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BACHELOR THESIS ECONOMICS AND BUSINESS ECONOMICS

Revenue Recognition: Effects of the transition to IFRS 15

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1 Introduction

IFRS 15 *Revenue from Contracts with Customers* was the result of a twelve-year-long joint project from the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB), aiming to remove inconsistencies and provide consistent guidance with regard to revenue recognition (Wagenhofer, 2014). The standard was published by the IASB in 2014 (IASB, 2014) and entered into effect for financial statements for periods beginning on or after the 1^{st} of January 2018(IASB, 2015). Consequently, the standard is now widely applied and all annual reports based on the IFRS standards have now included the application of IFRS 15.

IFRS 15 was jointly released by the IASB and the FASB with the aim of improving comparability of financial statements whilst resolving issues due to conflicting guidance (FASB, 2014). This leads to the question of what specific changes were implemented and if the introduced standard has had the desired effect.

This paper aims to provide a general overview of the effect that the standard has had on recognised revenue compared to earlier years by analysing the changes made to revenue recognition as a result of the new standard and quantitatively reviewing the actual developments of revenue in 2018. This analysis provides a review of the effectiveness of the implemented standard. This leads to the following research question central to this paper: *What effect has the application of IFRS 15 Revenue from Contracts with Customers had on the recognised revenue of applying companies?*

In order to answer this question properly, it is vital to first have a good understanding of the subject, and to understand why this new standard is important. With the introduction of the conceptual framework in 2010 and the revision in 2018, the IASB defined the objective of financial reporting as to “provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions relating to providing resources to the entity” (IASB, 2018). To provide a sufficient background for the

new standard, this paper will first review why revenue is important in the terms of the decision usefulness of stakeholders. Building upon this question, this paper will review the specific effect that the changes may have on the recognition of revenue. This effect will be discussed per industry, and hypothesised what industries are and are not affected by the changes. Lastly, this paper will empirically review the actual effect the implementation of the standard has had on the reported revenue of implementing companies and compares the effect.

To summarise, this paper will answer the research question on the basis of the following three sub-questions:

1. Why is revenue recognition important for the decision-making processes of stakeholders?
2. What effect are these changes expected to have on the reported revenue of implementing companies, differentiated by industry?
3. What is the actual effect on the reported revenue of implementing companies?

Relevance Studying the actual application of standards after their implementation is relevant to the academic community, as it allows for a retrospective review of the effectiveness of the standard. A retrospective review provides guidance for future standards or future changes to the standard and helps researchers in developing hypotheses about effects of different implementations.

Practically this paper finds its relevance for the users of financial statements in the sense of comparing revenue numbers between many years. Knowing the actual effect of a change in recognition principles, users of financial statements may develop an expectation of the amount of revenue might have been recognised for when applying the new standards to old annual statements.

Outline This paper will first review the importance of revenue recognition in section 2. The expected effects of the changes will be discussed in section 3 with hypotheses being developed

in section 4, with the quantitative review of the actual effects following from section 5. This paper will conclude with a discussion on the effectiveness on the intended effects in section 7.

2 Importance of revenue recognition

This section will discuss the importance of revenue in the context of financial reporting. Within financial reporting, the primary objective is to provide decision-useful information for stakeholders such as investors and lenders (IASB, 2018, para. 1.2).

An initial measure of the importance of revenue in financial statements can be found in a study interviewing over 400 executives ranking the most important performance measures reported to outsiders (Graham et al., 2005). This study found revenue to be the second most important performance measure, after earnings.

The conceptual framework mentions three subjects around which decisions may be made by stakeholders. These include providing capital, trading or holding equity and debt instruments and influencing management's actions (IASB, 2018, para. 1.2). The importance for the capital providers is discussed in section 2.1. Management's actions are important when viewed through the lens of earnings management, in which revenue can play a role, which will be discussed in section 2.2.

2.1 Capital providers

Businesses look to banks and investors when they require liquidity for expanding their operations. These capital providers will need to investigate the company before providing debt or equity in order to ensure their investment does not default and loans will be paid back with an interest rate appropriate for their level of risk. Revenue is an important part of this investigation as it can be used in the valuation of a company (Berk & DeMarzo, 2017).

Consistent regulations with regard to the recognition of revenue are important as the revenue

recognition methods may influence the judgment of loan officers Trotman and Zimmer (1986). showed that many loan officers do not adjust for a difference in recognition methodology, even when the different methods are explicitly stated. The new standard is beneficial in this regard by converging differing methods of recognition to a single standard.

Revenue becomes even more important for valuation with regard to firms reporting losses or negative cash flows which are especially prevalent in technology or internet industries (Bowen et al., 2002). Callen et al. (2008) show that revenues are value-relevant for these loss firms, whereas other indicators like earnings and operating cash flows are not correlated to the firm's market value. One reason for this might be the fact that losses provide less information with regard to future cash flows than profits because shareholders are able to liquidate a company (Hayn, 1995).

Furthermore, when looking at reactions of investors to revenue it was shown that they value a revenue surprise more than an earnings surprise (Chandra & Ro, 2008; Ertimur et al., 2003). The studies imply that a surprise in earnings has to be placed into context of its source, the revenues. An accurate view of revenue is therefore important for investors.

2.2 Earnings management

Earnings are often used during the valuation of a company, which gives managers an incentive to nudge the earning numbers upwards. Revenue is often used in methods for earnings management. Managers can, for example, record earned revenue in an earlier period than it should be or record bogus revenue (Schilit & Perler, 2010).

The use of revenue in earnings management is widespread. In response to a survey by Graham et al. (2005, p. 33) asking what choices companies might make to ensure a certain earnings target over forty percent of managers responded that they are willing to book revenue in an earlier quarter ranking third among several actions. While this does not include improper revenue recognition, a different study shows that improper revenue recognition is present in

61% of fraud cases investigated by the U.S. SEC between 1998 and 2007 (Beasley et al., 2010).

One explanation for the large amount of fraud cases that include improper revenue recognition could be the complexity of accounting principles concerning revenue (Peterson, 2012). Another explanation can be found in the importance of revenue for investors; it has been shown that firms use deferred and accrues revenues in order to reduce negative earnings surprises (Caylor, 2010). Avoiding negative earnings surprise gives an incentive for companies to manipulate earnings, which is possible due to the complexity of revenue recognition principles.

Earnings are important tools for equity valuation (Ohlson, 1995), which means that any inaccurate or misleading statements through earnings or revenues reduce the decision usefulness of financial statements. Therefore, it is important for accounting standards to provide clear principles aiming to reduce the amount of uncertainty that complex guidelines provide. The IASB, in conjunction with the FASB, aimed to do exactly that with IFRS 15 and its American equivalent. It is therefore clear that revenue is an important part of financial statements for its users and is worth investigating further.

3 Expectations from IFRS 15

Having established the importance of the new revenue recognition standard, I move on towards the changes introduced by IFRS 15. The changes are a result of a convergence of standards between the U.S. Generally Accepted Accounting Principles (U.S. GAAP) and the IASB's IFRS while eliminating the need for the use of multiple different standards resulting in the need for interpretations. The standard is principles-based and its changes cover the measurement of revenue and the timing when it is recognised. (Oyedokun, 2017)

The implementation process has been complex, with specific impact depending on company's industry and expertise of the new standard. Moreover, the switch from rules-based to principles-based requires judgement (Tysiac, 2014). The reliance on the industry of a specific company to determine the impact is exemplified by a survey conducted by PwC (2016), which

shows that 64% of companies do not expect a material impact to its income statement or balance sheet. This was later to be even more so, as no actual material impact is reported in 87% of cases (KPMG, 2019).

There are several industries that are expected to be significantly affected due to their use of contracts that extend over multiple years. This influences the timing of revenue recognition, as companies could recognise revenue at the point in time a contract was signed under the previous standard. Under the new standard, companies will need to recognise these service contracts over its lifetime (Kalavacherla et al., 2019). Affected industries are, on a theoretical basis, the information technology, telecommunications and real estate sectors (Tysiac, 2014). Although most companies later report no significant impact on income or balance sheet statements, IFRS 15 does affect them through its more extensive required disclosures (Haggenmüller, 2019).

For the transition between the old standards and IFRS 15, companies can choose between two separate transition approaches: the full retrospective and modified retrospective approaches (PwC, 2017). The difference between these two approaches can be found in the way they adjust prior years. With the full retrospective method, a company is required to adjust the statements as if IFRS 15 was always in effect. This includes the comparative figures for the previous years. The modified retrospective method allows a company to recognise the cumulative effect at the date of initial application. Some companies choose, however, not to disclose any transition approach when they consider the impact immaterial, which was the case in about a third of companies surveyed by KPMG (2019).

4 Hypothesis development

The section above implies that industries that are significantly affected by the new standard would be less likely to consider the impact immaterial and not have any impact when transitioning to the new standard. I therefore formulate the following hypothesis.

Hypothesis 1. *Industries that are significantly affected by IFRS 15 are more likely to adjust their comparative figures for the new revenue standard.*

Due to the fact that a major part of the affected industries' business is conducted with revenue sources that are affected by the transition to IFRS 15, it can be concluded that the amounts that companies within these sectors adjust their revenue by should be higher than companies in other sectors. This therefore leads to the following hypothesis.

Hypothesis 2. *Industries that are significantly affected by IFRS 15 adjust their annual statements more in terms of revenue than companies in other sectors.*

Finally, when companies are required to adjust their annual statements due to IFRS 15, it can be thought that there is a difference in the reported revenue as they are required to change the way they have been reporting revenue after controlling for location and market conditions. This leads to the following, final hypothesis.

Hypothesis 3. *Companies that reported a material difference due to IFRS 15 report a larger difference in revenue after the new standard has become active compared to companies that do not report any material effect.*

5 Data and methodology

I use publicly available financial data from a number of large companies in order to test the hypotheses mentioned in section 4. This section will cover the sample selection, applied transformations, and describe the obtained data. It will further cover the methodology used to obtain results.

5.1 Sample selection

I study the 600 largest companies from developed European countries as these companies are all required to apply the International Financial Reporting Standards and, as such, are all subject

to the changes imposed by IFRS 15. The 600 companies were selected based on whether they were included in the STOXX 600 index. This is defined as the holdings of the iShares STOXX Europe 600 UCITS ETF (IShares, 2020). From the iShares listing, I also retrieve the applicable sector of each company.

I then retrieved financial data on revenue, net income and total assets from the Orbis database (Bureau van Dijk, 2021). I searched the database for the specific ISIN numbers from the STOXX 600 index and filtered for companies that have data for each year between 2016 and 2019. The data retrieved included total asset size at the time that IFRS 15 came into effect, 2018, and the reported revenue and net income for the years 2016 through 2019. All amounts were converted to euros according to the exchange rate at each closing date. Moreover, nine companies were removed as they did not implement the IFRS or did not have annual reports available. The final list of companies can be found in appendix B. In total, the sample includes 522 companies.

Data on the transition approach and restated comparative figures are not included in any database. As such, I have gone through each of the selected companies' annual statement of 2018 and noted the used transition approach (see section 3) and the reported impact on the statement due to IFRS 15. I define impact as the change in retained earnings for companies that use the cumulative effect approach. Impact is measured using the change in revenue caused by IFRS 15 for companies using the retrospective approach. When the annual report does not end on the 31st of December, the first annual report that applied IFRS 15 is looked at for this data collection step. Amounts are then converted to euro's using exchange rates from the 31st of December 2018.

5.2 Manipulation

In order to find the effect of several factors on the probability of a material effect in the transition to the new standards, I created a variable based on whether there was a material effect, as

defined by whether the company has restated their annual report in accordance with the transition guidelines of IFRS 15. Further, in order to test whether there is an abnormal difference in revenue starting in 2018, I have created a time-based variable which indicates whether the new standard is in effect. I include a description of each variable in appendix A. Finally, I consider which sectors are most impacted as defined above and create a new variable indicating whether a company is expected to be impacted based on its sector.

In order to be able to interpret the coefficients for revenue, net assets and total assets in a reasonable way, I have restated each of these variables into million euros. This ensures that the coefficients are not very close to zero, which helps with the interpretation of results. Moreover, in order to minimize the effect of outliers in the sample on the results, the numerical variables (revenue, net income, market value, impact, and total assets) have been winsorized at the 5% level. Lastly, heteroscedasticity-consistent, or "robust", standard errors are reported in the results.

5.3 Description

The final dataset is split into two separate panels. Panel A includes a single observation per company, whereas panel B provides a time-series view of the revenue and net income of each company. This amounts to 522 observations for panel A, and 2088 observations in panel B.

Summary statistics for the numerical variables can be found in table 1. From these summary statistics, it can be inferred that a large variety of companies is covered, as the market value varies between 375 thousand to 200 million euros. This is further supported by the difference between total assets of the smallest and largest companies.

More interestingly, however, we see that we expect around 19% to be significantly impacted by the new standard. This is in contrast with the 56% of companies that have actually restated the comparative figures in their annual report. This is also not in line with the expectations set by KPMG (2019), who found that 32% of companies did not disclose a transition approach. I

Table 1
Descriptive statistics.

Statistic	N	Mean	St. Dev.	Min	Q1	Q3	Max
Panel A: Company-specific view							
Price	522	224.514	3,375.950	0.350	8.270	61.390	76,840.620
Market Value	522	6.783	7.630	1.152	1.894	8.328	29.716
Total Assets	522	48,274.060	95,720.510	967.251	4,023.449	38,724.190	392,706.800
Impact	522	−17.390	82.244	−281.625	−2.355	0.000	135.000
Adjustment	522	0.556	0.497	0	0	1	1
Sector Affected	522	0.188	0.391	0	0	0	1
Panel B: Time-series view with revenue figures							
Price	2,088	224.514	3,373.523	0.350	8.260	61.480	76,840.620
Market Value	2,088	6.783	7.624	1.152	1.893	8.335	29.716
Total Assets	2,088	48,274.060	95,651.690	967.251	4,021.466	38,813.080	392,706.800
Impact	2,088	−17.390	82.185	−281.625	−2.395	0.000	135.000
Adjustment	2,088	0.556	0.497	0	0	1	1
Sector Affected	2,088	0.188	0.391	0	0	0	1
Revenue	2,088	11,880.140	15,597.030	275.234	1,743.412	15,432.130	62,614.700
Net Income	2,088	905.609	1,198.619	−203.387	170.93	1,090.225	5,189.512
IFRS15 in Effect	2,088	0.500	0.500	0	0	1	1

Statistic variables include all numeric variables in the dataset.
For a description of each variable please refer to appendix A.
Non-numeric variables, such as location and transition approach are not included in these descriptive statistics.

will discuss this further in the results section.

Panel B shows similar summary statistics as panel A. This is not a surprise, as it is derived from panel A. With regard to the revenue and net income figures, we see a large variation as expected from the large differences in company size.

5.4 Analysis

Multiple linear regression models are used in order to test whether the first and third hypotheses hold. The second hypothesis is analysed using a difference-in-difference regression model. This section clarifies what specific statistical tools are used, why they are used and how they are executed.

Hypothesis 1 questions whether the likelihood of adjustment is affected by the sector that a company operates in. As shown before, there are three sectors that are thought to be significantly affected. These are telecommunications, software and real estate companies. These industries have been summarised in a single variable.

The likelihood of adjustment is estimated through a linear probit model. Two separate models are developed using this methodology. The first model (equation (1)) estimates the likelihood of adjustment separated by each industry. This allows for an interpretation of each separate industry. The second model (equation (2)) combines the significantly affected industries together and estimates the chance of adjustment based on whether a company is significantly affected through its industry.

$$Adjustment_i = \beta_0 + \sum_{n=1}^{k} \beta_{n,i} * Industry_{n,i} + \sum_{n=1}^{k} \beta_{n,i} * Control_{n,i} + \epsilon_i \tag{1}$$

$$Adjustment_i = \beta_0 + \beta_1 * ImpactedSector_i + \sum_{n=1}^{k} \beta_{n,i} * Control_{n,i} + \epsilon_i \tag{2}$$

A linear probit model is used for ease of interpretation. Moreover, a situation where the

likelihood of adjustment ends up being greater than one is not expected. Location, market value and total asset size are controlled for in both models. Location is based on the country where each company is located in, market value is based on the market capitalisation of the company's equity as of July 2020, and total asset size is the total asset size reported for 2018.

$$Impact_i = \beta_0 + \sum_{n=1}^{k} \beta_{n,i} * Industry_{n,i} + \sum_{n=1}^{k} \beta_{n,i} * Control_{n,i} + \epsilon_i \tag{3}$$

$$Impact_i = \beta_0 + \beta_1 * ImpactedSector_i + \sum_{n=1}^{k} \beta_{n,i} * Control_{n,i} + \epsilon_i \tag{4}$$

In order to test hypothesis 2, a similar linear regression model is used. Equations (3) and (4) describe the models. Both equations are based on the impact on the statements. Impact is the change in revenue compared to the annual statements before IFRS 15 was implemented. The controls and independent variables used are the same as those used while testing hypothesis 1, with the addition of a dummy variable for the transition methodology. This dummy variable is equal to one when the company has used the modified retrospective approach, and zero otherwise.

$$\begin{aligned} Revenue_{i,t} = \beta_0 + \beta_1 * Adjustment_i * IFRSInEffect_{i,t} + \beta_2 * Adjustment_i \\ + \beta_3 * IFRSInEffect_t + \sum_{n=1}^{k} \beta_{n,i} * Control_{n,i} + \epsilon_i \end{aligned} \tag{5}$$

Hypothesis 3 is tested using a difference-in-difference model. The model is estimated using a linear regression model by using the interaction effect between time (years 2018 and 2019) and whether and adjustment was made. The model is shown in equation (5). Like before, the model controls for location, market value and total assets, where location is based on the country where each company is located in, market value is based on the market capitalisation

of the company's equity as of July 2020, and total asset size is the total asset size reported for 2018. In addition, the model also controls for the sector a company is located in, summarised by dummy variables for each sector. The variable adjusted is a dummy variable with value one in the case that the company has restated the annual report of 2017 and zero otherwise. $IFRSInEffect$ is a dummy variable with value one for the years 2018 and 2019, and the value zero for the years 2016 and 2017.

6 Results

Using the methodology from section 5.4, this section presents the results from testing the hypotheses from section 4.

6.1 Likelihood of adjustment

The first hypothesis relates to the effect of industry on the likelihood that a company adjusts their annual report as a result of the transition to IFRS 15. Table 2 displays the results of the linear regression models shown in equations (1) and (2). Model 1 shows the effect of each individual sector compared to the base sector of Consumer Staples on the chance that a company adjusts their annual statements as a result of the transition to IFRS 15, while model 2 combines the sectors and only focuses on whether the significantly impacted sectors have an effect on this chance.

The expectation developed earlier is that the sectors information technology, communication, and real estate are significantly affected and should therefore have a greater likelihood of adjustment, compared to consumer staples which is expected not to be affected as much. In the case of the real estate sector, this expectation is seen as it is statistically significantly more likely to adjust its statements. The opposite is true for the communication sector as this sector is statistically significantly less likely to adjust its statements. The results show no significant

Table 2
Linear regression model as defined by equations (1) and (2).

	Dependent Variable:	
	Adjustment	
	Model 1	Model 2
Sector Affected		-0.179^{***}
		(0.055)
Individual sectors[1]		
Communication	-0.312^{***}	
	(0.103)	
Consumer Discretionary	0.199^{*}	
	(0.104)	
Energy	0.139	
	(0.143)	
Financials	0.301^{***}	
	(0.094)	
Health Care	0.073	
	(0.115)	
Industrials	0.029	
	(0.097)	
Information Technology	-0.208^{*}	
	(0.114)	
Materials	0.150	
	(0.110)	
Real Estate	0.338^{***}	
	(0.111)	
Utilities	-0.060	
	(0.127)	
Other controls		
Market Value	-0.005^{*}	-0.007^{**}
	(0.003)	(0.003)
Location controls[2]	✓	✓
Constant	0.617^{***}	0.728^{***}
	(0.118)	(0.094)
Observations	522	522
R^2	0.187	0.084
Adjusted R^2	0.139	0.048
Residual Std. Error	0.462	0.485
F Statistic	3.902^{***}	2.305^{***}

*p<0.1; **p<0.05; ***p<0.01
[1] The base level is formed by the Consumer Staples sectors
[2] Location controls are omitted from the table, but are included in the model.

results for the information technology sector, which therefore cannot be interpreted. One other sector shows significant results, being financials. This sector is more likely to adjust their annual statements. The financial sector provides services which may be impacted by IFRS 15, although it is not the main focus of the sector.

When aggregating the significantly affected sectors in model 2, the results show a slight decline in likelihood of adjustment compared to the sectors that are not significantly affected. This is against the expectation, although explained by the results from model 1, as some sectors classified as significantly impacted seem to be less likely to adjust their statements, whereas the opposite seems to be true for some sectors that are not classified as significantly impacted.

I therefore find no support for the hypothesis 1, which seems to be caused by the classification of industries as significantly or not significantly impacted. One industry that is not significantly impacted in previous research does seem to be impacted heavily by the new standard when viewed only through the lens of the chance of adjustment.

6.2 Impact to revenue

The second hypothesis relates to the effect of industry on the impact of adjustment on a company's revenue. Table 3 displays the results of the linear regression models shown in equations (3) and (4). Model 3 shows the effect of each individual sector compared to the base sector of Consumer Staples on the chance that a company adjusts their annual statements as a result of the transition to IFRS 15, while model 4 combines the sectors and only focuses on whether the significantly impacted sectors have an effect on this chance.

Compared to the consumer staples sector, there are no sectors adjusting their statements significantly differently. There are no significant results found in model 3, aside from the effect of the type of transition approach. Model 4 does show a slight increase in the impact compared to sectors not significantly affected, although this is barely not significant ($p < 0.1$). This result is interpretable, although it should be done with caution. Combined with the results about the

Table 3
Linear regression model as defined by equations (3) and (4).

	Dependent Variable:	
	Impact	
	Model 3	Model 4
Sector Affected		15.853*
		(10.209)
Individual sectors[1]		
Communication	39.715	
	(25.763)	
Consumer Discretionary	8.042	
	(18.982)	
Energy	−5.571	
	(15.747)	
Financials	−5.161	
	(16.629)	
Health Care	−0.687	
	(16.696)	
Industrials	−10.915	
	(18.587)	
Information Technology	−21.339	
	(24.367)	
Materials	−5.483	
	(18.839)	
Real Estate	12.198	
	(17.426)	
Utilities	−26.911	
	(26.282)	
Transition approach [2]		
Cumulative effect approach	−9.740	−11.908
	(8.271)	(8.436)
Retrospective approach	−70.677***	−70.487***
	(13.782)	(13.426)
Other controls		
Market Value	−0.383	−0.433
	(0.525)	(0.509)
Location controls[3]	✓	✓
Constant	22.551	17.205
	(23.007)	(14.323)
Observations	522	522
R^2	0.176	0.152
Adjusted R^2	0.124	0.114
Residual Std. Error	76.979	77.398
F Statistic	3.378***	4.058***

*p<0.1; **p<0.05; ***p<0.01
[1] The base level is formed by the Consumer Staples sectors
[2] The base level is formed by the case there is no material effect
[3] Location controls are omitted from the table, but are included in the model.

likelihood of adjustment, this does form weak support for the second hypothesis. It appears that companies that are significantly impacted by the new standard as defined by their sector perform larger adjustments than their counterparts.

6.3 Change in revenue

The third and final hypothesis relates to the revenue earned by companies that have adjusted their annual statements in comparison with those that have not. Table 4 shows the results from the difference-in-difference regression model. The reported results show a slight positive trend in those companies that adjusted their annual statements appear to obtain slightly higher revenue than those that did not. This result is, however, not significant. The p-value of the interaction term is 0.878. This is not sufficiently significant to provide support for the third hypothesis.

7 Discussion

Research from Tysiac (2014) predicted three major industries that would be impacted by IFRS 15. It was therefore expected that these industries would also be more likely to be required to adjust their annual statements in accordance with the transition guidelines shown in the standard. The results shown above are not consistent with the expectations set forth from the theory, as several industries either were less impacted or more impacted than expected. This was mostly the case for the communication and financial sectors.

The reason for this in the case of the Communications Services sector could be found in the recent change from Telecommunications to Communications to also include companies like Alphabet and Facebook into this sector (Badkar & Bullock, 2018). These companies used to belong to the Consumer Discretionary sector, and therefore might skew the results. With regard to the financials sector, it could be said that these companies are far more knowledgeable about the new standard, which is a factor that influences the impact the standard has as observed by

Table 4
Linear regression model as defined by equation (5).

	Dependent Variable: Revenue Model 5
Adjustment IFRS15 In Effect	145.787
	(974.894)
Adjustment	$-2,537.711^{***}$
	(718.116)
IFRS15 In Effect	843.602
	(783.254)
Other controls	
Market Value	955.646^{***}
	(44.732)
Total Assets	0.044^{***}
	(0.004)
Location controls[1]	✓
Sector controls[1]	✓
Constant	−406.163
	(1,252.973)
Observations	2,088
R^2	0.524
Adjusted R^2	0.517
Residual Std. Error	10,841.620
F Statistic	70.761^{***}

*p<0.1; **p<0.05; ***p<0.01
[1] Location and sector controls are omitted from the table, but are included in the model.

Tysiac (2014). Therefore it does not seem safe to assume the sector was unexpectedly heavily affected by the new standard, which is also supported by the results from model 3 as the Financials sector is significantly less impacted when you study the impact by value.

Finally, the results report no significant effect in the amount of revenue reported by companies that did adjust their annual statements after IFRS 15 was active compared to companies that did not. This is not surprising when considering the actual impact IFRS 15 has had when looking at the value. As stated before, 87% of companies did not report a material impact on their income statement (KPMG, 2019). The result is that any measurable impact is unlikely to cause a significant consistent change in reported revenue.

8 Conclusion

The main purpose of this paper is to investigate the effects of IFRS 15 after its implementation date of the 1st of January 2018. This section provides a short overview of the results of previously stated hypotheses with the aim of answering the originally stated research question: what effect has the application of IFRS 15 Revenue from Contracts with Customers had on the recognised revenue of applying companies? Limitations and recommendations for future research are discussed in this section as well.

Hypothesis 1 tests the relationship between the likelihood of annual statement adjustment due to the transition to IFRS 15 and the specific industries a company is located in. Literature showed that the effect of the new standard is highly related to the industry a company is located in, and named three industries that are especially heavily affected. Empirical analysis confirms the fact that several industries are significantly more or less likely to adjust their statements. This was, however, not consistent with the significantly affected industries as stated in previous literature, causing the hypothesis to have no support.

Hypothesis 2 tests the impact of the transition and the specific industries. Literature caused the same expectations to be formed as for the first hypothesis. In this case, the results provide

weak support for the hypothesis as the significantly affected sectors in aggregate do show a slight positive trend to the impact compared to sectors that are not significantly affected. However, no significant change is found when splitting up the different sectors. This implies that any support for the hypothesis is very weak on a per-sector basis.

Hypothesis 3 tests the relationship between revenue and IFRS 15 by employing a difference-in-difference methodology. It was expected that there would be a larger difference in revenue for companies that had to adjust their annual statements after controlling for market conditions and location. The results were, however, not significant, providing no support for this hypothesis.

Combining the results of the literature review and the findings of the three hypotheses, I conclude that, while the standard did cause many adjustments in annual statements first applying the standard, these adjustments are not completely in line with the expected adjustments per industry. Moreover, the standard did not affect recognised revenue in a major quantifiable way.

8.1 Limitations and recommendations for future research

This study is subject to multiple limitations. The data is partly gathered by hand, which limits the amount of data available as only the comparative figures for revenue or the cumulative effect on retained earnings were gathered. This causes a limitation to the analysis as there might be other factors influencing the results due to an omitted variable bias. The results are further plagued by very low coefficients of determination, indicating that the models may be a poor fit for the data. This reduces the ability results can be interpreted. Future research may consider adding more control variables in order to increase the fit of the data, for example by using a database that does contain comparative information.

The study further only focuses on the 600 biggest European exchange-listed companies. Future research could expand this to more companies or look for similar effects due to the implementation of the FASB counterpart to IFRS 15.

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A Variable description

Table 5
Description of variables used in this Study

Variable	Definition and source
Ticker	Stock ticker of financial instrument, retrieved from iShares.
Name	Name of company involved with financial instrument, retrieved from iShares
Location	Country company is headquartered in, retrieved from iShares
Currency	Currency a company's stock is traded in, retrieved from iShares
Price	Price a company's stock is traded for. Value as originally obtained on the 29th of July 2020 from iShares.
Market Value	Market value of a company as obtained from iShares on the 29th of July 2020. Transformed into millions of euros.
Sector	Sector a company is categorized into, obtained from iShares.
ISIN	ISIN of the financial instrument listed in the STOXX 600 index, retrieved from iShares.
Exchange	Exchange the specific instrument is traded on, retrieved from iShares.
Transition approach	Transition approach used by the company during the transition to IFRS 15. Data obtained manually from each company's annual financial statements. Takes the value of "No material effect", "Retrospective approach", or "Cumulative effect approach".
Revenue	Revenue information as listed in the Orbis database from the years 2016 through 2019. Transformed into millions of euros.
Impact	Impact of the transition to IFRS15. Defined as the change in retained earnings for companies that use the cumulative effect approach and the change in revenue caused by IFRS 15 for companies using the retrospective approach. Zero for companies where no material effect was observed. Manually obtained from the annual financial statements of each company. Transformed into millions of euros.

Variable	Definition and source
Net income	Net income information as listed in the Orbis database for the years 2016 through 2019. Transformed into millions of euros.
Total assets	Total assets as listed in the Orbis database for the year 2018. Transformed into millions of euros.
Adjustment	Dummy variable taking the form of one when the company has adjusted their annual reports as a consequence of the transition to IFRS 15 and zero otherwise.
Impacted	Dummy variable taking the value of one when the company has one of the following sectors: Real Estate, Communications, or Information Technology. The variable takes the value of zero otherwise.

B List of companies

Table 6
List of companies analysed in this study

Name	Sector	Currency
3I GROUP PLC	Financials	GBP
A P MOLLER MAERSK B	Industrials	DKK
A2A	Utilities	EUR
AALBERTS NV	Industrials	EUR
ABN AMRO BANK NV	Financials	EUR
ACCIONA SA	Utilities	EUR
ACCOR SA	Consumer Discretionary	EUR
ACKERMANS & VAN HAAREN NV	Financials	EUR
ACS ACTIVIDADES DE CONSTRUCCION Y	Industrials	EUR
ADIDAS N AG	Consumer Discretionary	EUR
ADMIRAL GROUP PLC	Financials	GBP
AEDIFICA REIT SA	Real Estate	EUR
AEGON NV	Financials	EUR
AENA SME SA	Industrials	EUR
AEROPORTS DE PARIS SA	Industrials	EUR
AGEAS SA	Financials	EUR
AGGREKO PLC	Industrials	GBP
AIR LIQUIDE SA	Materials	EUR
AIRBUS GROUP	Industrials	EUR
AKER BP	Energy	NOK
AKZO NOBEL NV	Materials	EUR
ALFA LAVAL	Industrials	SEK

Name	Sector	Currency
ALLIANZ	Financials	EUR
ALSTOM SA	Industrials	EUR
ALSTRIA OFFICE REIT AG	Real Estate	EUR
ALTEN SA	Information Technology	EUR
ALTICE EUROPE NV	Communication	EUR
AMADEUS IT GROUP SA	Information Technology	EUR
AMBU CLASS B	Health Care	DKK
AMPLIFON	Health Care	EUR
AMS AG	Information Technology	CHF
AMUNDI SA	Financials	EUR
ANDRITZ AG	Industrials	EUR
ANGLO AMERICAN PLC	Materials	GBP
ANHEUSER BUSCH INBEV NV	Consumer Staples	EUR
ANTOFAGASTA PLC	Materials	GBP
ARCELORMITTAL SA	Materials	EUR
ARGENX	Health Care	EUR
ARKEMA SA	Materials	EUR
AROUNDTOWN PROPERTY HOLDINGS SA	Real Estate	EUR
ASHTEAD GROUP PLC	Industrials	GBP
ASM INTERNATIONAL NV	Information Technology	EUR
ASML HOLDING NV	Information Technology	EUR
ASR NEDERLAND NV	Financials	EUR
ASSA ABLOY B	Industrials	SEK
ASSICURAZIONI GENERALI	Financials	EUR
ASSOCIATED BRITISH FOODS PLC	Consumer Staples	GBP

Name	Sector	Currency
ASTRAZENECA PLC	Health Care	GBP
ATLANTIA	Industrials	EUR
ATOS	Information Technology	EUR
AUTO TRADER GROUP PLC	Communication	GBP
AVEVA GROUP PLC	Information Technology	GBP
AVIVA PLC	Financials	GBP
AXA SA	Financials	EUR
B&M EUROPEAN VALUE RETAIL SA	Consumer Discretionary	GBP
BAE SYSTEMS PLC	Industrials	GBP
BAKKAFROST	Consumer Staples	NOK
BANCO BPM	Financials	EUR
BANCO DE SABADELL SA	Financials	EUR
BANCO SANTANDER SA	Financials	EUR
BANK OF IRELAND GROUP PLC	Financials	EUR
BANK PEKAO SA	Financials	PLN
BANKINTER SA	Financials	EUR
BARCLAYS PLC	Financials	GBP
BARRATT DEVELOPMENTS PLC	Consumer Discretionary	GBP
BARRY CALLEBAUT AG	Consumer Staples	CHF
BASF N	Materials	EUR
BAWAG GROUP AG	Financials	EUR
BAYER AG	Health Care	EUR
BEAZLEY PLC	Financials	GBP
BECHTLE AG	Information Technology	EUR
BEIERSDORF AG	Consumer Staples	EUR

Name	Sector	Currency
BELIMO HOLDING AG	Industrials	CHF
BELLWAY PLC	Consumer Discretionary	GBP
BERKELEY GROUP HOLDINGS (THE) PLC	Consumer Discretionary	GBP
BHP GROUP PLC	Materials	GBP
BIOMERIEUX SA	Health Care	EUR
BMW AG	Consumer Discretionary	EUR
BNP PARIBAS SA	Financials	EUR
BOLLORE	Communication	EUR
BOLSAS Y MERCADOS ESPANOLES SOCIED	Financials	EUR
BOUYGUES SA	Industrials	EUR
BP PLC	Energy	GBP
BRENNTAG AG	Industrials	EUR
BRITISH AMERICAN TOBACCO PLC	Consumer Staples	GBP
BRITISH LAND REIT PLC	Real Estate	GBP
BRITVIC PLC	Consumer Staples	GBP
BT GROUP PLC	Communication	GBP
BUNZL	Industrials	GBP
BURBERRY GROUP PLC	Consumer Discretionary	GBP
BUREAU VERITAS SA	Industrials	EUR
CAIXABANK SA	Financials	EUR
CAPGEMINI	Information Technology	EUR
CAPITA PLC	Information Technology	GBP
CARL ZEISS MEDITEC AG	Health Care	EUR
CARLSBERG AS CL B	Consumer Staples	DKK
CARREFOUR SA	Consumer Staples	EUR

Name	Sector	Currency
CASTELLUM	Real Estate	SEK
CD PROJECT SA	Communication	PLN
CELLNEX TELECOM SA	Communication	EUR
CENTRICA PLC	Utilities	GBP
CHOCOLADEFABRIKEN LINDT & SPRUENGL	Consumer Staples	CHF
CHR HANSEN HOLDING	Materials	DKK
CHRISTIAN DIOR	Consumer Discretionary	EUR
CLARIANT AG	Materials	CHF
CLOSE BROS GROUP PLC	Financials	GBP
CNH INDUSTRIAL NV	Industrials	EUR
CNP ASSURANCES SA	Financials	EUR
COCA COLA HBC AG	Consumer Staples	GBP
COFINIMMO REIT SA	Real Estate	EUR
COLOPLAST B	Health Care	DKK
COMMERZBANK AG	Financials	EUR
COMPAGNIE DE SAINT GOBAIN SA	Industrials	EUR
COMPAGNIE FINANCIERE RICHEMONT SA	Consumer Discretionary	CHF
COMPASS GROUP PLC	Consumer Discretionary	GBP
CONTINENTAL AG	Consumer Discretionary	EUR
CONVATEC GROUP PLC	Health Care	GBP
COUNTRYSIDE PROP PLC	Consumer Discretionary	GBP
COVESTRO AG	Materials	EUR
COVIVIO SA	Real Estate	EUR
CRH PLC	Materials	EUR
CTS EVENTIM AG	Communication	EUR

Name	Sector	Currency
DAIMLER AG	Consumer Discretionary	EUR
DANONE SA	Consumer Staples	EUR
DANSKE BANK	Financials	DKK
DASSAULT AVIATION SA	Industrials	EUR
DASSAULT SYSTEMES	Information Technology	EUR
DAVIDE CAMPARI MILANO	Consumer Staples	EUR
DCC PLC	Industrials	GBP
DECHRA PHARMACEUTICALS PLC	Health Care	GBP
DELIVERY HERO	Consumer Discretionary	EUR
DEMANT	Health Care	DKK
DERWENT LONDON REIT PLC	Real Estate	GBP
DEUTSCHE BANK AG	Financials	EUR
DEUTSCHE BOERSE AG	Financials	EUR
DEUTSCHE LUFTHANSA AG	Industrials	EUR
DEUTSCHE POST AG	Industrials	EUR
DEUTSCHE TELEKOM N AG	Communication	EUR
DEUTSCHE WOHNEN	Real Estate	EUR
DIAGEO PLC	Consumer Staples	GBP
DIALOG SEMICON PLC	Information Technology	EUR
DIASORIN	Health Care	EUR
DIPLOMA PLC	Industrials	GBP
DIRECT LINE INSURANCE PLC	Financials	GBP
DNB	Financials	NOK
DOMETIC GROUPINARY SHARES	Consumer Discretionary	SEK
DSV PANALPINA	Industrials	DKK

Name	Sector	Currency
DUFRY AG	Consumer Discretionary	CHF
E.ON N	Utilities	EUR
EASYJET PLC	Industrials	GBP
EDENRED SA	Information Technology	EUR
EIFFAGE SA	Industrials	EUR
ELECTRICITE DE FRANCE SA	Utilities	EUR
ELECTROCOMPONENTS PLC	Information Technology	GBP
ELECTROLUX B	Consumer Discretionary	SEK
ELEKTA B	Health Care	SEK
ELIA GROUP SA	Utilities	EUR
ELIS SA	Industrials	EUR
ELISA	Communication	EUR
EMS-CHEMIE HOLDING AG	Materials	CHF
ENAGAS SA	Utilities	EUR
ENDESA SA	Utilities	EUR
ENEL	Utilities	EUR
ENGIE SA	Utilities	EUR
ENI	Energy	EUR
ENTRA	Real Estate	NOK
EPIROC CLASS A	Industrials	SEK
EQUINOR	Energy	NOK
ERICSSON B	Information Technology	SEK
ETABLISSEMENTEN FRANZ COLRUYT NV	Consumer Staples	EUR
EURONEXT NV	Financials	EUR
EUTELSAT COMMUNICATIONS SA	Communication	EUR

Name	Sector	Currency
EVONIK INDUSTRIES AG	Materials	EUR
EVOTEC	Health Care	EUR
EVRAZ	Materials	GBP
FABEGE	Real Estate	SEK
FASTIGHETS BALDER B	Real Estate	SEK
FAURECIA	Consumer Discretionary	EUR
FERGUSON PLC	Industrials	GBP
FERRARI NV	Consumer Discretionary	EUR
FERROVIAL SA	Industrials	EUR
FIAT CHRYSLER AUTOMOBILES NV	Consumer Discretionary	EUR
FINECOBANK BANCA FINECO	Financials	EUR
FLUGHAFEN ZUERICH AG	Industrials	CHF
FLUTTER ENTERTAINMENT PLC	Consumer Discretionary	EUR
FORTUM	Utilities	EUR
FRAPORT FRANKFURT AIRPORT SERVICES	Industrials	EUR
FRESENIUS MEDICAL CARE AG	Health Care	EUR
FRESENIUS SE AND CO KGAA	Health Care	EUR
FUCHS PETROLUB PREF	Materials	EUR
G4S PLC	Industrials	GBP
GALAPAGOS NV	Health Care	EUR
GALP ENERGIA SGPS SA	Energy	EUR
GAMES WORKSHOP GROUP PLC	Consumer Discretionary	GBP
GEA GROUP AG	Industrials	EUR
GEBERIT AG	Industrials	CHF
GECINA SA	Real Estate	EUR

Name	Sector	Currency
GENMAB	Health Care	DKK
GETINGE B	Health Care	SEK
GETLINK	Industrials	EUR
GIVAUDAN SA	Materials	CHF
GJENSIDIGE FORSIKRING	Financials	NOK
GLANBIA PLC	Consumer Staples	EUR
GLAXOSMITHKLINE PLC	Health Care	GBP
GLENCORE PLC	Materials	GBP
GN STORE NORD	Health Care	DKK
GRAND CITY PROPERTIES SA	Real Estate	EUR
GREAT PORTLAND ESTATES REIT PLC	Real Estate	GBP
GREGGS PLC	Consumer Discretionary	GBP
GRENKE N AG	Financials	EUR
GRIFOLS SA CLASS A	Health Care	EUR
GROUPE BRUXELLES LAMBERT NV	Financials	EUR
GVC HOLDINGS PLC	Consumer Discretionary	GBP
H LUNDBECK	Health Care	DKK
HALMA PLC	Information Technology	GBP
HAMMERSON REIT PLC	Real Estate	GBP
HANNOVER RUECK	Financials	EUR
HARGREAVES LANSDOWN PLC	Financials	GBP
HAYS PLC	Industrials	GBP
HEIDELBERGCEMENT AG	Materials	EUR
HEINEKEN HOLDING NV	Consumer Staples	EUR
HEINEKEN NV	Consumer Staples	EUR

Name	Sector	Currency
HELLOFRESH	Consumer Discretionary	EUR
HENKEL & KGAA PREF AG	Consumer Staples	EUR
HENNES & MAURITZ	Consumer Discretionary	SEK
HERA	Utilities	EUR
HEXAGON B	Information Technology	SEK
HEXPOL CLASS B	Materials	SEK
HISCOX LTD	Financials	GBP
HOCHTIEF AG	Industrials	EUR
HOMESERVE PLC	Industrials	GBP
HOWDEN JOINERY GROUP PLC	Industrials	GBP
HSBC HOLDINGS PLC	Financials	GBP
HUGO BOSS N AG	Consumer Discretionary	EUR
HUHTAMAKI	Materials	EUR
HUSQVARNA	Consumer Discretionary	SEK
IBERDROLA SA	Utilities	EUR
ICA GRUPPEN	Consumer Staples	SEK
ICADE REIT SA	Real Estate	EUR
IG GROUP HOLDINGS PLC	Financials	GBP
ILIAD SA	Communication	EUR
IMCD NV	Industrials	EUR
IMI PLC	Industrials	GBP
IMMOFINANZ AG	Real Estate	EUR
IMPERIAL BRANDS PLC	Consumer Staples	GBP
INCHCAPE PLC	Consumer Discretionary	GBP
INDUSTRIA DE DISENO TEXTIL INDITEX	Consumer Discretionary	EUR

Name	Sector	Currency
INDUTRADE	Industrials	SEK
INFINEON TECHNOLOGIES AG	Information Technology	EUR
INFORMA PLC	Communication	GBP
ING GROEP NV	Financials	EUR
INGENICO GROUP SA	Information Technology	EUR
INMOBILIARIA COLONIAL SA	Real Estate	EUR
INTERCONTINENTAL HOTELS GROUP PLC	Consumer Discretionary	GBP
INTERMEDIATE CAPITAL GROUP PLC	Financials	GBP
INTERNATIONAL AIRLINES GROUP SA	Industrials	GBP
INTERPUMP GROUP	Industrials	EUR
INTERTEK GROUP PLC	Industrials	GBP
INTESA SANPAOLO	Financials	EUR
INVESTEC PLC	Financials	GBP
INVESTOR B	Financials	SEK
IPSEN SA	Health Care	EUR
ISS A S	Industrials	DKK
ITALGAS	Utilities	EUR
ITV PLC	Communication	GBP
IWG	Real Estate	GBP
JERONIMO MARTINS SA	Consumer Staples	EUR
JOHNSON MATTHEY PLC	Materials	GBP
JUST EAT TAKEAWA NV	Consumer Discretionary	EUR
KBC GROEP	Financials	EUR
KERING SA	Consumer Discretionary	EUR
KERRY GROUP PLC	Consumer Staples	EUR

Name	Sector	Currency
KESKO CLASS B	Consumer Staples	EUR
KGHM POLSKA MIEDZ SA	Materials	PLN
KINGFISHER PLC	Consumer Discretionary	GBP
KINGSPAN GROUP PLC	Industrials	EUR
KION GROUP AG	Industrials	EUR
KLEPIERRE REIT SA	Real Estate	EUR
KNORR BREMSE AG	Industrials	EUR
KOJAMO	Real Estate	EUR
KONE	Industrials	EUR
KONINKILIJKE DSM NV	Materials	EUR
KONINKLIJKE AHOLD DELHAIZE NV	Consumer Staples	EUR
KONINKLIJKE KPN NV	Communication	EUR
KONINKLIJKE PHILIPS NV	Health Care	EUR
KONINKLIJKE VOPAK NV	Energy	EUR
KUEHNE UND NAGEL INTERNATIONAL AG	Industrials	CHF
LAND SECURITIES GROUP REIT PLC	Real Estate	GBP
LANXESS AG	Materials	EUR
LEG IMMOBILIEN N AG	Real Estate	EUR
LEGAL AND GENERAL GROUP PLC	Financials	GBP
LEGRAND SA	Industrials	EUR
LEONARDO FINMECCANICA SPA	Industrials	EUR
LLOYDS BANKING GROUP PLC	Financials	GBP
LONDON STOCK EXCHANGE GROUP PLC	Financials	GBP
LONZA GROUP AG	Health Care	CHF
LOOMIS	Industrials	SEK

Name	Sector	Currency
LOREAL SA	Consumer Staples	EUR
LPP SA	Consumer Discretionary	PLN
LUNDBERGFORETAGEN CLASS B	Financials	SEK
LUNDIN PETROLEUM	Energy	SEK
LVMH	Consumer Discretionary	EUR
MAN GROUP PLC	Financials	GBP
MAPFRE SA	Financials	EUR
MARKS AND SPENCER GROUP PLC	Consumer Discretionary	GBP
MEDIOBANCA BANCA DI CREDITO FINANZ	Financials	EUR
MEGGITT PLC	Industrials	GBP
MELROSE INDUSTRIES PLC	Industrials	GBP
MERCK	Health Care	EUR
MERLIN PROPERTIES REIT SA	Real Estate	EUR
METRO AG	Consumer Staples	EUR
MICHELIN	Consumer Discretionary	EUR
MONCLER	Consumer Discretionary	EUR
MONDI PLC	Materials	GBP
MONEYSUPERMARKET.COM GROUP PLC	Consumer Discretionary	GBP
MORPHOSYS AG	Health Care	EUR
MORRISON(WM.)SUPERMARKETS PLC	Consumer Staples	GBP
MOWI	Consumer Staples	NOK
MTU AERO ENGINES HOLDING AG	Industrials	EUR
MUENCHENER RUECKVERSICHERUNGS-GESE	Financials	EUR
NATIONAL GRID PLC	Utilities	GBP
NATIXIS SA	Financials	EUR

Name	Sector	Currency
NATURGY ENERGY SA	Utilities	EUR
NEMETSCHEK	Information Technology	EUR
NESTE	Energy	EUR
NESTLE SA	Consumer Staples	CHF
NETWORK INTERNATIONAL HOLDINGS PLC	Information Technology	GBP
NEXI	Information Technology	EUR
NEXT PLC	Consumer Discretionary	GBP
NIBE INDUSTRIER CLASS B	Industrials	SEK
NN GROUP NV	Financials	EUR
NOKIA	Information Technology	EUR
NOKIAN RENKAAT	Consumer Discretionary	EUR
NORDEA BANK	Financials	SEK
NORSK HYDRO	Materials	NOK
NOVO NORDISK CLASS B	Health Care	DKK
NOVOZYMES B	Materials	DKK
OCADO GROUP PLC	Consumer Discretionary	GBP
ORANGE SA	Communication	EUR
ORION CORP CLASS B	Health Care	EUR
ORKLA	Consumer Staples	NOK
ORPEA SA	Health Care	EUR
ORSTED	Utilities	DKK
OSRAM LICHT N AG	Industrials	EUR
PANDORA	Consumer Discretionary	DKK
PARGESA HOLDING SA	Financials	CHF
PARTNERS GROUP HOLDING AG	Financials	CHF

Name	Sector	Currency
PEARSON PLC	Communication	GBP
PENNON GROUP PLC	Utilities	GBP
PERNOD RICARD SA	Consumer Staples	EUR
PERSIMMON PLC	Consumer Discretionary	GBP
PEUGEOT SA	Consumer Discretionary	EUR
PHOENIX GROUP HOLDINGS PLC	Financials	GBP
POLSKI KONCERN NAFTOWY ORLEN SA	Energy	PLN
POLYMETAL INTERNATIONAL PLC	Materials	GBP
POSTE ITALIANE	Financials	EUR
POWSZECHNA KASA OSZCZEDNOSCI BANK	Financials	PLN
PROSIEBEN SAT.1 MEDIA N	Communication	EUR
PRUDENTIAL PLC	Financials	GBP
PRYSMIAN	Industrials	EUR
PSP SWISS PROPERTY AG	Real Estate	CHF
PUBLICIS GROUPE SA	Communication	EUR
PUMA	Consumer Discretionary	EUR
PZU SA	Financials	PLN
QIAGEN NV	Health Care	EUR
QUILTER PLC	Financials	GBP
RAIFFEISEN BANK INTERNATIONAL AG	Financials	EUR
RANDSTAD HOLDING	Industrials	EUR
RATIONAL AG	Industrials	EUR
RECKITT BENCKISER GROUP PLC	Consumer Staples	GBP
RED ELECTRICA SA	Utilities	EUR
REDROW PLC	Consumer Discretionary	GBP

Name	Sector	Currency
RELX PLC	Industrials	GBP
REMY COINTREAU SA	Consumer Staples	EUR
RENAULT SA	Consumer Discretionary	EUR
RENTOKIL INITIAL PLC	Industrials	GBP
REPSOL SA	Energy	EUR
REXEL SA	Industrials	EUR
RHEINMETALL AG	Industrials	EUR
RIGHTMOVE PLC	Communication	GBP
RIO TINTO PLC	Materials	GBP
ROCHE HOLDING PAR AG	Health Care	CHF
ROLLS-ROYCE HOLDINGS PLC	Industrials	GBP
ROYAL BANK OF SCOTLAND GROUP PLC	Financials	GBP
ROYAL MAIL PLC	Industrials	GBP
ROYAL UNIBREW	Consumer Staples	DKK
RSA INSURANCE GROUP PLC	Financials	GBP
RUBIS	Utilities	EUR
RYANAIR HOLDINGS PLC	Industrials	EUR
SAAB B	Industrials	SEK
SAFRAN SA	Industrials	EUR
SAGE GROUP PLC	Information Technology	GBP
SAINSBURY(J) PLC	Consumer Staples	GBP
SALMAR	Consumer Staples	NOK
SAMHALLSBYGGNADSBOLAGET I NORDEN C	Real Estate	SEK
SAMPO	Financials	EUR
SANDVIK	Industrials	SEK

Name	Sector	Currency
SANOFI SA	Health Care	EUR
SANTANDER BANK POLSKA SA	Financials	PLN
SAP	Information Technology	EUR
SARTORIUS PREF AG	Health Care	EUR
SARTORIUS STEDIM BIOTECH SA	Health Care	EUR
SBM OFFSHORE NV	Energy	EUR
SCHINDLER HOLDING PAR AG	Industrials	CHF
SCHNEIDER ELECTRIC	Industrials	EUR
SCHRODERS PLC	Financials	GBP
SCOR	Financials	EUR
SEB SA	Consumer Discretionary	EUR
SECURITAS B	Industrials	SEK
SEGRO REIT PLC	Real Estate	GBP
SGS SA	Industrials	CHF
SIEMENS GAMESA RENEWABLE ENERGY SA	Industrials	EUR
SIEMENS HEALTHINEERS AG	Health Care	EUR
SIEMENS N AG	Industrials	EUR
SIGNATURE AVIATION PLC	Industrials	GBP
SIGNIFY NV	Industrials	EUR
SIKA AG	Materials	CHF
SIMCORP	Information Technology	DKK
SKANDINAVISKA ENSKILDA BANKEN	Financials	SEK
SKANSKA AB	Industrials	SEK
SKF B	Industrials	SEK
SMITH (DS) PLC	Materials	GBP

Name	Sector	Currency
SMITH AND NEPHEW PLC	Health Care	GBP
SMITHS GROUP PLC	Industrials	GBP
SMURFIT KAPPA GROUP PLC	Materials	EUR
SNAM	Utilities	EUR
SOCIETE GENERALE SA	Financials	EUR
SODEXO SA	Consumer Discretionary	EUR
SOFINA SA	Financials	EUR
SOLVAY SA	Materials	EUR
SONOVA HOLDING AG	Health Care	CHF
SOPRA STERIA GROUP	Information Technology	EUR
SPECTRIS PLC	Information Technology	GBP
SPIE SA	Industrials	EUR
SPIRAX-SARCO ENGINEERING PLC	Industrials	GBP
SSE PLC	Utilities	GBP
SSP GROUP PLC	Consumer Discretionary	GBP
ST JAMESS PLACE PLC	Financials	GBP
STANDARD CHARTERED PLC	Financials	GBP
STMICROELECTRONICS NV	Information Technology	EUR
STORA ENSO CLASS R	Materials	EUR
STOREBRAND	Financials	NOK
STRAUMANN HOLDING AG	Health Care	CHF
SUBSEA SA	Energy	NOK
SUEZ SA	Utilities	EUR
SUNRISE COMMUNICATIONS GROUP AG	Communication	CHF
SVENSKA CELLULOSA B	Materials	SEK

Name	Sector	Currency
SVENSKA HANDELSBANKEN-A SHS	Financials	SEK
SWEDBANK	Financials	SEK
SWEDISH MATCH	Consumer Staples	SEK
SWEDISH ORPHAN BIOVITRUM	Health Care	SEK
SWISSCOM AG	Communication	CHF
SYMRISE AG	Materials	EUR
TAG IMMOBILIEN AG	Real Estate	EUR
TATE AND LYLE PLC	Consumer Staples	GBP
TAYLOR WIMPEY PLC	Consumer Discretionary	GBP
TECAN GROUP AG	Health Care	CHF
TECHNIPFMC PLC	Energy	EUR
TELE2 B	Communication	SEK
TELECOM ITALIA	Communication	EUR
TELEFONICA DEUTSCHLAND HOLDING AG	Communication	EUR
TELEFONICA SA	Communication	EUR
TELENOR	Communication	NOK
TELEPERFORMANCE	Industrials	EUR
TELIA COMPANY	Communication	SEK
TEMENOS AG	Information Technology	CHF
TENARIS SA	Energy	EUR
TERNA RETE ELETTRICA NAZIONALE	Utilities	EUR
TESCO PLC	Consumer Staples	GBP
TGS NOPEC GEOPHYSICAL	Energy	NOK
THALES SA	Industrials	EUR
THYSSENKRUPP AG	Materials	EUR

Name	Sector	Currency
TOMRA SYSTEMS	Industrials	NOK
TOPDANMARK	Financials	DKK
TOTAL SA	Energy	EUR
TP ICAP PLC	Financials	GBP
TRAVIS PERKINS PLC	Industrials	GBP
TRELLEBORG B	Industrials	SEK
TRITAX BIG BOX REIT PLC	Real Estate	GBP
TRYG	Financials	DKK
TUI AG	Consumer Discretionary	GBP
UBISOFT ENTERTAINMENT SA CAT A	Communication	EUR
UCB SA	Health Care	EUR
UDG HEALTHCARE COMPANY	Health Care	GBP
UMICORE SA	Materials	EUR
UNIBAIL RODAMCO WE STAPLED UNITS	Real Estate	EUR
UNICREDIT	Financials	EUR
UNILEVER NV	Consumer Staples	EUR
UNILEVER PLC	Consumer Staples	GBP
UNIONE DI BANCHE ITALIANE	Financials	EUR
UNIPER	Utilities	EUR
UNITE GROUP PLC	Real Estate	GBP
UNITED INTERNET AG	Communication	EUR
UNITED UTILITIES GROUP PLC	Utilities	GBP
UPM-KYMMENE	Materials	EUR
VALEO SA	Consumer Discretionary	EUR
VALMET	Industrials	EUR

Name	Sector	Currency
VAT GROUP AG	Industrials	CHF
VEOLIA ENVIRON. SA	Utilities	EUR
VERBUND AG	Utilities	EUR
VESTAS WIND SYSTEMS	Industrials	DKK
VICTREX PLC	Materials	GBP
VIFOR PHARMA AG	Health Care	CHF
VINCI SA	Industrials	EUR
VIRGIN MONEY UK PLC	Financials	GBP
VISTRY GROUP PLC	Consumer Discretionary	GBP
VIVENDI SA	Communication	EUR
VODAFONE GROUP PLC	Communication	GBP
VOESTALPINE AG	Materials	EUR
VOLVO CLASS B	Industrials	SEK
VONOVIA SE	Real Estate	EUR
WAREHOUSES DE PAUW REIT	Real Estate	EUR
WARTSILA	Industrials	EUR
WHITBREAD PLC	Consumer Discretionary	GBP
WIENERBERGER AG	Materials	EUR
WIRECARD AG	Information Technology	EUR
WOLTERS KLUWER NV	Industrials	EUR
WOOD GROUP (JOHN) PLC	Energy	GBP
WORLDLINE SA	Information Technology	EUR
WPP PLC	Communication	GBP
YARA INTERNATIONAL	Materials	NOK
ZALANDO	Consumer Discretionary	EUR