2017

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	5,784	11,466		,504	,616		
	Equity 2018	1,246E-5	,000	,078	,276	,784	,262	3,814
	TotalAssets2018log	-,028	1,162	-,007	-,024	,981	,236	4,240
	industry3	-,454	,465	-,158	-,976	,334	,813	1,230

a. Dependent Variable: EPS 2018

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	10,706	12,770		,838	,406		
	Equity 2019	5,602E-5	,000	,308	1,095	,279	,263	3,805
	TotalAssets2019log	-,616	1,297	-,141	-,475	,637	,236	4,238
	industry3	-,205	,521	-,063	-,393	,696	,812	1,232

a. Dependent Variable: EPS 2019

Multiple regression model coefficients BVPS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	90,724	168,642		,538	,593		
	Equity 2016	,001	,001	,409	1,402	,168	,230	4,341
	totalasset2016log	-8,582	17,713	-,156	-,484	,630	,189	5,279
	industry3	3,782	7,164	,090	,528	,600	,677	1,477

a. Dependent Variable: BVPS 2016

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	59,956	137,039		,438	,664		
	Equity 2017	,001	,001	,363	1,370	,177	,279	3,590
	TotalAssets2017log	-5,025	14,244	-,104	-,353	,726	,227	4,403
	industry3	3,450	6,273	,093	,550	,585	,690	1,448

a. Dependent Variable: BVPS 2017

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	39,654	142,125		,279	,781		
	Equity 2018	,001	,001	,374	1,384	,173	,262	3,814
	TotalAssets2018log	-3,127	14,398	-,062	-,217	,829	,236	4,240
	industry3	2,743	5,768	,073	,475	,637	,813	1,230

a. Dependent Variable: BVPS 2018

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	46,914	140,304		,334	,740		
	Equity 2019	,001	,001	,392	1,456	,152	,263	3,805
	TotalAssets2019log	-3,937	14,245	-,079	-,276	,783	,236	4,238
	industry3	2,839	5,729	,076	,496	,622	,812	1,232

a. Dependent Variable: BVPS 2019

Appendix IX : Simple regression model coefficients EPS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	3,439	1,162		2,959	,005		
	Equity 2016	5,727E-6	,000	,034	,237	,813	1,000	1,000

a. Dependent Variable: EPS 2016

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	3,605	1,219		2,957	,005		
	Equity 2017	2,437E-5	,000	,142	,995	,325	1,000	1,000

a. Dependent Variable: EPS 2017

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	4,004	1,157		3,461	,001		
	Equity 2018	4,933E-6	,000	,031	,215	,830	1,000	1,000

a. Dependent Variable: EPS 2018

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	3,743	1,289		2,904	,006		
	Equity 2019	3,121E-5	,000	,172	1,208	,233	1,000	1,000

a. Dependent Variable: EPS 2019

Simple regression model coefficients BVPS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	16,398	16,749		,979	,332		
	Equity 2016	,001	,000	,300	2,176	,034	1,000	1,000

a. Dependent Variable: BVPS 2016

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	16,623	14,384		1,156	,254		
	Equity 2017	,001	,000	,330	2,425	,019	1,000	1,000

a. Dependent Variable: BVPS 2017

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	16,742	14,205		1,179	,244		
	Equity 2018	,001	,000	,340	2,506	,016	1,000	1,000

a. Dependent Variable: BVPS 2018

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	16,124	14,110		1,143	,259		
	Equity 2019	,001	,000	,344	2,542	,014	1,000	1,000

a. Dependent Variable: BVPS 2019