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The implementation of IFRS 16 across Europe

A value relevance study of IFRS 16 in European countries.

Master's thesis spring 2023

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MSc in economics and business administration

Abstract

This study investigates how the adoption of the new accounting standard, IFRS 16 Leases, affects the value relevance of financial reporting. The study applies the Ohlson price model to determine the effects on both relative- and incremental value relevance, by utilizing market data for 2255 listed entities from 10 European countries. We measure the effects on value relevance by looking specifically at 2018 and 2019, which represent the pre- and post-implementation periods. Firstly, we examine whether the impact on the overall value relevance has improved. The results indicate that the overall value relevance in Europe is reduced by the implementation of IFRS 16. However, the incremental analysis shows that the investors find the accounting variable book value per share (BVPS) more informative after the implementation. Secondly, we examine whether the implementation of IFRS 16 has a more positive effect on value relevance in countries with low investor protection. Our results provide evidence for this statement, where the value relevance significantly increases after the implementation of IFRS 16. The incremental value relevance of both earnings per share (EPS) and BVPS is positively affected in countries with low investor protection. Interestingly, for countries with high investor protection, the value relevance has decreased. However, according to the conceptual framework, this decline is a potential short-term consequence of implementing a new standard. The findings of this study provide important insights for future standard setting by performing a detailed analysis on the value relevance of financial reporting in Europe, and how it is affected by the level of investor protection.

Acknowledgement

This thesis marks the end of our two-year Master Program in Business Administration, specializing in accounting and auditing – minor finance, at Oslo Metropolitan University. The last two years have been challenging, but also very rewarding.

The purpose of this study is to investigate how the relationship between the market value of equity and other key accounting variables has been affected by the introduction of IFRS 16. During the accounting lectures, we both caught interest in IFRS, and it was clear that our thesis had to be IFRS related. By chance, we came over the subject of value relevance, which none of us had heard of prior to this project. This led to an experience we will never forget, and the term “rollercoaster ride” is probably the most suitable word to describe our last five months. They were incredibly demanding, but also very fulfilling.

Lastly, we would like to thank all friends and family that have contributed to the completion of this thesis. Our acknowledgements go especially to our supervisor Limei Che, for her valuable input and constructive feedback during this process. Your support and enthusiasm have been greatly appreciated.

After submitting our master thesis, we feel pride and joy. We will look back at these two years with a big smile, and we feel well prepared for the upcoming challenges as auditors. Thank you, OsloMet, for two wonderful years!

Oslo, May 2023

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1. Introduction

The main objective for the International Accounting Standard Board (IASB) is to provide both existing- and potential investors with useful financial information. The previous leasing standard, IAS 17, has been criticized by both investors and standard setters for not reflecting economic realities (ACCA, 2014; Bernhoft et al., 2018). Therefore, one of the main projects for IASB and the Financial Accounting Standard Board (FASB) has been to develop a new accounting standard for leases. After several years of extensive work, the new standard, IFRS 16 was effective for reporting periods beginning on 1 January 2019 (IFRS, n.d.-b). This has substantially changed the lessee accounting, where the categorization of financial- and operating leases from IAS 17 is terminated. The new standard requires leases to be capitalized, which is supposed to improve transparency, and make sure that the lease-accounting is both relevant and faithfully represented (IASB, 2016, p. 10). The implementation of IFRS 16 in 2019 has been characterized as “the most significant change to lease accounting in more than 30 years” by EY (Chan, 2021) and “the biggest change in accounting for more than a decade” by KPMG (Plevová, 2019, p. 1). These statements illustrate the magnitude of the new leasing standard. This study investigates whether IFRS 16 is more value relevant than IAS 17. Furthermore, the study analyzes whether the level of investor protection between countries affects the value relevance.

Value relevance studies aim to empirically investigate the statistical association between accounting figures and market value of equity (Beisland, 2009). The purpose of this study is to examine the effect of IFRS 16, and to provide insights to the changes in value relevance after the adoption. Value relevance studies apply well accepted valuation models to operationalize key dimensions of the conceptual framework to assess the reliability and relevance of accounting figures (Barth et al., 2000). Due to this attribute, value relevance research is deemed valuable by standard setters, because it provides significant insights into questions of interest.

The first hypothesis investigates whether IFRS 16 is more value relevant than IAS 17 across Europe. Recent empirical studies have focused on how value relevance is affected by different accounting standards and regimes. Devalle et al. (2010) studied the effects on value relevance of IFRS adoption in Europe. The findings of their study show significant differences

in both magnitude and direction between the European countries. However, the development of IFRS 16 is a clear part of IASBs project to improve the usefulness of financial information. The standard-setters provide good arguments for increased value relevance, where improved accounting quality and comparability is highlighted (IASB, 2016). This is also supported by Imhoff et al. (1991), which concludes that capitalization of lease commitments enhances the comparability and relevance of firm performance.

The second hypothesis investigates whether the implementation of IFRS 16 has stronger effect on value relevance for countries with low investor protection. This is a compelling topic to study, since FASB and IASB have an agreement, where the stated objective is to develop high-quality standards used for cross-border reporting (FASB, 2002, p. 1). Siekkinen (2016) find a relationship between investor protection and value relevance. He finds that the relevance of fair values is dependent on the level of investor protection. Similarly, Defond et al. (2007) find that countries with high investor protection have more informative accounting numbers. Based on these articles, there is a tendency that financial information from countries with low investor protection contains less relevant information. Therefore, we expect that countries with low investor protection will be more affected by the new standard, due to stricter accounting requirements.

This study applies methodology from value relevance research to examine the effects of IFRS 16. We apply the valuation framework developed by Ohlson (1995), and the model is further modified with relevant control variables. These control variables are also applied in studies by Mirza et al. (2019) and Odoemelam et al. (2019). The study investigates both the relative- and incremental value relevance of the implementation, where we apply methods that have been widely used in accounting literature. For the relative value relevance, the results are interpreted by comparing changes in adjusted R^2 between the pre- and post IFRS 16 period, which is consistent with Francis and Schipper (1999). These results are further tested with Cramer's Z (Cramer, 1987). The incremental value relevance is tested by applying techniques described by Collins et al. (1997). The sample consists of 4510 observations for 2255 companies listed in the following European countries: Germany, France, Italy, UK, Norway, Finland, Russia, Ukraine, Netherlands, and Portugal. To separate between high- or low investor protection, the thesis applies the investor protection index developed by The World Bank (Schwab, 2017, p. 343).

Interestingly, our results reveal that the financial statements do not provide more value relevant information after the implementation of IFRS 16 across Europe. However, studies by both Devalle et al. (2010), and Giner and Prado (2018) show that big accounting changes do not necessarily increase the relevance. The results also show that the level of investor protection affects the value relevance of IFRS 16, where we find that value relevance significantly increases in countries with low investor protection. This is according to our expectation, and it provides evidence for the second hypothesis. Surprisingly, the value relevance decreases in countries with high investor protection. The IASB are aware that these short-term effects can occur, where the conceptual framework states that “a temporary reduction in comparability as a result of prospectively applying a new Standard may be worthwhile to improve relevance of faithful representation in the longer term” (IASB, 2018a, p. 18).

This study has at least two contributions: first, it complements the previous value relevance studies. Most of the current research makes use of information available prior to the implementation of IFRS 16. Our study specifically looks at the post implementation effect of IFRS 16, by using information reported in the actual financial statements. Secondly, the study provides insights into how investor protection affects the usefulness of accounting information. To the best of our knowledge, this study is the first to examine the role of investor protection and value relevance of IFRS 16. This is especially useful for standard setters, due to their objective of effectively improving the cross-border comparability of financial information. These findings can provide insights when developing new accounting standards.

The rest of the study is organized as follows. Section II presents the theoretical framework, the literature review, and the hypothesis development. Section III describes the applied research methodology, section IV presents the results and section V contains the discussion. Lastly, section VI is our conclusions.

2. Theoretical framework

This section will present the theoretical framework and extant research that is used to develop our hypothesis. We will briefly discuss the IASB conceptual framework, examine the previous- and current leasing standard, and discuss the role of value relevance and investor protection in the literature.

2.1 The history of standard setting

The IASB is responsible for setting the IFRS-standards. The work of IASB started when their predecessor, International Accounting Standard Committee (IASC), was established in 1973 as part of the project to increase the comparability of international accounting standards by converging them. During the 80s and 90s, IASC initiated several projects, however topics like comparability and creating high-quality standards were frequently mentioned (FASB, n.d.). In 2002, IASB and the Financial Accounting Standards Board (FASB) which is responsible for US-GAAP, entered into The Norwalk Agreement. This agreement states “their commitment to the development of high-quality, compatible accounting standards that could be used for both domestic and cross-border financial reporting” (FASB, 2002, p. 1).

2.2 The purpose of standard setting

The conceptual framework for financial reporting is developed by IASB and is presented in the document “Conceptual Framework for Financial Reporting”. This framework shall create consistent concepts that support standard setters, preparers, and other parties to develop, understand and interpret the IFRS standards (IASB, 2018a). There are many users of the financial statements, which rely on financial information from the reporting entity. The users can be investors, creditors, lenders, regulators, or other members of the public. One of the main objectives of the conceptual framework is to provide these users with information they find useful in their decision-making (IASB, 2018a). These objectives are also integrated in what is defined as the “stated mission” of the IASB. The stated mission is to develop IFRS standards that “bring transparency, accountability and efficiency to financial markets around the world” (IASB, 2018a, p. 5). To achieve this IASB relies on two qualitative characteristics, Relevant- and faithful representation. Faithful representation occurs when the financial information is neutral, complete, and free from error (IASB, 2018a, p. 14). Financial

information is considered relevant if it can make a difference in the decisions made by the users (IASB, 2018a, p. 14).

Kabir and Rahman (2018) discuss how IASB has used the conceptual framework under the development of IFRS 16 and find that IASB deviates from the conceptual framework in certain circumstances. They further state that these deviations are likely to comprise the decision-usefulness of the financial information and increase the complexity of the standard (Kabir & Rahman, 2018).

2.3 Differences in the standards – IAS 17 vs IFRS 16

IAS 17 has been the main accounting standard for leasing since April 2001 (IFRS, n.d.-a). This subsection will briefly examine both the old IAS 17 and the new IFRS 16 standards, where the focus will lie on the major differences between them. The scope of this thesis will only cover the accounting effects of the lessees, as the lessors accounting of leases are essentially the same between the standards (Bernhoft et al. 2018, p. 609).

2.3.1 IAS 17

IAS 17 had two different classifications of leases: finance- or operating leases. This classification also has implications for the accounting treatment of the underlying asset. If the leasing-transaction substantially transfers the risk and reward, and thereby is comparable to the purchase of an asset, it would be classified as a finance lease (IFRS, n.d.-a). A finance lease is recorded on the balance sheet as assets and liabilities. It is recognized at the lower of the fair value of the asset, or the present value of the minimum lease payments (IFRS, n.d.-a). All other leases are classified as operating leases and are recognized in the income statement as an expense on a straight-line basis over the leasing period (IFRS, n.d.-a). The implication of this accounting treatment is that operating leases are not reported in the balance sheet and are known as “off balance sheet items”. The different accounting treatment between finance- and operating leases will have major consequences for the comparability between entities in the same industry. It has been claimed that leasing agreements under IAS 17 were structured to achieve certain beneficial accounting effects. This means that identical agreements were interpreted differently, based on what was favorable for the firm (Bernhoft et al., 2018, p. 609). This can potentially lead to earnings management, where leases are manipulated to meet the criteria for expenses, which is more tax beneficial (ACCA, 2014).

2.3.2 IFRS 16

The most significant difference between the two standards is that IFRS 16 eliminates the classification of operating- or finance leases for a lessee (IASB, 2016). All leases, apart from short-term leases (<12 months) or lease of low value items (<\$5000), should be treated in a similar way as finance leases under IAS 17 (IASB, 2016). This eliminates the term “off-balance sheet-items” because operating leases are no longer an option. All leased items, except certain exemptions, are capitalized on the balance sheet as an asset (property plant and equipment or right-of-use assets) and a financial liability. As mentioned in 2.3, the accounting treatment for lessors is essentially the same.

In the next subsection, we will look at how these changes will affect the balance sheet, income statement and the statement of cashflows.

2.3.3 Changes in the financial statements

2.3.3.1 The balance sheet

The table below is inspired by IASB (2016) and illustrates the balance sheet effects between the two standards.

	IAS 17		IFRS 16
	Finance leases	Operarting leases	All leases
Assets	 	---	     
Liabilites	\$ \$	---	\$ \$ \$ \$ \$
Off balance sheet rights / obligations	---	    \$ \$ \$	---

Figure 1: IFRS 16 effects on the balance sheet

The balance sheet will have significant changes for firms with material off-balance-sheet-items. IASB expects that the implementation of IFRS 16 will result in an increase in both leased assets and financial liabilities (IASB, 2016, p. 42). The lease liability will typically have a higher value than the leased asset over time. The consequence of this is that companies with off-balance-sheet-items typically will have a reduction in equity after implementing IFRS 16.

2.3.3.2 The income statement

The table below is inspired by IASB (2016) and illustrates the effects in the income statement between the two standards.

	IAS 17		IFRS 16
	Finance leases	Operarting leases	All leases
Revenue	x	x	x
Operating cost	---	Single expense	---
EBIDTA			↑↑
Depreciation and amortisation	Depreciation		Depreciation
Operating profit			↑
Finance cost	Interest		Interest
Profit before tax			↔

Figure 2: IFRS 16 effects on the income statement

With operating leases under IAS 17, the entire lease expense was recorded as an operating expense. Under IFRS 16, the entities will be forced to separate the leasing expense into depreciation and finance costs. When the profit before tax is considered, IASB expects little to no change (IASB, 2016, p. 44). The change related to the income statement is mostly related to the presentation of the depreciation and interest rate. Therefore, IASB expects that EBITDA and EBIT will increase, while the net income will have minor changes. The income effect will depend on the applied discount rates, the length of the lease and the significance of the leases (IASB, 2016, p. 44).

2.3.3.3 The statement of cash flows

For the statement of cash flows, one of the key takeaways is that a change in an accounting requirement does not affect the amount of cash transferred between the lessee and lessor. Therefore, the total cash flow is not expected to change. However, there are some changes in the presentation, which will lead to an increase in “Cash from operating activities” and a decrease in “Cash from financing activities”. The reason for this is that operating leases were presented as an operating activity, but under IFRS 16 the effect of principal repayment is presented under “Cash from financing activities”.

2.4 Value relevance

In this section we will explain the role of value relevance and use this theory to build the fundamentals for our hypothesis. Value relevance is a term that has been widely explored, and standard setters view this as an important characteristic of accounting information (Beisland, 2009, p. 7). The reason for this is that value relevance research provides insights into questions of interest, like using theory to assess the relevance and reliability of accounting amounts (Barth et al., 2001, p. 78). According to Beisland (2009, p. 7), “accounting information is denoted as value relevant if there is a statistical association between the accounting numbers and market values of equity”.

According to Barth et al. (2001), the term value relevance was first introduced in 1993. However, the seminal work of value relevance dates to 1968, and the articles by Beaver, and Ball and Brown (Dunham & Grandstaff, 2021, p. 238). Value relevance has been defined in multiple ways in the literature, but we have decided to apply Beislands definition of value relevance: “the ability of financial statement information to capture and summarize information that determines the firm’s value” (Beisland, 2009, p. 9).

It is normal to categorize value relevance research into three groups: relative association-, incremental association-, and marginal information studies (Tahat & Alhadab, 2017, p. 183). First, the relative association studies use adjusted R^2 as a measure of value relevance. This is because the explanatory power (R^2) measures how much of the variance in the dependent variable that is explained by the independent variables. To put this in a value relevance setting, it measures how much of the variation in the stock price that is explained by the accounting variables. This means that a high explanatory power indicates higher value relevance (Beisland, 2009, p. 11). Second, the incremental association studies look at whether the regression coefficients are significantly different from zero. The idea is to investigate if the accounting variables of matter explain the market value (Holthausen & Watts, 2001, p. 6; Tahat & Alhadab, 2017, p. 183). The third, marginal information studies look at the investment decisions, and see if these are affected by specific accounting numbers.

2.4.1 Empirical testing and models

Regression analysis is the typical statistical methodology when conducting value relevance research. It is important to keep in mind what value relevance research measures, which Beisland describes as “the usefulness of accounting information from the perspective of equity investors” (Beisland, 2009, p. 11). According to Kothari and Zimmermann (1995), it is normal to split the research models into two groups: price- and return models. In this section we will briefly discuss each model.

2.4.1.2 The Ohlson price model

James Ohlson has made several contributions to value relevance studies, and he is known for developing the Price Regression Model (PRM). This model analyzes the relationship between the market value of equity, earnings, and the book value of equity. The Ohlson model is based on three reasonable assumptions (Ohlson, 1995, p. 663). The first model assumption is the fulfilment of the dividend discount model. The dividend discount model states that the intrinsic value of a firm is the present value of all expected future dividends (Bodie et al., 2020). The second model assumption is that clean surplus accounting relationship (CSR) is satisfied. According to Beisland (2009), this requires that the book value of equity only changes with net income and net capital withdrawals by owners. The last model assumption is the fulfilment of the linear information dynamics (LID). The implication of LID is that both other information and residual income satisfy the autoregressive and stochastic process (Ohlson, 1995, p. 663).

Applying the mentioned model assumptions, it is possible to express the Ohlson model using the following equation (Stenheim, 2012, p. 119):

$$MV_t = k(\varphi X_t - D_t) + (1 - k) Y_t + \alpha_2 v_t$$

Where:

MV_t = Market value of equity, time t

$k = (R_k - 1)\alpha_1 = \frac{(R_k - 1)\omega}{(R_k - \omega)}$ where ω is the persistence parameter of earnings; $0 \leq \omega < 1$

$\varphi = \frac{r}{(1-r)}$ where r is the discount rate

X_t = Net earnings, period t

$Y_t =$ Book value of equity, time t

$D_t =$ Net dividends, period t

$$\alpha_2 = \frac{R_k}{(R_k - \omega)(R_k - \gamma)}$$

$v_2 =$ Non – accounting price – relevant information, time t

According to Stenheim (2012), the expression can be used as the theoretical justification for the regression model based on earnings and booked equity. The more practical and empirical Ohlson regression model can be written as:

$$P_{i,t} = \alpha_0 + \alpha_1 X_{i,t} + \alpha_2 Y_{i,t} + \varepsilon_{i,t}$$

Where:

$P_{i,t} =$ Stock price of equity of firm i , time t

$X_{i,t} =$ Net Earnings – per – share of firm i , period t .

$Y_{i,t} =$ Book value of equity per share of firm i , time t

$\varepsilon_{i,t} =$ Residual of firm i , time t

Stenheim (2012) further explains that this regression model is appealing for value relevance research, due to the link between stock prices and accounting numbers. When applying the Ohlson Model and using this as the fundament for the regression model above, this will combine the assumptions of the Ohlson Model, to the OLS-regression assumptions (Stenheim, 2012, p. 120).

2.4.1.3 The return model

Beisland (2009) explains that the valuation of equity is of high importance for stock investors. However, after the funds are invested, the focus for investor is on investment returns, rather than the stock price. If the clean surplus relation (see section 2.4.1.2) is satisfied, earnings are equal to the change in book value of equity if no dividends are paid. The accounting system can be used to measure the value created from the change in market value of equity. According to Beisland (2009), these issues are studied using return models.

The return models are based on the work by Easton and Harris (1991). In this study, Easton and Harris look at how earnings and change in earnings work as explanatory variables for

stock returns. According to Easton and Harris, this is based on the idea that the wealth of the firm's equity holders relies on "stock" variables like book value and market value. However, the market return and earnings divided by price are the related "flow" variables. Because of the relationship between these variables, it follows that the stock return is associated with the earnings divided by the price at the start of the period, rather than the "stock" variables (Easton & Harris, 1991, p. 19). Easton and Harris find that both earnings variables (earnings and change in earnings) play a role in the valuation of a firm.

The return model is expressed using the following equation (Beisland, 2012):

$$RET_{i,t} = \beta_0 + \beta_1 EARN_{i,t} + \beta_2 \Delta EARN_{i,t} + \varepsilon_{i,t}$$

$$RET_{i,t} = P_{i,t} - P_{i,t-1}$$

2.5 Literature review and hypothesis development

2.5.1 Value Relevance

One of the most debated topics within value relevance research is whether the research is useful for standard setters. This is an interesting question, since one of the main purposes of the research is to offer robust techniques to analyze how the market views accounting information (Dunham & Grandstaff, 2021, p. 237). Holthausen and Watts (2001) are one of the main contributors in this discussion, and they claim that the current research has little impact on standard setting. In their study, Holthausen and Watts (2001) go through 62 different articles, where they assess the underlying theories used to draw the standard-setting inferences. However, they argue that these inferences are only useful if the underlying theories that explain accounting, valuation and standard setting are descriptive. If the theories used in value relevance research are not descriptive, the empirical associations are hard to interpret, because they are associations, which have limited inferences for standard setting. They conclude that the literature reviewed in their article does not use or seek to develop descriptive theories, which means their contribution to standard setting is modest (Holthausen & Watts, 2001, p. 63). Barth, Beaver and Landsmann (2001) is a counterparty in this discussion, where they argue that value relevance research provides "fruitful insights for standard setting" (Barth et al., 2001, p. 78). In this article, they argue against Holthausen and Watts, where the main point is to "clarify several misconceptions" (Barth et al., 2001, p. 79) from their article. Barth, Beaver and Landsmann (2001) present six

different arguments, where one of the key take-aways is that value relevance research should not be viewed as the sole source of information for standard setters – and this is not a shortcoming of the value relevance research. The intention of this research is to study how share prices are affected by accounting amounts. Further, it seeks to update the standard setters' prior beliefs so the research can be informative on their deliberation on new accounting standards (Barth et al., 2001, p. 88). They also refer to the extent and pervasiveness of the value relevance literature in the FASB research supplement, and in other leading academic accounting- and professional journals. This is a clear testimony to the perceived contribution of the value relevance literature in both academic research and its relevance in accounting practice.

To develop a deeper understanding of how changes in accounting standards affect value relevance, we have studied research articles looking at how value relevance changes after adopting IFRS from local GAAP. One of the articles that caught our interest was written by Mirza et al. (2019). Their study examines the value relevance of a full IFRS adoption in a developing country. Malaysia is a country with a history of different financial reporting frauds. This has caused investors to lose faith in the financial statements, and there has been a growing concern regarding the quality of financial reporting. This makes Malaysia an especially interesting case, due to the expectation of changes in value relevance after the full IFRS adoption in 2012. By implementing the generalized Ohlson model, they examine whether earnings, book value of equity (BVE), and cash flows from operations (CFO) are value relevant in the Malaysian capital market. This paper has a time-period of 2012-2016, where the population is all non-financial firms listed on the Bursa Malaysian Main Market. Therefore, their paper only examines the post-effects of an IFRS adoption. The main findings are that earnings, BVE and CFO significantly explain the variation in the share price after the adoption. This study is unique because the authors have included CFO as a separate variable in the Ohlson model, where they find that the CFO variable is increasingly important compared to earnings and BVE. According to Mirza et al. (2019), this is not in line with the IASB's conceptual framework, which states that earnings are the most relevant accounting information. This infers that the investors have a perception that firms are using earnings management practices, and therefore assign more weight to CFO in investments decisions compared to BVE and earnings.

Odoemelam et al. (2019) examine the value relevance of earnings after the adoption of IFRS by quoted Nigerian firms. This article has broad claims: “The findings of this study are utmost important to economic policymakers, investors and Standard Setters” (Odoemelam et al., 2019, p. 2). Their main hypothesis is that the IFRS adoption should significantly influence the value relevance of earnings. To conduct this research, Odoemelam et al. (2019) applies the basic Ohlson model, where they integrate an IFRS dummy variable to study the incremental value relevance of accounting variables. The sample consists of 101 Nigerian firms in the period from 2006-2017. This data is analyzed using a Fixed Effect estimator. They conclude that the value relevance of BVE does not increase after the IFRS implementation. However, the value relevance of earnings does significantly increase and is a “yardstick for investor’s economic decisions”. (Odoemelam et al., 2019, p. 18).

2.5.2 Leasing

Leasing has been applied by entities for several centuries, and it is considered a mature product in the international market (Morales-Diaz & Zamora-Ramirez, 2018, p. 105). One of the main purposes of the implementation of IFRS 16 was to eliminate the off-balance-sheet leases. This is because the absence of information regarding the leases made it difficult to compare entities with different leasing policies (IASB, 2016, p. 3).

Beattie et al. (1998) analyzed the impact of capitalizing leases on different key accounting ratios. They find that the capitalization of leases will have extensive economic consequences, and that it will impact decision makers, cash flows, market valuations and the behavior of managers. In their article, they estimate that the total unrecorded assets represented 6% of total assets, while the unrecorded liability was as much as 39% of the reported long-term debt (Beattie et al., 1998, p. 245). The study finds that most of the key financial ratios change significantly when leases are capitalized. The most affected ratios are profit margin, asset turnover and return on assets which can give an indication that off-balance sheet leases are vulnerable for earnings management (Beattie et al., 1998, p. 249). These results indicate the significant effect leasing agreements have on financial statements.

Morales-Diaz and Zamora-Ramirez (2018) conduct a similar study to Beattie et al. (1998), except that the study has been carried out more recently. This article looks specifically at how IFRS 16 will affect the key financial ratios. They find that the impact of the IFRS 16

adoption depends on what industry the company operates in. This is similar to the conclusions of the IASB effect analysis (IASB, 2016, p. 4). However, this study is rather extensive, and it investigates several different aspects of the implementation. In general terms, they find that both the assets and liability will be strongly affected. It is also interesting that they find that firms in the same industry can have significantly different outcomes. An example of this is entities with a relatively high degree of off-balance leases. These entities will see their risk position exacerbate compared to their peers with a lower level of operating leases (Morales-Diaz & Zamora-Ramirez, 2018, p. 130). Financial measures that are based on accounting figures may also need an additional review after the IFRS 16 adoption. The authors use debt covenants as an example, where a firm can breach the debt covenant simply due to new accounting requirements, which is independent from an upsurge in credit risk level. The last topic Diaz and Ramirez (2018) discussed is how the IFRS 16 implementation will impact entities leasing policies in the future. They expect a reduction in the lease intensity for firms with a high leverage prior to the new standard, which is done to avoid problems with leverage in the future. Further on, the previous accounting advantages of operational leases are no longer available, which may influence future decision-making regarding leases.

Giner and Pardo (2018) studied the IFRS 16 implementation effects ex ante for listed firms in Spain. This article examines whether the operating leases are priced by the market, and they do so by conducting a value relevance study using “as-if capitalized leases” (Giner & Pardo, 2018, p. 496). To calculate the as-if capitalized lease, Giner and Pardo (2018) collected data by hand, based on information disclosed in the notes. Afterwards they calculate the operational leases as if they were capitalized as finance leases. This article looks at how investors interpret information and the market valuation in a code-law system versus in a common-law. Giner and Pardo (2018) finds that investors in common-law countries (examples are UK and US) with stricter enforcement policies and more developed markets do not behave any differently than investors in code-law countries (other European countries) with lower enforcement quality and less developed markets. This means the investors pay attention to both the recognized items and the disclosed information (Giner & Pardo, 2018, p. 506). In their article they also find evidence that the investors equally value recognized debts and disclosed liabilities, regardless of their perceived reliability of as-if liabilities (Giner

& Pardo, 2018, p. 504). The underlying results of their study indicate that the implementation of IFRS 16 will not have a significant impact on the stock exchange.

2.5.3 Investor protection

The article by Giner and Prado (2018) from section 2.5.2 inspired us to investigate how different jurisdictions can affect value relevance, and the potential changes in value relevance when countries adopt a new accounting standard. Defond et al. (2007) investigate differences between countries, where they look at the relationship between the information content of annual earnings announcement and investor protection. In their study, they looked at a total of 53 197 earnings announcements from 26 different countries. The main finding is that countries with better enforced insider trading laws or with higher quality earnings have more informative earnings announcements. Defond et al. (2007) measure the earnings quality by looking at the variation of earnings management. They find that high quality earnings are an indication of less earnings management. This means that firms with less earnings management have better earnings quality, which leads to more informative financial statements. If we draw a line back to Beattie et al. (1998), the implication of this study was that the IAS 17 standard was more vulnerable to earnings management. Therefore, there is a possibility that financial statements are perceived less informative in countries with low investor protection under IAS 17. Leuz et al. (2003) draw similar inferences, where they manage to find a link between the corporate governance and the quality of reported earnings. According to Leuz et al. (2003), this confirms their expectation that high investor protection will give less earnings management, because the strong protection limits the ability to acquire private control benefits, which gives less incentive to manipulate the firm performance.

Siekkinen (2016) looks at the relationship between value relevance and the investor protection environment, specifically at the value relevance of fair values. IFRS 13 regulates fair values, and it is a standard that requires discretion from the management, which can be abused by opportunistic managers to increase their own wealth. Fair value accounting can easily be used for earnings management at the expense of the shareholders' wealth (Siekkinen, 2016, p. 1). This study applies the Ohlson price model to examine the value relevance of the accounting figures, and how these are affected by the level of investor protection. He finds evidence that fair values are only relevant for investors in countries

where the investor protection is high. In countries where the investor protection is weak, he finds that only the market prices are value relevant. Consequently, this indicates that investors deem fair value estimates unreliable when investor protection is low, as there are possibilities for earnings management.

2.5.4 Hypothesis development

IASB and FASB had a joint project to improve the accounting for leases. Both parties were concerned about a lack of transparency regarding lease obligations, and this is what initiated their leasing project. IASB (2016) stated that the absence of leases on the balance sheet under IAS 17 led to a situation where analysts and investors did not have a complete view of the financial position of a firm. According to IASB one of the benefits of recognizing finance leases on the balance sheet is that it will provide greater transparency and a more faithful representation. When studying the differences between the standards objective, this also becomes clear. According to IFRS 16.1, the objective of the standard is:

To ensure that lessees and lessors provide relevant information in a manner that faithfully represents those transactions. This information gives a basis for users of financial statements to assess the effect that leases have on the financial position, financial performance, and cash flows of an entity. (IASB, 2018b. p. 5)

The objective of IAS 17 is “to prescribe, for lessees and lessors, the appropriate accounting policies and disclosure to apply in relation to leases” (IASB, 2009, p. 6). As we see, the new wording is more detailed, and the standard explicitly added the words *relevant information* and *faithfully represents*.

When developing our hypothesis, we look at both previous studies and the IASBs objective. Giner and Prado (2018) found that the effect of capitalizing leases will not have a major impact on the stock market. However, they also state that less sophisticated investors might benefit from the change. This is because less sophisticated investors may not have adjusted the balance sheet for previous operating leases (Giner & Pardo, 2018, p. 506). IASB (2016) expects that IFRS 16 will improve the decision making for investors due to the new information. This is an indirect way to state that the value relevance of accounting information will increase. Our first hypothesis will therefore be:

Hypothesis 1: IFRS 16 is more value relevant than IAS 17 across Europe.

According to Beattie et al. (1998) a change in lease regulation which requires capitalization of leases, is likely to have an impact on managers behavior and their earnings management. DeFond et al. (2007) find that annual earnings announcements are more informative in countries with better enforced insider trading laws or higher quality earnings. In this study, Defond et al. (2007) argue that less earnings management is an indication of higher quality earnings. Accordingly, countries that are prone to earnings management will most likely have less informative earnings announcements. As Beattie et al. (1998) discusses, when managers can "choose" whether to capitalize leases or not, which was the case under IAS 17, it is a great opportunity to execute earnings management. Therefore, countries with low investor protection are more likely to have less informative financial statements under the old standard. Similarly, Siekkinen (2016) studies the value relevance of fair values, which also are prone to earnings management. He finds that fair value estimates are only relevant when the investor protection is sufficiently high. Based on the literature review, we believe that the value relevance in countries with low investor protection should be more affected by IFRS 16 compared to countries with high investor protection. This is because countries with high investor protection have incorporated or disclosed the relevant information in their financial statements under IAS 17. Therefore, the new accounting standard, IFRS 16, may have relatively marginal impact on value relevance. However, in countries with low investor protection, the financial statements may have low quality under IAS 17, and the new standard IFRS 16 can significantly improve the quality and value relevance of the financial information due to more specific requirements. Put differently, IFRS 16 will reduce the amount of earnings management for firms in countries with low investor protection. However, for countries with high investor protection the amount of earnings management is relatively low both before and after the implementation of IFRS 16. This inspired our second hypothesis:

Hypothesis 2: The implementation of IFRS 16 has a more positive effect on value relevance for countries with low investor protection.

3. Methodological framework

In section three, we will describe the methodology and data applied in the study. Firstly, we introduce the assumptions and choice of research model. Further on, we will describe our models and the selection of data.

3.1 Choice of model

Under section two, we presented both the price- and the return model. These are the most applied models for measuring value relevance. There are pros and cons with both the price- and return models. It is important that the researchers are aware of these different specifications and the consequences since it can lead to wrong statistical inferences.

Landsman and Magliolo (1988) find that there is no “best” model, but that they rather “are dependent upon the set of assumptions maintained by the researcher regarding the pricing relation and the econometric properties of the data used for estimation” (Landsman & Magliolo, 1998, p. 586). According to Kothari and Zimmermann (1995), the return model often satisfies the assumptions behind the regression analysis and therefore has less econometric problems. However, the price model is better to estimate the slope of the coefficients, and therefore is less biased (Kothari & Zimmermann, 1997, p. 155). Beisland (2009) has an important point regarding the choice of regression models, where he states that the economic motivation of the study should govern the course of action – regardless of the econometric strengths and weaknesses. He further explains that “if one wants to examine value relevance of equity and other balance sheet items, the price model is the obvious choice” (Beisland, 2009, p. 11). Kothari and Zimmermann (1995) suggest that in some cases the researchers can apply both models (Kothari & Zimmermann, 1995, p. 155). According to Beisland (2009), one of these circumstances is when you examine changes, like a change in accounting standards. Since the IFRS 16 standard has the strongest effects on the accounting figures in the balance sheet (see section 2.3.3), we have chosen to apply the Ohlson price model as our primary model. This is because the return model is best applied on bottom-line earnings, which should be rather unaffected (see section 2.3.3.2), and it does not directly include any of the affected balance sheet figures. However, the return model will be applied as a robustness test, based on the recommendations from the articles from Beisland (2009) and Kothari and Zimmermann (1995).

3.2 Research methodology

This thesis will apply both relative- and incremental value relevance measures to answer the research question. The distinction between these measures is important, and the terms are clearly defined by Biddle et al. (1995) as:

Incremental comparisons ask whether one accounting measure provides information content beyond that provided by another and apply when one measure is viewed as given and an assessment is desired regarding the incremental contribution of another (e.g., a supplemental disclosure). Relative comparisons ask which measure has greater information content, and apply when making mutually exclusive choices among alternatives, or when rankings by information content are desired (Biddle et al., 1995, p. 17).

In the following section, the methods to measure both relative and incremental value relevance will be briefly explained.

3.2.1 Relative value relevance

Researchers often apply the adjusted R^2 as a measure of the value relevance of accounting variables (Beisland, 2009, p. 11). This is because R^2 measures how good the applied model fits the dataset. One of the characteristics of R^2 is that it ranges between zero and one, where it measures the fraction of the variance in Y that is explained by X (Stock & Watson, 2019). Therefore, if either the stock return or price is regressed on the accounting variables, R^2 measures how much of the variation in the stock returns or prices which is explained by the included accounting variables (Beisland, 2009, p. 11). By looking at fluctuations in R^2 between samples, it is possible to examine the development in value relevance over time.

Our hypothesis looks at whether the value relevance has improved after the implementation of IFRS 16. To be more precise, we look at the changes in value relevance pre- and post IFRS 16. If R^2 is higher in the post-period, this means that value relevance has been positively affected by the new accounting standard. This method is consistent with the method described by Francis and Schipper (1999). However, we also want to see if there are statistically significant differences between the periods. To do this, we must conduct an econometric test. Within accounting literature, the most applied econometric tests are either the Chow test or Cramer's Z (Cramer, 1987). This thesis uses cross-sectional data to examine

relative value relevance, which means it is more convenient to use Cramer's Z rather than the Chow test. Therefore, we will calculate the Cramer's Z by applying the formulas from Sunday et al. (2017, p. 82):

$$Z = \frac{R_1^2 - R_2^2}{\sqrt{\text{Var}(R_1^2) - (R_2^2)}}$$

$$\text{Var}(R^2) \sim \frac{4}{N} R^2(1 - R^2)^2 \left[1 - \frac{2(q + 1) + 3}{N} \right]$$

Where N is the total sample size and q is the number of predictors. R_1^2 is the adjusted R-squared for regression one and R_2^2 is the adjusted R-squared for regression two. $\text{Var}_1(R^2)$ and $\text{Var}_2(R^2)$ are variance of first and second regressions, respectively (Sunday, 2017, p. 82)

3.2.2 Incremental value relevance

To measure the changes in the incremental value relevance, we adopt the interpretation described in Collins et al. (1997). This article uses cross-sectional data, where R^2 is the primary metric to measure value relevance. Further on, the explanatory power is decomposed into three different components to capture the incremental effects. The three components are (1) the explanatory power common to both earnings and book values, (2) the incremental explanatory power of earnings, and (3) the incremental explanatory power of book values. To find these effects, we must do the following three regressions:

$$(1) MVPS = \alpha_0 + EPS_i + BVPS_i + e_i$$

$$(2) MVPS = \alpha_0 + EPS_i + e_i$$

$$(3) MVPS = \alpha_0 + BVPS_i + e_i$$

The explanatory power from the equations above are denoted as R^2_T, R^2_2, R^2_3 . Then $R^2_{BV} = R^2_T - R^2_2$ represents the incremental value relevance of book value per share, and $R^2_E = R^2_T - R^2_3$ represents the incremental value relevance of earnings per share. The remaining $R^2_C = R^2_T - R^2_{BV} - R^2_E$ represents the incremental value relevance common to both earnings and book values. The explanatory power of R^2_C considers that book values and earnings act as substitutes for each other, while they also are complemented by providing incremental explanatory power to one another (Collins et al., 1997, p. 40).

3.3 Model description

3.3.1 Price model 1

As stated in section 3.1, our analysis will start with the baseline Ohlson price model. The basic model is expressed as:

$$(1) MVPS_i = \beta_0 + \beta_1 EPS_i + \beta_2 BVPS_i + e_i$$

The market value per share, $MVPS_i$, of company i as per 01.04 is the dependent variable in the main test models. The dependent variable has a three-month lag to make sure the information from the financial statements is reflected in the share price. This is consistent with articles by Devalle et al. (2010), Frank (2002) and Hellström (2006). In the base model, the independent variables are book value per share ($BVPS_i$) of company i as per year-end, and earnings per share (EPS_i) of company i at year-end. The error term, e_i , captures the non-observed factors that cannot be explained by the independent variables included.

3.3.2 Price model 2

The second price model is developed following model 1, where several relevant control variables are added. The variables are added to eliminate known weaknesses of the model and to capture certain relevant associations related to the implementation of IFRS 16. The modified price model can be expressed as:

$$(2) MVPS_i = \beta_0 + \beta_1 EPS_i + \beta_2 BVPS_i + \beta_3 LEVR_i + \beta_4 \ln Size_i + \beta_5 Industry_i + e_i$$

The interpretation of $MVPS_i$, $BVPS_i$ and EPS_i is identical in both models. The third independent variable is leverage ($LEVR_i$) of company i as per year-end. Leverage is a ratio where the nominator is total liabilities, and the denominator is total assets. This variable will also indirectly capture the effect of the increase in both liabilities and property, plant, and equipment. The fourth variable, $\ln Size_i$, is the natural logarithm of total assets of company i as per year-end. The size variable is added to handle scale effects, where Barth and Kallapur (1996) recommend adding an independent variable, because this is effective for mitigating coefficient bias and reducing heteroskedasticity. Adding both the $LEVR_i$ and $\ln Size_i$ is in line with previous studies conducted by both Odoemelam et al. (2019) and Mirza et al. (2019). Lastly our model includes a dummy variable based on which industry the company operates in. Industries that are expected to be heavily affected by the implementation are coded as 1

and all other industries are coded to 0. According to EY, companies involved in air travel, retail and transportation are most affected by IFRS 16 (Chan, 2021).

3.4 Validity

3.4.1 Threats to internal validity

Stock and Watson (2019) state that internal validity consists of two different components. The first component concerns whether the estimator of the causal effect is unbiased and consistent. The second component says that both hypothesis tests and confidence intervals should have the desired significance- and confidence level. The following subsections will present threats to each component, and how they are mitigated in the study.

3.4.1.1 Threats to the first component

Omitted variable bias and misspecification of the functional form can lead to inconsistent and biased estimators. Both sources will lead to bias, because the error term in the population will correlate with the regressor. To avoid the risk of omitting a variable, we identified the key coefficients of interest and used *a-priori* reasoning. This means we studied previous literature and apply well established value-relevance models in the study.

Misspecification of the functional form arises when the regression function differs from the functional form of the population. We mitigate this by running regressions with log-transformation of the dependent variable. This was performed on the basic Ohlson model, and it provided consistent results.

3.4.1.2 Threats to the second component

When the standard errors are inconsistent, this will pose a threat to the internal validity of the study. Some of the threats to inconsistent standard errors are heteroskedasticity, multicollinearity, outliers, and correlation of the error term across observations. In all our regressions we perform Breusch-Pagan tests to detect heteroskedasticity and apply robust standard errors to mitigate heteroskedasticity as suggested by Stock and Watson (2019). By investigating the correlation matrix and variation inflation factor (VIF), we see if our models suffer from high multicollinearity. Multicollinearity exists if the correlation matrix shows correlations exceeding 0.8 or the VIF-factor is higher than five. This is tested in section 4.2. To avoid outliers, we eliminate observations in the upper and lower 1% of the main variables. Further, we apply Cook's D, and remove highly influential observations with a score over 1.

This method is consistent with Beisland (2011), and Francis and Schipper (1999). The last threat is correlation of the error term across observations. This is a common problem in datasets which includes repeated observations of the same entity over time. In these circumstances, serial correlation can be induced in regression error over time (Stock & Watson, 2019, p. 343). Autocorrelation can arise in panel data, which is used in our robustness tests. The solution for this is to apply cluster robust standard errors, which is further explained in section 3.5.

3.5 Robustness tests

To make sure that the statistics and conclusions in our analysis are valid, we modify the current model and run separate regressions to investigate the robustness of our results. As a robustness test of the incremental changes on each variable, we have decided to add an interaction between the pre- and post-period and each of our variables (BVPS, MVPS, LEVR, SIZE). This method is consistent with the approach used by Odoemelam et al. (2019). The applied price model can be expressed as:

$$(3) \quad MVPS_i = \beta_0 + \beta_1 EPS_i + \beta_2 BVPS_i + \beta_3 LEVR_i + \beta_4 \ln Size_i + \beta_5 Industry_i \\ + \beta_6 IFRS16 + \beta_7 IFRS16 * EPS_i + \beta_8 IFRS16 * BVPS_i \\ + \beta_9 IFRS16 * LEVR_i + \beta_{10} IFRS16 * \ln Size_i + e_i$$

To be able to do this, we have applied panel data. The reason for this is that our dataset contains information about the same firms over time (2018 and 2019). By applying panel data (and in the special case where T=2), it is possible to compare values of the dependent variable in the second period to values in the first period. We focus on changes in the dependent variable (“before and after”), where we hold constant unobserved factors that differ from one company to the next, but do not change over time within the firm (Stock & Watson, 2019, p. 365). This is a “two-way fixed effects” estimator, often called “within estimator” (Wooldridge, 2021, p. 2).

There are however two methods for estimating unobserved effects model. We have both the fixed effects model, which we apply, and the first-differencing. Since our dataset only contains 2 years, these two tests are completely identical (Wooldridge, 2016, p. 439). To make these models identical, FE estimation must include a dummy variable for the second period to be identical to the FD estimates that include an intercept. We have added

interactions for the pre- and post-period which solves this problem. We apply STATA's statistical packages and have chosen to apply the fixed effect model.

In panel data, there are three different estimators to choose from: Pooled OLS, fixed effects, or random effects. According to Wooldridge (2016), fixed effects are a more convincing tool for estimating ceteris paribus effects, which the implementation of IFRS 16 is. This is because fixed effects allow arbitrary correlation between a_i and the x_{itj} , while random effects do not. We have also applied the Hausmann test on each of our regression models. This means that we first apply both random effects and fixed effects, and then formally test for statistically significant differences in the coefficients on the time-varying explanatory variable. A rejection using the Hausmann test means that the key RE assumption is false, and then the FE estimates are used. In all our samples, the p-values are significant at 1%, which means we apply the FE-model. We apply cluster-robust standard error, as Stock and Watson (2019) suggest. These standard errors will take care of autocorrelation and heteroscedasticity. We are not able to conduct the test for autocorrelation since we only have $T=2$. The Wooldridge test in STATA only works with $T>2$.

As a second test, we will run the regression using the return-model as explained in section 2.4.1.3. The reason for this is based on the recommendations from Beisland (2009), and Kothari and Zimmermann (1995).

3.6 Data

This thesis is focused on firms listed on various European stock exchanges. Our final sample consists of public companies listed on the stock exchanges of Germany, France, Italy, United Kingdom, Norway, Finland, Russia, Ukraine, Netherlands, and Portugal. These countries are selected based on both data availability and other relevant criteria, allowing us to study our hypothesis. All the selected countries are required to use IFRS accounting standards for domestic public companies (IFRS, 2022).

The first four countries (Germany, France, Italy, and UK) are chosen due to their economic size, as they have the highest GDP in the European area in the period 2016-2019 (World Bank, 2019). For us, it is also self-evident to include Norway in the sample, due to our affiliation. The last five countries (Finland, Russia, Ukraine, Netherlands, and Portugal) are selected due to their ranking on the investor protection index (Schwab, 2017). We want to

investigate the effect of “high vs low” investor protection and define high protection as median score + 0.5. The median score on the investor protection index is 5.5 (Schwab, 2017), which means the cut-off for high-/low investor protection is set at a score of 6. In our sample, Finland, Russia, Ukraine, Netherlands, and Portugal are categorized as countries with low investor protection. The strength of a country’s investors protection used in this thesis is set by the World Economic Forum. The index ranks economies based on the strength of the minority investor protection. This is determined by sorting the country's distance to frontier scores for protecting minority investors (Schwab, 2017). The data comes from a questionnaire administered to corporate and security lawyers and is based on company laws, securities regulation, civil procedure codes and court rules of evidence. The index measures the extent of disclosure, extent of director liability, ease of shareholder suits, extent of conflict of interest, extent of shareholder rights, extent of ownership and control, extent of corporate transparency and the extent of shareholder governance (Schwab, 2017).

Our study uses secondary data, and all data is collected from Refinitiv Eikon using the screener application. The raw dataset contains only primary listings, which is done to prevent duplicates in the dataset. The original extract consists of 6 365 companies from the selected stock exchanges. The elimination process started by excluding entities with first trade date after 31.12.2017 and missing financial statements after 30.12.2019. This is because we only want companies who have been through the process of switching from IAS 17 to IFRS 16. Further, we eliminated companies with missing information in one or more years leaving. Lastly, we excluded outliers by applying the technique described in subsection 3.4.1.2, which leaves us with a total of 2 255 companies.

4. Results

In section four, the results are presented. Firstly, we look at the descriptive statistics and key features of the dataset. Secondly, for each hypothesis, the results from the analysis will be presented.

4.1 Descriptive statistics

Table 1: Descriptive statistics

Pre IFRS 16 - 2018					
	N	Mean	SD	p25	p75
MVPS18	2255	132.673	238.678	9.02	135.129
BVPS18	2255	80.163	163.023	4.927	76.425
EPS18	2255	6.705	17.537	-.107	7.171
LEVR18	2255	.605	1.715	.356	.724
lnSize18	2255	21.853	2.640	19.905	23.636

Post IFRS 16 - 2019					
	N	Mean	SD	p25	p75
MVPS19	2255	123.839	231.645	7.619	128.922
BVPS19	2255	85.253	179.745	4.397	77.828
EPS19	2255	6.596	21.203	-.164	7.026
LEVR19	2255	.676	2.182	.377	.742
lnSize19	2255	21.936	2.682	19.989	23.768

Table 1 shows that mean MVPS declined with 8.83 from 2018 to 2019. The mean BVPS increased by 5.09 after the implementation. This is not in line with IASB effect analysis where BVPS was expected to decrease (IASB, 2016, p. 53). However, the BVPS in our sample reflects more than just the implementation of IFRS 16, where the increase is affected by other factors such as the allocation of last year's profit. Mean EPS remained relatively stable and had a decline of 0.11. The leverage increased with 0.071 (7.1%) after the implementation, which is in line with IASB's expectations (IASB, 2016, p. 53). This indicates that average debt is increasing more than the assets. Overall, all variables except BVPS follow the expected pattern from IASBs effect analysis.

4.2 Correlation matrix

Table 2: Correlation matrix

Pre IFRS 16 - 2018

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) MVPS18	1.000					
(2) BVPS18	0.732	1.000				
(3) EPS18	0.730	0.738	1.000			
(4) LEVR18	-0.015	-0.013	-0.009	1.000		
(5) lnSize18	0.376	0.390	0.385	-0.043	1.000	
(6) Industry	0.002	-0.004	-0.009	0.002	0.097	1.000

Post IFRS 16 - 2019

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) MVPS19	1.000					
(2) BVPS19	0.695	1.000				
(3) EPS19	0.640	0.642	1.000			
(4) LEVR19	-0.024	-0.023	-0.018	1.000		
(5) lnSize19	0.385	0.374	0.307	-0.094	1.000	
(6) Industry	-0.007	-0.011	-0.014	-0.001	0.099	1.000

The Pearson correlation matrix from table 2, shows that none of the variables have correlation above 0.8. This confirms that there are no problems with multicollinearity in the sample. Additionally, the VIF-test has no values above 5, which further confirms no multicollinearity problems.

4.3 Hypothesis 1

4.3.1 Relative value relevance

Table 3 measures the relative value relevance for the full sample in accordance with the basic Ohlson price model presented in section 3.3. This model utilizes the independent variables BVPS and EPS and their relationship to MVPS pre- and post IFRS 16. Consistent with Francis and Schipper (1999), we use the adjusted R^2 as the metric to identify whether the value relevance has changed in between the two periods. If the adjusted R^2 is higher after the implementation this indicates an increase in value relevance and a decrease would indicate a reduction in value relevance. We discuss the individual coefficients and their significance in the subsections for incremental value relevance.

Table 3: Relative value relevance - Ohlson model - Full Sample

Model (2): $MVPS_i = a_i + \beta_1 BVPS_i + \beta_2 EPS_i$				
Dependent variable: MVPS	Pre IFRS 16, 2018		Post IFRS 16, 2019	
	Coef. (Std. Err.)	t	Coef. (Std. Err.)	t
$\beta_1 BVPS$	0.620*** (0.076)	8.13	0.622*** (0.084)	7.40
$\beta_2 EPS$	5.682*** (0.715)	7.94	3.612*** (1.123)	3.21
Constant	44.858*** (3.254)	13.78	46.973*** (3.214)	14.61
Observations	2255		2255	
F-test	225.42		171.96	
Adjusted R2	0.6144		0.5468	
Z-score	-11.11***			

*** $p < 0,01$, ** $p < 0,05$, * $p < 0,1$

The results reported in table 3 show an adjusted R² pre-implementation of 0.6144, while the adjusted R² post-implementation has declined to 0.5468. This is a reduction of 6.76 percentage points, which indicates a decrease in value relevance post implementation. The Cramer Z-score is used as the econometric test to see whether the change is statistically significant. As presented in table 3, the difference between the adjusted R² pre and post is statistically significant at 1%-level with a Z-score of -11.11. This implies that the value relevance has declined after the implementation of IFRS 16. In table 4, we expand the basis price model with the following control variables *LEVR*, *lnSize* and *Industry*.

Table 4: Relative value relevance - Full Model - Full sample

Model (2): $MVPS_i = a_i + \beta_1 BVPS_i + \beta_2 EPS_i + \beta_3 LEVR_i + \beta_4 lnSize_i + \beta_5 Industry_i$				
Dependent variable: MVPS	Pre IFRS 16, 2018		Post IFRS 16, 2019	
	Coef. (Std. Err.)	t	Coef. (Std. Err.)	t
$\beta_1 BVPS$	0.599*** (0.076)	7.87	0.574*** (0.078)	7.34
$\beta_2 EPS$	5.508*** (0.719)	7.65	3.458*** (1.088)	3.18
$\beta_3 LEVR$	-0.413 (0.393)	-1.05	0.423 (0.299)	1.41
$\beta_4 lnSize$	5.477 (1.425)	3.84	10.614*** (1.741)	6.10
$\beta_5 Industry$	0.964 (13.695)	0.07	-9.106 (13.174)	-0.69
Constant	-71.810** (28.991)	-2.48	-180.43*** (35.487)	-5.08
Observations	2255		2255	
F-test	151.47		146.01	
Adjusted R2	0.6169		0.5589	
Z-score	-10.24***			

*** $p < 0,01$, ** $p < 0,05$, * $p < 0,1$

After introduction of the additional control variables, we observe similar results as in table 3. In table 4, the adjusted R² declines from 0.6169 to 0.5589 after the implementation of IFRS 16. This equals a decline of 5.8 percentage points between the two periods, which is statistically significant at the 1%-level. This further strengthens the findings from table 3, which gives further evidence that the value relevance has decreased after the implementation of IFRS 16 in Europe.

4.3.2 Incremental value relevance

We apply the methods conducted by Collins et al. (1997) to analyze the incremental value relevance of *BVPS* and *EPS*. To calculate the incremental value relevance, we apply equation 1, 2 and 3, together with the formulas presented in section 3.2.2. In table 5, the “Full sample – Ohlson model” applies the basic Ohlson price model, while the “Full sample – Full model” includes the control variables *LEVR*, *lnSize* and *Industry*.

Table 5: Incremental value relevance – Full sample

<i>Full sample - Ohlson Model</i>				<i>Full sample - Full Model</i>			
	R2 total	EPS	BVPS		R2 total	EPS	BVPS
Pre IFRS	0.614	0.533	0.535	Pre IFRS	0.617	0.543	0.544
Post IFRS	0.547	0.410	0.483	Post IFRS	0.559	0.449	0.501
	Pre IFRS	Post IFRS		Pre IFRS	Post IFRS		
Inc_BVPS	0.082	0.137		Inc_BVPS	0.074	0.110	
Inc_EPS	0.079	0.064		Inc_EPS	0.073	0.058	
R2 common	0.454	0.346		R2 common	0.470	0.391	
R2 total	0.614	0.547		R2 total	0.617	0.559	

When analyzing the shift in value relevance between the different accounting variables, we observe that the value relevance of incremental *BVPS* increases after the implementation of IFRS 16. The incremental value relevance of *BVPS* goes from 0.082 to 0.137 in the basic model, and from 0.074 to 0.110 in the full model. These results are consistent between the two models, albeit the effects are stronger in the basic Ohlson model. This indicates that even though the overall value relevance decreases, the investors see the balance sheet as more value relevant after the implementation. However, looking at the results from both table 3 and table 4, we see that the coefficient *BVPS* is significant at the 1%-level in both pre- and post-period. This suggests that the investors in the European market deem the *BVPS* as significant both under IAS 17 and IFRS 16.

The incremental value relevance of EPS decreases after the implementation of IFRS 16. In the full sample, there is a clear shift where the EPS becomes relatively less value relevant than the BVPS. Under IAS 17, we see that the value relevance of both EPS and BVPS was almost identical (0.079 vs 0.082 in basic model and 0.074 vs 0.073 in full). However, after the implementation of IFRS 16 the accounting variables seem to diverge, where the BVPS becomes relatively more value relevant for the investors.

4.4 Hypothesis 2

4.4.1 Relative value relevance

Table 6 measures the relative value relevance for countries with low investor protection in accordance with the basic Ohlson price model. Analyzing the adjusted R^2 , we observe an increase from 0.4755 in the pre-period to 0.6033 in the post period. This equals an increase of 12.78 percentage points, which is statistically significant at a 1%-level applying the Cramer Z-score. Based on the findings from table 6, this indicates that IFRS 16 is significantly more value relevant than IAS 17 in countries with low investor protection. Consistent with the method from the previous section, we modify the basic Ohlson model by adding the control variables *LEVR*, *InSize* and *Industry*.

Table 6: Relative value relevance - Ohlson Model - Low investor protection

Dependent variable: MVPS	Low investor protection				
	Pre IFRS 16, 2018			Post IFRS 16, 2019	
	Coef. (Std. Err.)	t	Coef. (Std. Err.)	t	
$\beta_1 BVPS$	0.572** (0.234)	2.44	0.560*** (0.156)	3.59	
$\beta_2 EPS$	4.974** (2.070)	2.40	4.694*** (0.508)	9.23	
Constant	43.647*** (9.230)	4.73	36.735*** (7.271)	5.05	
Observations	374			374	
F-test	16.47			81.82	
Adjusted R2	0.4755			0.6033	
Z-score	6.60***				

*** $p < 0,01$, ** $p < 0,05$, * $p < 0,1$

Table 7: Relative value relevance - Full Model - Low investor protection

Model (2): $MVPS_i = a_i + \beta_1 BVPS_i + \beta_2 EPS_i + \beta_3 LEVR_i + \beta_4 \ln Size_i + \beta_5 Industry_i$				
Low investor protection				
Dependent variable: MVPS	Pre IFRS 16, 2018		Post IFRS 16, 2019	
	Coef. (Std. Err.)	t	Coef. (Std. Err.)	t
$\beta_1 BVPS$	0.548** (0.233)	2.35	0.534*** (0.155)	3.44
$\beta_2 EPS$	4.749** (2.111)	2.25	4.565*** (0.499)	9.14
$\beta_3 LEVR$	-0.015 (0.501)	-0.03	0.280 (0.427)	0.66
$\beta_4 \ln size$	6.569 (4.538)	1.45	7.186** (3.110)	2.31
$\beta_5 Industry$	-22.086 (17.862)	-1.24	-7.076 (23.442)	-0.30
Constant	-98.534 (95.534)	-1.03	-121.757* (66.377)	-1.83
Observations	374		374	
F-test	24.38		43.38	
Adjusted R2	0.4776		0.6063	
Z-score	6.66***			

*** $p < 0,01$, ** $p < 0,05$, * $p < 0,1$

As table 7 reveals, the introduction of control variables does not change the fact from the basic Ohlson model. The adjusted R² goes from 0.4776 to 0.6063, which equals an increase of 12.87 percentage points. This change is still statistically significant at the 1%-level, when considering the Cramer Z-score. This further strengthens the evidence from table 6, which gives an indication that the value relevance has increased in countries with lower investor protection.

Table 8: Relative value relevance - Ohlson Model - High investor protection

Model (2): $MVPS_i = a_i + \beta_1 BVPS_i + \beta_2 EPS_i$				
High investor protection				
Dependent variable: MVPS	Pre IFRS 16, 2018		Post IFRS 16, 2019	
	Coef. (Std. Err.)	t	Coef. (Std. Err.)	t
$\beta_1 BVPS$	0.618*** (0.080)	7.65	0.650*** (0.104)	6.24
$\beta_2 EPS$	5.849*** (0.753)	7.76	3.193** (1.421)	2.25
Constant	45.635*** (3.542)	12.88	48.56*** (3.554)	13.66
Observations	1881		1881	
F-test	214.77		159.25	
Adjusted R2	0.6341		0.5396	
Z-score	-11.96***			

*** $p < 0,01$, ** $p < 0,05$, * $p < 0,1$

Table 8 measures the relative value relevance for countries with high investor protection. In contrast to the findings from table 6 and 7, the adjusted R² has declined from 2018 to 2019. The adjusted R² was 0.6341 prior to the implementation, and 0.5396 in the post-period. This

equals a decrease of 9.45 percentage points, which according to Cramer Z-score is statistically significant at a 1%-level. We further add the selected control variables in table 9, to analyze whether this affects our findings.

Table 9: Relative value relevance - Full Model - High investor protection

Model (2): $MVPS_i = \alpha_i + \beta_1 BVPS_i + \beta_2 EPS_i + \beta_3 LEVR_i + \beta_4 \ln Size_i + \beta_5 Industry_i$				
Dependent variable: MVPS	High investor protection			
	Pre IFRS 16, 2018		Post IFRS 16, 2019	
	Coef. (Std. Err.)	t	Coef. (Std. Err.)	t
$\beta_1 BVPS$	0.596*** (0.080)	7.37	0.595*** (0.096)	6.16
$\beta_2 EPS$	5.677*** (0.754)	7.53	3.053** (1.361)	2.24
$\beta_3 LEVR$	-1.391 (1.155)	-1.20	0.487 (0.489)	1.00
$\beta_4 \ln size$	5.544*** (1.448)	3.83	11.487*** (1.896)	6.06
$\beta_5 Industry$	5.461 (16.371)	0.33	-8.381 (15.463)	-0.54
Constant	-71.525 (29.127)	-2.46	-196.16*** (38.446)	-5.10
Observations	1881		1881	
F-test	140.68		121.44	
Adjusted R2	0.6366		0.5534	
Z-score	-11.16***			

*** $p < 0,01$, ** $p < 0,05$, * $p < 0,1$

These results are similar to table 8. We observe a decrease of 8.32 percentage points in the adjusted R^2 , which is reduced from 0.6366 to 0.5534 after the implementation of IFRS 16. The change in adjusted R^2 is still statistically significant at 1%-level. Summarizing the findings from table 8 and 9, we see that the value relevance of the financial statement has decreased in countries with higher investor protection. Based on the findings in table 6, 7, 8 and 9 we find evidence that the level of investor protection affects the value relevance of IFRS 16. Countries with a high level of investor protection seem to be negatively affected by the new standard, while the opposite applies for countries with low investor protection.

4.4.2 Incremental value relevance

For countries with low- or high investor protection we also analyze the incremental changes in value relevance. In table 10, the “Low investor protection – Ohlson model” applies the basic Ohlson price model, while the “Low investor protection – Full model” includes the control variables LEVR, InSize and Industry.

Table 10: Incremental value relevance – Low investor protection

<i>Low investor protection - Ohlson Model</i>				<i>Low investor protection - Full Model</i>			
	R2 total	EPS	BVPS		R2 total	EPS	BVPS
Pre IFRS	0.476	0.392	0.382	Pre IFRS	0.478	0.402	0.394
Post IFRS	0.603	0.491	0.389	Post IFRS	0.606	0.508	0.407
	Pre IFRS	Post IFRS			Pre IFRS	Post IFRS	
Inc_BVPS	0.083	0.113		Inc_BVPS	0.075	0.098	
Inc_EPS	0.094	0.215		Inc_EPS	0.083	0.199	
R2 common	0.299	0.276		R2 common	0.319	0.309	
R2 total	0.476	0.603		R2 total	0.487	0.606	

When analyzing the incremental value relevance of BVPS and EPS in the context of low investor protection, we observe that the impact of IFRS 16 is huge. The incremental value relevance of BVPS goes from 0.083 to 0.113 in the basic model, and from 0.075 to 0.098 in the modified model. This increase shows that the investors put more faith in the balance sheet figures after the implementation of IFRS 16. It is worth noting that BVPS is statistically significant at 5%-level in both model 6 and 7 prior to the implementation. However, after the implementation, both variables are statistically significant at 1%-level, which further strengthens the evidence that BVPS is more value relevant in the post-period.

EPS is most affected by the implementation in countries with low investor protection. In the basic model, incremental value relevance of EPS goes from 0.094 to 0.215, and from 0.083 to 0.199 in the modified model. The same findings come from table 6 and 7, where EPS becomes significant at 1%-level after the implementation of IFRS 16. This finding is interesting, since it provides evidence for the ideas presented in the hypothesis development. IFRS 16 eliminates the term operating leasing, which limits the possibilities for earnings management. Since earnings management has a negative effect on the value relevance, the implementation of IFRS 16 should increase the value relevance of earnings where the investor protection is low. The findings in table 10 support this hypothesis.

Table 11: Incremental value relevance – High investor protection

<i>High investor protection - Ohlson Model</i>				<i>High investor protection - Full Model</i>			
	R2 total	EPS	BVPS		R2 total	EPS	BVPS
Pre IFRS	0.634	0.567	0,557	Pre IFRS	0.637	0.567	0.565
Post IFRS	0.540	0.443	0,498	Post IFRS	0.553	0.442	0.515
	Pre IFRS	Post IFRS			Pre IFRS	Post IFRS	
Inc_BVPS	0.067	0.097		Inc_BVPS	0.070	0.111	
Inc_EPS	0.077	0.042		Inc_EPS	0.071	0.038	
R2 common	0.490	0.401		R2 common	0.495	0.404	
R2 total	0.634	0.540		R2 total	0.637	0.553	

We further analyze the implementation effects in countries with high investor protection. In table 11, “High investor protection – Ohlson model” applies the basic Ohlson price model, while the “High investor protection – Full model” includes the control variables LEVR, InSize and Industry.

At first glance, it is evident that the level of investor protection influences the incremental value relevance of IFRS 16. Common for both levels, is that value relevance of BVPS increases in the post period. In countries with high investor protection, the incremental value relevance of BVPS goes from 0.067 to 0.097 in the basic model, and from 0.070 to 0.111 in the full model. However, according to table 8 and 9, we see that that the BVPS is significant at 1% level in both periods. These results are consistent with the findings in the full model, where the investors deem the BVPS value relevant in both periods, even though the overall value relevance drops.

The main difference between the two classifications is that incremental value relevance of EPS decreases in countries with high investor protection. This finding is consistent with the discussion in the full sample, where we find that value relevance of EPS and BVPS diverged. Since earnings management is negatively related to value relevance, this gives an indication that countries with high investor protection had less problems with earnings management during IAS 17.

4.5 Robustness tests

4.5.1 – Incremental value relevance – Panel data

In this section we apply panel data to investigate the robustness of our incremental analysis.

This means we examine the interaction terms and analyze their significance level. The

applied model is inspired by the work of Odoemelam et al. (2019).

Table 12: Robustness test - Full Model

$$\text{Model 3: } MVPS_{it} = \alpha_i + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 LEVR_{it} + \beta_4 \ln Size_{it} + \beta_5 IFRS16_{it} + \beta_6 BVPS_{it} * IFRS16 + \beta_7 EPS_{it} * IFRS16 + \beta_8 LEVR_{it} * IFRS16 + \beta_9 \ln Size_{it} * IFRS16$$

Dependent variable: MVPS	Full sample		Low Investor protection		High Investor protection	
	Coef. (Std. Err.)	t	Coef. (Std. Err.)	t	Coef. (Std. Err.)	t
$\beta_1 BVPS$	0.266*** (0.052)	5.12	0.405 (0.260)	1.56	0.260*** (0.049)	5.32
$\beta_2 EPS$	0.071 (0.400)	0.18	-0.085 (0.415)	-0.21	0.086 (0.442)	0.20
$\beta_3 LEVR$	0.734** (0.364)	2.02	0.978 (1.273)	0.77	2.553* (1.404)	1.82
$\beta_4 \ln size$	4.707 (3.526)	1.34	7.864 (14.713)	0.53	3.844 (3.079)	1.25
$\beta_5 IFRS16$	-2.221* (1.234)	-1.80	-6.528* (3.529)	-1.85	-1.339 (1.487)	-0.90
$\beta_6 BVPS * IFRS16$	-0.150*** (0.026)	-5.58	-0.084** (0.039)	-2.14	-0.152*** (0.031)	-4.79
$\beta_7 EPS * IFRS16$	0.651* (0.349)	1.86	1.028*** (0.340)	3.02	0.516 (0.419)	1.23
$\beta_8 LEVR * IFRS16$	0.057 (0.186)	0.31	0.366 (0.254)	1.44	-1.202 (0.878)	-1.37
$\beta_9 \ln Size * IFRS16$	1.488*** (0.507)	2.93	1.182 (1.436)	0.82	1.155*** (0.560)	2.77
Constant	7.502 (77.49)	0.10	-89.772 (324.771)	-0.28	29.185 (67.003)	0.44
Observations	4510		748		3762	
F-test	13.55		7.47		15.35	

*** $p < 0,01$, ** $p < 0,05$, * $p < 0,1$

From the full sample we observe that the interaction term BVPS * IFRS16 is statistically significant. These findings are consistent with the incremental analysis in subsection 4.3.2.

Unlike the results from 4.3.2, the coefficient for EPS is significant after the implementation in model 3. However, we do not think this impairs our main findings, due to EPS only being significant at the 10%-level.

In countries with low investor protection, BVPS*IFRS16 is statistically significant at 5%-level, while EPS*IFRS16 is statistically significant at 1%-level. EPS is most significant, which supports the fact that EPS has the highest increase in incremental value relevance from subsection 4.4.2. For high investor protection, the interaction term BVPS*IFRS16 is statistically significant, which indicates that investors find the BVPS more informative. Lastly, the

interaction term EPS*IFRS16 is not statistically significant, which indicates no increase in value relevance from the new accounting standard. This supports the findings in subsection 4.4.2.

4.5.2 – Applying the return model by Easton and Harris

Based on the recommendations from Kothari and Zimmermann (1995) and Beisland (2009), we test our results by applying the return model.

When using the return model by Easton and Harris, the focus is on analyzing the statistical significance between returns and accounting variables, rather than the explained variance from the model (Beisland, 2012). The return model is usually not suitable for analyzing effects on the balance sheet since it only includes variables from the income statements. These limitations are further discussed in subsection 3.1.

From the return model, we observe that the statistical significance decreases in the full sample. These results are in line with our findings from subsection 4.3.1, where adjusted R^2 decreases, which has a similar inference to the reduced statistical significance in the return-model. For countries with low investor protection, we observe a slight decrease in significance from the return model. This contradicts our findings in subsection 4.4.1, where the price model shows a statistically significant increase in adjusted R^2 . However, this does not impair our findings, due to the inherent limitations of the return model to analyze balance sheet effects. In countries with high investor protection there has been a decrease in significance, supporting our results from section 4.4.1, where the adjusted R^2 decreases.

5. Discussion

In this section we look at the importance and relevance of the results. The purpose is to explain and evaluate the findings and show how it relates to current literature. Each hypothesis is discussed separately.

5.1 Hypothesis 1

The results show that incremental value relevance of BVPS and EPS diverges after the implementation of IFRS 16. This is an interesting finding, because one of the qualitative characteristics of the conceptual framework is relevance. For information to be relevant, one of the main characteristics is that the information has predictive value. The financial

statements have a higher predictive value if the balance sheet better reflects the economic reality. This is because the accounting variables are used to estimate future cash flows to predict values, which is the most important trait for the primary users – the investors. Therefore, this is an early indication that the new standard has a better fit to the conceptual framework, albeit the overall value relevance has declined.

Other studies find that the value relevance of the financial statements has decreased after big transitions in accounting practice (Devalle et al., 2010; Giner & Prado, 2018). Schiebel (2007) studied the effects of the transfer from German GAAP to IFRS, where he found that the value relevance significantly decreases after the change. This has similarities to our findings, albeit our thesis studies the change of one accounting standard. The same is reported by Callao et al. (2007) which looked at the adoption effects of IFRS in Spain. Their finding shows that there are no improvements in the usefulness of the financial reporting, which further supports our findings. However, Callao et al. (2007) does not rule out that the value relevance will improve over medium- to long term, but on a short-term basis the effects are negative. This is comparable to our inference, where we find indications that IFRS 16 has a better fit to the conceptual framework than IAS 17. The negative short-term effects of implementing a new accounting standard are familiar to IASB. This is disclosed in the conceptual framework, which states that a temporary reduction in a qualitative characteristic may be worthwhile to improve it in the long-term (IASB, 2018a). Mirza et al. (2019) also finds that the implementation of full IFRS negatively affects the value relevance in the Malaysian market. He points out that this may be due to new accounting requirements under IFRS, which might be hard for investors to understand.

The findings in the relative- and incremental analysis show that the overall value relevance has decreased after the implementation of IFRS 16, which leads us to reject hypothesis one.

5.2 Hypothesis 2

Our results show that there are differences between how the investors interpret the new standard. Common for all samples, is that the incremental value relevance of BVPS increases. This should not come as a surprise, since one of the benefits of IFRS 16 is that all leases will be equally recognized and measured in the balance sheet (IASB, 2016). When analyzing the incremental value relevance of BVPS, investors clearly see the recognition of assets and

liabilities as an improvement compared to IAS 17. In contrast, there are more variations when examining the incremental effects of EPS between the samples. EPS has become significantly more relevant in countries with low investor protection. A possible explanation is that the level of earnings management has been reduced after the adoption of IFRS 16. This is comparable with the inferences drawn by Beattie et al. (1998), which finds that capitalization of leases will reduce earnings management. Furthermore, Defond et al. (2007) argue that less earnings management will further improve the financial information.

Surprisingly, the incremental effect of EPS decreases in countries with high investor protection. There are various reasons for the reduced value relevance in EPS, however, the investors may find the financial statements more prone to errors in the implementation year, or they find it hard to interpret the new accounting standard. Therefore, they view EPS as less value relevant in the post-implementation period. Leuz et al. (2003) find that countries with high investor protection have lower levels of earnings management. Accordingly, since these levels are low, countries with high investor protection will be less affected by the positive effects of reduced earnings management. Furthermore, the market value per share is collected with a three-month lag, which means the data is collected at the end of March 2020. This is at the start of the Covid-outbreak which brought uncertainty to the global stock markets. Huang & Zhang (2012) found that investors rely more on balance sheet figures when there are greater uncertainty about future earnings. This is a plausible explanation of the reduction in incremental EPS for countries with high-investor protection.

As mentioned in the full sample, there are indications that the new standard has a better fit to the conceptual framework, albeit the overall value relevance has declined. Kabir and Rahman (2018) find that IASB deviated from the conceptual framework when developing IFRS 16, and therefore the new standard will increase the complexity and comprise the decision-usefulness of financial information. This can explain why the overall value relevance decreases in countries with high investor protection.

The arguments for reduced value relevance from hypothesis one is also relevant in this discussion. However, based on our results, the positive effects of IFRS 16 outweigh the negative for countries with low investor protection. This challenges the findings by Giner and Prado (2018), which suggest that investors do not behave differently between high and low enforcement policies. Nevertheless, their study is conducted prior to the implementation

and is based on “as-if” capitalized operating leases. However, our study uses actual reported figures, which is a better method to reflect the economic realities of the standard. Therefore, our results indicate that the implementation of IFRS 16 has a more positive impact in countries with low investor protection, which gives evidence supporting the second hypothesis.

6. Conclusion

This study investigates whether value relevance has improved in the European market after the implementation of IFRS 16. To our knowledge, this is the first study that examines whether the level of investor protection affects value relevance of the new accounting standard, IFRS 16. Specifically, we study how overall value relevance in the European market has changed after the adoption of IFRS 16 (hypothesis one), and if the impact of the new accounting standard is greater in countries with low investor protection (hypothesis two). Our results suggest that the new standard has greatly influenced value relevance in the European market.

Firstly, the results for hypothesis one shows a decline in the adjusted R^2 for the full sample. This indicates a decrease in relative value relevance across Europe. When investigating the incremental effects in the European market, we see that investors find BVPS more informative after the implementation. However, the incremental EPS and other common factors are greatly reduced after the implementation, and they fully neglect the improvement in financial information from BVPS. Other studies have also found evidence for reduced value relevance after changes in accounting requirements (Callao et al., 2007; Devalle et al., 2010; Giner & Prado, 2018; Scheibel, 2007).

Secondly, the results for hypothesis two indicate that the level of investor protection affects how investors interpret the implementation effects of IFRS 16. In countries with low investor protection the adjusted R^2 substantially increases after the adoption of IFRS 16. In contrast, the implementation of IFRS 16 results in a decrease in adjusted R^2 for countries with high investor protection. These findings suggest that relative value relevance has greatly improved in countries with low investor protection, which provides evidence that supports the second hypothesis. When examining the incremental value relevance for countries with high- and low investor protection, we identify variations in the results. Common for both, is that

incremental BVPS increases, which suggests that investors find this accounting figure more informative after the implementation. Moreover, our analysis reveals significant differences in both magnitude and direction for the incremental EPS. Our results show that the incremental EPS notably increases in countries with low investor protection, whereas the opposite occurs in countries with high investor protection. There are few studies conducted on this topic, however, the findings are consistent with our expectations based on articles by Beattie et al. (1997), Defond et al. (2007), Leuz et al. (2003) and Kabir and Rahman (2018).

Overall, the study is not able to provide evidence which supports increased value relevance in Europe after the implementation of IFRS 16. We conclude that the implementation of IFRS 16 has not increased the value relevance across Europe. However, we observe differences in perceived value relevance between countries with different levels of investor protection. Based on our results, we can see that the investors have more confidence in accounting figures for firms located in countries with low investor protection after the implementation. This further indicates that the comparability between countries and regions has increased after the new leasing standard was implemented. Moreover, another finding is that the incremental EPS increases significantly in countries with low investor protection. This suggests that IFRS 16 has reduced the earnings management, due to the elimination of operating leases, as suggested by Beattie et al. (1998). Overall, these observations provide important insights for future standard setting.

We acknowledge that the thesis is subject to several limitations. First, this study applies financial information from 2018 and 2019, which is a relatively short time frame. This is to prevent disturbances from the adoption of IFRS 15 in 2018 and Covid-19 in 2020. Our analysis only partly interacts with Covid-19 since it only includes market data as of March 2020. As previously discussed, other studies (Callao et al., 2007) and IASB (2018a) find that the value relevance of a new accounting standard can improve over time, albeit having negative short-term effects. Therefore, we encourage other studies to examine how value relevance of IFRS 16 develops over time. Second, this study relies on adjusted R^2 as the main proxy for value relevance. The use of adjusted R^2 is criticized, where Gu (2007) has come up with an alternative approach to measure value relevance. Due to limited time, we were not able to use this method. However, it would be interesting to see if our findings are still consistent with Gu's (2007) approach.

7. References

- ACCA. (2014, June). Lease accounting: an update on the international proposed amendments. ACCA Global. <https://www.accaglobal.com/gb/en/technical-activities/technical-resources-search/2014/june/lease-accounting-an-update.html>
- Barth, M.E., Beaver, W.H., & Landsman, W.R. (2000). The relevance of the value relevance literature for financial accounting standard setting. *Journal of Accounting and Economics Conference*, 2(1), 1-41
- Barth, M.E., Beaver, W.H., & Landsman, W.R. (2001). The relevance of the value relevance literature for financial accounting standard setting: Another view. *Journal of Accounting and Economics*, 31 (1-3), 77-104.
- Barth, M. E., & Kallapur, S. (1996). The Effects of Cross-Sectional Scale Differences on Regression Results in Empirical Accounting Research. *Contemporary Accounting Research*, 13(2), 527-567
- Beattie, V., Edwards, K. J., & Goodacre, A. (1998). The impact of constructive operating lease capitalization on key accounting ratios. *Accounting and Business Research*, 28(4), 233-254. <https://doi.org/10.1080/00014788.1998.9728913>
- Beisland, L. A. (2009). A Review of the Value Relevance Literature. *The Open Business Journal*, 2(1). <https://benthamopen.com/contents/pdf/TOBJ/TOBJ-2-7.pdf>
- Beisland, L. A. (2011). The value relevance of losses revisited: The importance of earnings aggregation. *Global Business and Economics Review*, 13(2), 126-146
- Beisland, L. A. (2012). Verdirelevansen til norsk regnskapsinformasjon. *Magma* 2/2012, 28-35. <https://old.magma.no/verdirelevansen-til-norsk-regnskapsinformasjon-f>
- Bernhoft, A. C., Kvifte, S. S., Røsok, K. O. (2018). *IFRS i Norge- En Håndbok (8th ed.)*. Fagbokforlaget.
- Biddle, G. C., Seow, G. S., & Siegel, A. F. (1995). Relative versus Incremental Information Content. *Contemporary Accounting Research*, 12(1), 1-23.
- Bodie, Z., Kane, A., & Marcus, A. (2020). *Investments* (12th ed.) McGraw-Hill Education.
- Callao, S., Jarne, J. I. J., & Lainez, J. M. (2007). Adaption of IFRS in Spain: Effect on the comparability and relevance of financial reporting. *Journal of international Accounting, Auditing and Taxation*, 16(2), 148-178. <http://dx.doi.org/10.1016/j.intaccaudtax.2007.06.002>
- Chan, V. (2021, June 14). How the leases standard is impacting company balance sheets. EY. https://www.ey.com/en_gl/ifrs/how-the-leases-standard-impacts-company-balance-sheets
- Collins, D. W., Maydew, E. L., & Weiss, I. R. (1997). Changes in the value-relevance of earnings and book values over the past forty years. *Journal of Accounting and Economics*, 24(1), 39-67. [https://doi.org/10.1016/S0165-4101\(97\)00015-3](https://doi.org/10.1016/S0165-4101(97)00015-3)
- Cramer, J. (1987). Mean and variance of R2 in small and moderate samples. *Journal of Econometrics*, 35 (2-3), 253-266. [https://doi.org/10.1016/0304-4076\(87\)90027-3](https://doi.org/10.1016/0304-4076(87)90027-3)
- DeFond, M. L., Hung, M., & Trezevant, R. (2007). Investor protection and the information content of annual earnings announcements: International evidence. *Journal of Accounting and Economics*, 43(1), 37-67. <https://doi.org/10.1016/j.jacceco.2006.09.001>

- Devalle, A., Onali, E., & Magarini, R. (2010). Assessing the Value Relevance of Accounting date After the Introduction of IFRS in Europe. *Journal of International Financial Management and Accounting*, 21 (2), 85-119.
- Dunham, L. M., & Grandstaff, J. O. (2021). The Value Relevance of Earnings, Book Values, and Other Accounting Information and the Role of Economic Conditions in Value relevance: A Literature Review*. *Accounting perspectives*, 21(2), 237-272.
- Easton, P. D., & Harris, T. M. (1991). Earnings As an Explanatory Variable for Returns. *Journal of Accounting Research*, 29(1), 19. <https://doi.org/10.2307/2491026>
- FASB (n.d). Comparability in international accounting standards – A brief History. <https://www.fasb.org/page/PageContent?pageId=/international/briefhistory.html&bcpath=ff&isStaticPage=true>
- FASB. (2002). *The Norwalk agreement*. [https://www.fasb.org/Page/ShowPdf?path=memorandum.pdf&title=The%20Norwalk%20Agreement%20\(MOU\)](https://www.fasb.org/Page/ShowPdf?path=memorandum.pdf&title=The%20Norwalk%20Agreement%20(MOU))
- Francis, J., & Schipper, K. (1999). Have Financial statements lost their Relevance? *Journal of Accounting Research*, 37(2), 319-352. <https://doi.org/10.2307/2491412>
- Frank, K. E. (2002). The effect of growth on the value relevance of accounting data. *Journal of Business Research*, 55(1), 69-78. [https://doi.org/10.1016/S0148-2963\(00\)00131-4](https://doi.org/10.1016/S0148-2963(00)00131-4)
- Giner, B., & Pardo, F. P. (2018). The Value Relevance of Operating Lease Liabilities: Economic Effects of IFRS 16. *Australian Accounting Review*, 28(4), 496-511.
- Gu, Z. (2007). Across-sample Incomparability of R2s and Additional Evidence on Value relevance Changes Over Time. *Journal of Business Finance & Accounting*, 34(7-8), 1073-1098.
- Hellström, K. (2006) The Value Relevance of Financial Accounting Information in a Transition Economy: The Case of Czech Republic. *European Accounting Review*, 15(3), 325-349. <https://doi.org/10.1080/09638180600916242>
- Holthausen, R. W., & Watts, R. L. (2001). The relevance of the value-relevance literature for financial accounting standard setting. *Journal of Accounting and Economics*, 31 (1-3), 3-75. [https://doi.org/10.1016/S0165-4101\(01\)00029-5](https://doi.org/10.1016/S0165-4101(01)00029-5)
- Huang, Y., & Zhang, G. (2012). An Examination of the Incremental Usefulness of Balance-Sheet Information Beyond Earnings in explaining Stock Returns. *Journal of Accounting, Auditing & Finance*, 27(2), 267-293. <https://doi.org/10.1177/0148558X11409153>
- IAS Plus. (2023). Effective dates of IFRSs and amendments. IAS Plus. <https://www.iasplus.com/en/standards/effective-dates/effective-ifrs>
- IASB. (2009). *IAS 17: Leases*. <http://ifrs.skr.jp/ias17.pdf>
- IASB (2016). *IFRS 16 Effect Analysis*. <https://www.ifrs.org/content/dam/ifrs/project/leases/ifrs/published-documents/ifrs16-effects-analysis.pdf>
- IASB. (2018a). Conceptual Framework for Financial Reporting. <https://www.ifrs.org/content/dam/ifrs/publications/pdf-standards/english/2021/issued/part-a/conceptual-framework-for-financial-reporting.pdf>
- IASB. (2018b). *IFRS 16: Leases*. <https://www.ifrs.org/content/dam/ifrs/publications/pdf-standards/english/2021/issued/part-a/ifrs-16-leases.pdf>

- IFRS. (2022, 28, July). Who uses IFRS accounting standards?: European Union. IFRS. <https://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/view-jurisdiction/european-union/>
- IFRS. (n.d.-a). IAS 17 Leases. IFRS. <https://www.ifrs.org/issued-standards/list-of-standards/ias-17-leases/>
- IFRS. (n.d.-b). *Leases*. IFRS. <https://www.ifrs.org/projects/completed-projects/2016/ifrs-16-leases/>
- IFRS (n.d.-c). Who we are. <https://www.ifrs.org/about-us/who-we-are/>
- Imhoff, E. A., Lipe, R. C., Wright, D.W. (1991). Operating leases: Impact of Constructive Capitalization. *Accounting Horizons*, 5(1), 51.
- Kabir, H., & Rahman, A. (2018). How does the IASB use the conceptual framework in developing IFRSs? An examination of the development of IFRS 16 leases. *Journal of financial reporting*, 3(1), 93-116. <http://dx.doi.org/10.2308/jfir-52232>
- Kargin, S. (2013). The Impact of IFRS on the Value Relevance of Accounting Information: Evidence from Turkish Firms. *International Journal of Economics and Finance*, 5(4). <http://dx.doi.org/10.5539/ijef.v5n4p71>
- Kothari, S., & Zimmerman, J. L. (1995). Price and return models. *Journal of Accounting and Economics*, 20(2), 155-192. [https://doi.org/10.1016/0165-4101\(95\)00399-4](https://doi.org/10.1016/0165-4101(95)00399-4)
- Landsman, W. R., & Magliolo, J. (1988). Cross-Sectional Capital Market Research and Model Specification. *The Accounting Review*, 63(4), 586-604.
- Leuz, C., Nanda, D., & Wysocki, P.D. (2003). Earnings management and investor proception: an international comparison. *Journal of Financial Economics*, 69(3), 505-527. [https://doi.org/10.1016/S0304-405X\(03\)00121-1](https://doi.org/10.1016/S0304-405X(03)00121-1)
- Mirza, A., Malek, M., & Abdul-Hamid, M. A. (2019). Value relevance of financial reporting: Evidence from Malaysia. *Cogent Economics & Finance*, 7(1). <https://doi.org/10.1080/23322039.2019.1651623>
- Morales-Diaz, J., & Zamora-Ramirez, C. (2018). The Impact of IFRS 16 on Key Financial Ratios: A New Methodological Approach. *Accounting in Europe*, 15 (1), 105-133. <https://www.tandfonline.com/doi/full/10.1080/17449480.2018.1433307>
- Odoemelam, N., Oakfor, R. G., & Ofoegbu, N. G. (2019). Effect of international financial reporting standard (IFRS) adoption on earnings value relevance quoted Nigerian Firms. *Cogent Business & Management*, 6(1). <https://doi.org/10.1080/17449480.2018.1433307>
- Ohlson, J. A. (1995). Earnings, Book Values, and Dividends in Equity Valuation. *Contemporary Accounting Research*, 11(2), 661-687.
- Plevová, M. (2019). Are you ready for the biggest change in accounting for more than a decade? KPMG. <https://assets.kpmg.com/content/dam/kpmg/sk/pdf/2019/ifrs-16-leases.pdf>
- Schwab, K. (2017). *The global competitiveness report 2016-2017*. World Economic Forum. https://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf
- Schiebel, A. (2007). Value Relevance of German Gaap and IFRS Consolidated Financial Reporting: An Empirical Analysis on the Frankfurt Stock Exchange. *Social Science Research Network*. <https://dx.doi.org/10.2139/ssrn.916103>

- Siekkinen, J. (2016). Value relevance of fair values in different investor perception environments. *Accounting forum*, 40(1), 1-15. <https://doi.org/10.1016/j.accfor.2015.11.001>
- Stenheim, T. (2012). Decision Usefulness of Goodwill Reported Under IFRS. *Copenhagen Business School (PHD). PhD series No. 4.2012*
- Stock, J. H., & Watson, M. W. (2019). *Introduction to Econometrics, Global Edition*. Pearson UK.
- Sunday, S., Sawandi, N., & Abdul-Hamid, M. A. (2017). *The impact of Capital Management Investments or Firm Performances During and After Financial Crisis [Conference paper]*. Conference on Accounting Studies, Malaysia.
<https://www.researchgate.net/publication/321275368> The Impact of Working Capital Management Investments on Firm Performances During and After Financial Crisis
- Tahat, Y., & Alhadab, M. (2017). Have accounting numbers lost their value relevance during the recent financial credit crisis? *The Quarterly review of Economics and Finance*, 66, 182-191.
<http://dx.doi.org/10.1016/j.qref.2017.02.007>
- The World Bank. (2019) World Bank.
[https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2019&most recent value desc=true&start=2019](https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2019&most%20recent%20value%20desc=true&start=2019)
- Wooldridge, J. M. (2016). *Introductory Econometrics: A Modern Approach* (6th ed.) Cengage Learning.
- Wooldridge, J. M. (2021). Two-Way Fixed Effects, the Two-Way Mundlak Regression, and Difference-in-Differences Estimators. *Social Science Research Network*.
<https://dx.doi.org/10.2139/ssrn.3906345>