

The effect of IFRS 16 on the attitude of sophisticated and unsophisticated lenders towards loan contracting

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Abstract

This research describes the effect of IFRS 16 on the attitude of sophisticated lenders towards loan contracting. The goal of IFRS 16 was to enhance reporting quality and provide a more faithful representation of the financial statements. Data from 3,955 firms using IFRS and 1,433 using US GAAP were analyzed. Firms reporting under IFRS obtained larger loan sizes, although the difference with firms reporting under US GAAP is insignificant. They also received lower borrowing rates, and shorter maturities. IFRS 16 has a reinforcing effect towards loan contracting for sophisticated lenders, defined as banks, for the borrowing rate and maturities. For loan size, IFRS 16 has a reinforcing effect for unsophisticated lenders, defined as trade creditors.

Relevance to practice

Companies can use the outcomes of this research to better understand the rule, but also when applying for or extending a loan to understand what lenders consider in their decisions. For lenders, this can be helpful to better understand how they can interpret this change in the financial statements.

Keywords

IFRS 16, loan contacting, borrowing rate, loan size, maturity

1. Introduction

In 2016 the International Accounting Standards Board (IASB) introduced a new standard about leases (IFRS 16), and as of the 1st of January 2019, companies using IFRS are obliged to apply this new standard. This new lease standard significantly changed how companies reported their P&L and balance sheet leases. Before adopting IFRS 16, companies had a lot of off-balance sheet leases. For companies making extensive use of leases, for example airlines, this new rule made their financial statements utterly different since they have to capitalise their leases on the balance sheet as Right-of-Use assets and simultaneously provide for a Right-of-Use lease liability. The IASB introduced this new standard to improve reporting quality and research has shown that this has improved the quality and gives a more faithful representation of financial statements (KPMG 2021).

The change in representation can have various economic consequences. For example, Kim et al. (2011) have shown that there was a shift in loan contracting when IFRS was first introduced. Firms that were voluntary adopters of IFRS were charged lower loan rates from lenders than those that did not. The voluntary adopters were also subject to less restrictive covenants in their loan contracts than non-adopters. To see how users might react to a new standard, the IASB releases an exposure draft, a pre-release of a possible new standard to get feedback from its users. After the exposure draft for IFRS 16, research from Chamber et al. (2015) has shown that initial recognition of leased assets and liabilities on the balance sheet increases multiple ratios, such as your EBITDA, debt ratios and interest expenses, while your net income decreases, also called the front-loading ef-

fect (The Footnotes analyst 2023). This can cause a ripple effect on stakeholders and lead to perceived higher credit risk. Credit risk is the risk that a company cannot repay its debts, and therefore assessing the credit risk is a critical part of a lender's business (Milton and Genevieve 2019). Something else to bear in mind is that banks do not per se bear all the credit risks themselves, since many larger corporate loans do not end up on their balance sheet but are instead sold to institutional investors. So banks do evaluate credit risk, but do not carry this risk by themselves only in some cases (Ivashina and Sun 2011). Nevertheless, the shift in reporting leases has many lessees concerned about a negative impact on their ratios, financial statements and their ability to receive loans in the future (IASB and FASB 2013).

Traditionally lenders look at the financial ratios of a company. With many capitalised leases on the balance sheet, these ratios have changed significantly, especially for companies with many leases. For sophisticated lenders, companies tend to adjust their financial statements to pre-IFRS 16 statements to make it comparable for lenders to previous years. They generally have more information to base their lending decisions on and are therefore expected to respond less to IFRS 16. Besides that, IFRS 16 might even have a reinforcing effect on the loan contracting of sophisticated lenders because it provides more transparency and reliability. For unsophisticated lenders, IFRS 16 also provides more transparency in the numbers reported by companies. Still, they must base their decisions on what is publicly available and therefore have a disadvantage compared to sophisticated lenders.

To research if and how the attitude of lenders changed, a difference-in-difference analysis has been conducted, where the intervention group is IFRS users and the control group is US GAAP users. The intervention in this research is the new IFRS 16 standard on leases in 2019. Three years have passed since the implementation of IFRS 16, so the time horizon of this research is six years (three years post and pre). The difference in difference analysis looks at a group that is treated, in this case, the group where the new standard for leases was introduced and a group that is untreated, in this case, US GAAP users. The eventual goal of a difference in difference analysis is to look at the change in the treatment group compared to the control group (i.e., how much change there would have been expected in the IFRS group if no new lease standard was introduced). The additional change in the IFRS group can then be interpreted as the effect of the new lease standard (Huntington-Klein 2022).

Companies reporting under IFRS 16 are given larger loan sizes, but there is no statistically significant difference between companies reporting under IFRS 16 and those that do not. Companies reporting under IFRS were given shorter maturities after the implementation of IFRS 16. This might affect companies cashflow planning but most of all their financial flexibility. Companies must adapt their financial strategies by considering the potential implications this has on their operations. I also found that companies were given lower borrowing rates when applying IFRS 16. The lenders risk perception has changed, resulting in lower borrowing rates and, thus more favour-

able contract terms for companies reporting under IFRS. Companies subject to lower borrowing rates can potentially reduce their borrowing costs, thereby improving their financial performance and access to capital in the future.

Furthermore, I looked at the effect IFRS 16 has on the loan contracting of sophisticated lenders. The results show that IFRS 16 has a reinforcing effect on loan contracting for sophisticated lenders. When sophisticated lenders gave out loans, companies reporting under IFRS 16 were given longer maturities and even lower borrowing rates.

Some limitations to this research include the impossibility of using the Dealscan database, which entails detailed information on loan contracting, such as lender types and restrictive contract covenants. Another limitation is the COVID-19 pandemic which might have biased the results.

2. Theoretical framework and hypothesis development

2.1. Theory

The International Accounting Standard 17 (IAS 17) was introduced in 1992. It required both the legal owner of the asset (lessor) and the user of the asset (lessee) to make a distinction between an operating or a finance lease (IASB 2001). However, IAS 17 did not clearly define how to classify a lease as financial, resulting in most leases being classified as operating. This difference in classification was clear, but the difference between the accounting for finance and operating lease was material and significant. For example, for an operating lease, it was not required to raise a lease asset and a liability on the balance sheet, resulting in the accounting of operating leases being off-balance (Goodacre 2003).

In 2016 the International Accounting Standards Board (IASB) issued a new standard for leasing, and as of the financial year 2019, companies were obliged to report under International Financial Reporting Standards (IFRS) 16. To ensure that leases were no longer off-balance sheet, IFRS 16 requires the companies to treat all leases as finance leases. Companies are now required to recognise a Right of Use (ROU) asset with a corresponding liability on their balance sheet for all their leases (Milton and Genevieve 2019). The IASB introduced IFRS 16 to improve reporting quality and give a more faithful representation of financial statements (KPMG 2021). Even though IFRS 16 does give a more faithful representation of the financial statements, the financial ratios have changed drastically. As mentioned, the airline industry had significant changes in its financial statements due to IFRS 16. If you look at Air France, the national airline of France, their EBITDA has increased by 29.2% (2017: 3.264 million, 2018: 4.217 million). 2017 was chosen because Air France was an early adopter of IFRS 16 and had been reporting under IFRS 16 since 2018 (Air France-KLM Group 2017; 2018). Air France-KLM Group (2018) found that the implementation of IFRS 16 had implications for the opening and ending balance "especially in the Right-of-Use assets

and the lease debts” (p.17). Besides EBITDA, other ratios have also changed drastically, and this is a concern to many organisations because financial ratios measure an entity’s performance and creditworthiness. This change in ratios can significantly impact the decision potential investors might make (Altamuro et al. 2014).

2.2. Terms of loans

Bank loans include, besides a price term, also a non-price term. Items like loan size, maturity or restrictive covenants are terms that lenders use to consider whether or not to give out a loan and what the terms of the loan are. Lenders also use these terms in loan contracts to extenuate potential agency conflicts and information problems. Lenders control their exposure to risk by reducing loan size and shortening loan maturity (Kim et al. 2011). Chen et al. (2015) found that companies adopting IFRS are given longer maturities and loan sizes. Kim et al. (2011) and Ball et al. (2015) also found evidence that adopting IFRS reduced the uncertainty of information asymmetry between lenders and borrowers. IFRS 16 is designed to give an even more faithful representation and reduces this information asymmetry probably even more. This could imply that companies reporting under IFRS 16 are given larger loan sizes and longer maturities since there is less information asymmetry and more transparency.

Another expectation that is derived from Kim et al. (2011) is that the cost of external financing is reduced by high-quality information. Lenders view the adoption of IFRS as a commitment to better reporting strategies and are, therefore, more eager to offer favourable contracts to lessees. However, Milton and Genevieve (2019) concluded that IFRS 16 users are generally considered less creditworthy and less inclined to get loans with a favourable borrowing rate. However, as research from Altamuro et al. (2014) showed, lenders generally do not base their decisions on the financial statements or ratios alone and therefore, this research predicts the following relationship regarding (non-)price terms of loan contracts:

H1: Companies reporting under IFRS 16 are given larger loan sizes

H2: Companies reporting under IFRS 16 are given longer loan maturities

H3: Companies reporting under IFRS 16 are given lower borrowing rates

2.3. Sophisticated vs unsophisticated lenders

People with diverse access to financial resources have various capacities for acquiring and processing information when knowledge about financial assets is costly to analyse. Sophisticated lenders generally have more information available and are expected not to experience differences from the new accounting standard for IFRS 16. Determining when lenders are classified as sophisticated or unsophisticated is also essential. Research from Che (2018) showed that informed investors are usually insti-

tutional investors. This could lead to a conclusion that institutional investors are sophisticated lenders since research from Kacperczyk (2014) showed that sophisticated lenders are usually better informed than unsophisticated lenders. Examples of institutional and thus sophisticated lenders are banks, trust companies, saving institutions, insurance companies or pension funds (Law Insider n.d.).

The research from Du and Palia (2018) stated that banks generally give out more long-term debt. This leads to the assumption that banks are sophisticated lenders and give out long-term debt. Trade creditors, however, give out more ‘public’ debt because they have an information asymmetry problem. Therefore, Bontempi et al. (2020) found that trade creditors give out short-term debt, resulting in the assumption that unsophisticated lenders, with more information asymmetry, resemble trade creditors more and give out short-term debt.

Sophisticated lenders can request additional information from the lessee, such as a separate P&L of the balance sheet, which eliminates the differences that occurred due to a change in accounting standards. This could mean that they can base their decisions regarding the loans on this additional, usually voluntarily, disclosed information. Unsophisticated lenders have less information and base their decisions on what is available publicly (Bandara and Falta 2021; Barber et al. 2009; Grinblatt and Keloharju 2000). In this research, sophisticated lenders are classified as banks and unsophisticated lenders are classified as trade creditors. The change in accounting standard is expected to be less impactful for sophisticated lenders than for unsophisticated lenders. Therefore, in this research, the following relationship is predicted and tested:

H4: IFRS 16 has a reinforcing effect on loan contracting for sophisticated lenders

3. Research design

3.1. Regression equation

$$Y_1 = \beta_0 + \beta_1 \text{IFRS}_i \times \text{AFTER}_t + \beta_2 \text{IFRS}_i + \beta_3 \text{AFTER}_t + \beta_4 \text{ROA}_{i,t} + \beta_5 \text{LEV}_{i,t} + \beta_6 \text{SIZE}_{i,t} + \beta_7 \text{Curr_ratio}_{i,t} + \beta_8 \text{Big4}_{i,t} + f_i + \delta_{i,t} + \varepsilon_{i,t}$$

$$Y_2 = \beta_0 + \beta_1 \text{IFRS}_i \times \text{AFTER}_t \times \text{Sop_lender}_i + \beta_2 \text{IFRS}_i \times \text{AFTER}_t + \beta_3 \text{IFRS}_i \times \text{Sop_lender}_i + \beta_4 \text{Sop_lender}_i \times \text{AFTER}_t + \beta_5 \text{IFRS}_i + \beta_6 \text{AFTER}_t + \beta_7 \text{Sop_lender}_i + \beta_8 \text{ROA}_{i,t} + \beta_9 \text{LEV}_{i,t} + \beta_{10} \text{SIZE}_{i,t} + \beta_{11} \text{Curr_ratio}_{i,t} + \beta_{12} \text{Big4}_{i,t} + f_i + \delta_{i,t} + \varepsilon_{i,t}$$

In Y_1 hypotheses 1, 2 and 3 are tested using the difference-in-difference method. Y is equal to the dependent variables Maturity, LoanSize and Borr_rate tested in the first three hypotheses. The coefficient on IFRS_i measures the effect of the dependent variable (Y) being a company reporting under IFRS. The coefficient on AFTER_t measures whether there are changes in Y before 2019 and after. The most important effect to measure is the IFRS_i

$\times \text{AFTER}_t$, which measures the effect of the change in 2019 for companies reporting under IFRS on Y .

In Y_2 hypothesis 4 is tested using a difference-in-difference method with a triple interaction. Y is equal to the dependent variables Maturity, LoanSize and Borr_rate which are also tested in the first three hypotheses. However, now the variable Sop_lender_i is added as a moderating variable, creating the triple interaction of $\text{IFRS}_i \times \text{AFTER}_t \times \text{Sop_lender}_i$. With this triple interaction, the effect of the change in lease standard in 2019 for companies reporting under IFRS on Y is tested, and the effect the Sop_lender has on that is added as a moderating variable.

Both regression equations include firm-fixed effects (f_{it}), which account for unidentified firm-level time-invariant heterogeneity (Vanhaverbeke et al. 2022).

3.2. Variables

To test H1 and H2, two nonprice terms of loan contracts will be used based on the research of Kim et al. (2011) and Chen et al. (2015). The first variable is the logarithm of the amount of a loan, calculated as the short-term debt plus the long-term debt, and is defined as LoanSize. The second variable used to test this hypothesis is Maturity. Maturity is the difference in months between the original loan date and the maturity date.

To test H3, the variable Borr_rate is used. The Borr_rate is calculated as the average interest rate lenders charge throughout a year with multiple loans (Degryse et al. 2016). Borr_rate reflects a loan's perceived level of risk, also called credit risk. This rate is set up by lenders based on knowledge of the business's nature and performance (Kim et al. 2011).

To test H4, all variables from H1, H2 and H3 are used, but the type of lender is added as a moderating variable. When looking at the type of lender, you can look at sophisticated and unsophisticated lenders. Bontempi et al. (2020) found that banks give out long-term debt, and trade creditors give out short-term debt. Therefore, the short-term and long-term debt to total-debt ratio is used to research the difference between sophisticated and unsophisticated lenders.

Besides these hypothesis-specific variables, some control variables will be used. These control variables were established similarly to Kim et al. (2011). The first control variable is Return on Assets (ROA), defined as the net income divided by total assets. The second control variable is Leverage (LEV) which represents the leverage calculated as the total debt divided by total assets. These control variables have been added to control for credit quality based on the research of Kim et al. (2011). Another control variable added is the firm size, calculated as the natural logarithm of total assets (Financial research data services 2021; Byard et al. 2011; Kim et al. 2011). Based on Chen et al. (2015), the control variable Curr_ratio is added and is calculated as the current assets divided by the current liabilities. To control for cross-firm differences in the environment, the control variable Big4 will be included, which equals one for firms audited by Big4 firms and zero otherwise.

Borr_rate and Maturity can be calculated and are available in the CAPITAL IQ – Capital structure debt database.

LoanSize and the distinction between sophisticated lenders and unsophisticated lenders can be calculated using the Compustat Global – Fundamental annual database. The databases will be merged using the GVKEY, a company-specific code available in both databases. The control group will be divided from the treated group by a variable available in the Compustat Global database and states the accounting standard used by that company. A dummy variable can then be created where one is for companies using IFRS and zero for companies using US GAAP. All variables are displayed in USD for convenience since most variables are already in USD when extracted from the database.

Table 1. Variable definition.

Variables	Definition	Database
<i>LoanSize</i>	Logarithm of loan amount calculated as short-term + long-term debt	Compustat Global
<i>Borr_rate</i>	Interest rate charged by lenders (in %)	Capital IQ
<i>Maturity</i>	Δ in months between the original loan date and the maturity date	Capital IQ
<i>Sop_lender</i>	Ratio of long-term debt to total debt	Compustat Global
<i>Unsup_lender</i>	Ratio of short-term debt to total debt	Compustat Global
<i>ROA</i>	Net income divided by total assets	Compustat Global
<i>LEV</i>	Total debt divided by total assets	Compustat Global
<i>SIZE</i>	Logarithm of total assets	Compustat Global
<i>Curr_ratio</i>	Current assets divided by current liabilities	Compustat Global
<i>Big4</i>	1 if audited by Big4 firm, zero otherwise	Compustat Global
<i>IFRS</i>	1 for companies using IFRS, zero otherwise	Compustat Global
<i>AFTER</i>	1 if observation is after 2019, zero otherwise	Compustat Global

3.3. Method

A Difference-in-Difference analysis will be conducted to test the hypothesis outlined in this research. The difference-in-difference analysis can be used to research if and how lenders' attitudes have changed after the introduction of IFRS 16. With a difference-in-difference analysis, it is easy to compare a treated group with an untreated group and get the effect of an event on the groups (Huntington-Klein 2022; Columbia public health 2023). In this research, the treated group are IFRS users since they changed their accounting. Since IFRS 16 is mandatory for all firms reporting under IFRS, it weakens potential self-selection or endogeneity concerns. Besides IFRS being mandatory for many firms, it is also broadly adopted, which ensures that there is a sample of companies worldwide, allowing a cross-sectional analysis (Chen et al. 2015). The intervention point will be the date IFRS users were obliged to report under the new leasing standard, IFRS 16. The time horizon for this research is three years pre- and post-intervention point, meaning data will be used from 1 January 2016 until 31 December 2021.

The untreated group, or control group, are US GAAP users. Since US GAAP users did not change their lease accounting, they mitigate potential confounding factors, such as economic conditions, and are an excellent control group in this research. The eventual result from the difference-in-difference analysis will tell the effect of the

new lease standard by looking at the change in the control group and, thus, how much change is expected in the IFRS group if there had not been a new standard. The additional change post-implementation is then contributed to IFRS 16 and will tell us something about the effect of IFRS 16 on the attitude of sophisticated and unsophisticated lenders towards loan contracting (Huntington-Klein 2022).

4. Results

4.1. Preliminary analysis

In line with the research of Chen et al. (2015), all missing values for the accounting variables are removed. In line with the research of Altamuro et al. (2014), I remove financial firms (SIC codes between 6000 and 6999) because the credit assessment for industrial firms differs from the credit assessment for financial firms. In line with the research from Kim et al. (2011), I also remove firms in the public sector (SIC codes between 9100 and 9999). Besides that, firm-year observations with a negative maturity are removed since they have already elapsed, or the data might be incorrect and unreliable. Another essential aspect to consider is that every firm has observations for all six years of the time horizon. Therefore, firms that only have an observation in some of the six years of the time horizon have been removed. This also removes firms that have observations in 2015 or 2022.

To distinguish between IFRS and US GAAP, all rows that do not report using either US GAAP or IFRS are removed. Firms listed on the US stock exchange must report under US GAAP (Financial Accounting Foundation, n.d.), so I looked at which stock exchange the firms were listed for the Compustat databases and added them to the control group if they were listed on the US stock exchange. This left 23.733 firm-year observations of IFRS users and 8.600 firm-year observations of US GAAP users. Lastly, I winsorize all variables at 1 and 99% to normalize the sample.

4.2. Descriptive statistics

After the data is collected and cleaned, the data is analysed. Table 2 gives the descriptive statistics for the full

sample, the sample with solely IFRS users and the sample with solely US GAAP users. One crucial remark can be made about descriptive statistics. The difference mean of Maturity in the US GAAP group is greater by almost 40 months compared to the IFRS users group and the entire sample group.

4.3. Empirical results

H1: Companies reporting under IFRS 16 are given larger loan sizes

To test hypothesis 1, I looked at whether there was a significant increase/decrease before and after the implementation of IFRS 16 for a loan's loan size. This was done using a Difference-in-difference analysis; the results can be found in Table 3. When fixed effects and control variables are added, the loan size increases, which is in line with the expectations set out in hypothesis 1. The control variables' Size, Current ratio and Leverage significantly affect the dependent variable. However, the results are not significant, and thus no conclusion can be drawn based on these models. Therefore, the null hypothesis is accepted since no significant change has occurred.

H2: Companies reporting under IFRS 16 are given longer loan maturities

For hypothesis 2 I looked at the Maturity that is given by lenders. The second hypothesis expected that there would be longer maturities because company reports would become more transparent and there would be less information asymmetry. As found by the regression reported in Table 3, the maturities of loans become significantly shorter after the adoption of IFRS 16 by 15.824 on average, at a level of $p < 0.001$. This is different from prior research, but what must be noted is that prior research was done on the adoption of IFRS rather than specifically on the adoption of IFRS 16. What can be concluded is that the second hypothesis must be rejected based on the significantly shorter maturities, so therefore H2 is rejected.

Table 2. Descriptive statistics.

Variables	DESCRIPTIVE STATISTICS											
	Full sample N: 32.333				IFRS users N: 23.733				US GAAP users N: 8.600			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
LoanSize	7.12	2.73	1.75	12.53	7.42	2.77	1.75	12.53	6.30	2.43	1.75	12.53
Borr_rate	4.31	2.07	0	8.22	4.12	2.17	0	8.22	4.82	1.68	0	8.22
Maturity	93.84	60.19	0	207.94	84.30	57.05	0	207.94	120.18	60.80	0.19	207.94
Sop_lender	0.61	0.33	0	1	0.52	0.32	0	1	0.85	0.22	0	1
Unsop_lender	0.39	0.33	0	1	0.48	0.32	0	1	0.15	0.22	0	1
ROA	0.02	0.05	-0.07	0.12	0.02	0.05	-0.07	0.12	0.02	0.06	-0.07	0.12
LEV	0.32	0.17	0	0.67	0.3	0.17	0	0.67	0.35	0.19	0	0.67
SIZE	8.47	2.54	3.44	13.32	8.81	2.59	3.44	13.32	7.53	2.14	3.44	13.32
Curr_ratio	1.56	0.73	0	2.86	1.51	0.69	0.02	2.86	1.7	0.80	0	2.68
Big4	0.63	0.48	0	1	0.58	0.49	0	1	0.76	0.42	0	1
IFRS	0.73	0.44	0	1	1	0	1	1	0	0	0	0
AFTER	0.5	0.5	0	1	0.5	0.5	0	1	0.5	0.5	0	1

H3: Companies reporting under IFRS 16 are given lower borrowing rates

To test the third hypothesis, the dependent variable Borrowing rate is used. As discussed in the methodology section, firms reporting under IFRS are expected to be given lower borrowing rates. When you look at the results as reported in Table 3, the model is significant and negative, concluding that firms reporting under IFRS are given lower borrowing rates than firms reporting under US GAAP after implementing IFRS 16. Research found that lenders are more likely to provide advantageous contracts to lessees because they consider the adoption of IFRS as a commitment to enhanced reporting strategies. It is expected that this also holds for the implementation of IFRS 16; therefore, a lower borrowing rate is in line with expectations from hypothesis 3, so the third hypothesis is accepted.

H4: IFRS 16 has a reinforcing effect on loan contracting for sophisticated lenders

In hypothesis 4, all variables from the first three hypotheses are tested. However, the sophisticated lender is added as a moderating variable to determine the effect of lender type towards the loan contracting after IFRS 16. This is done by adding a triple interaction to the Difference-in-Difference analysis. Compared to the regressions presented in Table 3, the results presented in Table 4 are similar except for the LoanSize. When you look at the IFRS × AFTER effect, it gives a positive value, but when the moderating variable, Sop_lender, is added, the triple interaction gives a negative value. This could imply that sophisticated lenders give out lower loan sizes after implementing IFRS 16, which is against the expectation.

When you look at the triple interaction term of the second dependent variable, borrowing rate, the outcome is

Table 3. Difference-in-difference results.

Difference-in-Difference analysis			
Model	LoanSize	Maturity	Borrowing rate
IFRS × AFTER	0.009 (0.007)	-15.824*** (0.788)	-0.137*** (0.017)
IFRS	-0.014 (0.108)	23.223+ -12,923	0.635* (0.287)
AFTER			
Big 4	0.009 (0.007)	5.279*** -1,251	-0.082** (0.028)
Size	0.997*** (0.006)	6.731*** (0.724)	-0.109*** (0.016)
Current ratio	-0.030*** (0.005)	6.155*** (0.542)	-0.070*** (0.012)
Leverage	3.759*** (0.021)	13.105*** -2,580	0.122* (0.057)
Return on Assets	-0.147** (0.046)	8,655 -5,500	-0.313* (0.122)
Industry FE	No	No	No
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	32,329	32,329	32,329
R-squared	0.992	0.776	0.907
Adjusted R-squared	0.991	0.731	0.889
RMSE	0.24	28.48	0.63

Notes: + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 4. Difference-in-difference results H4.

Difference-in-Difference analysis			
Model	LoanSize	Maturity	Borrowing rate
IFRS × AFTER × Sop_lender	-0.026 (0.029)	9.545** -3,483	-0.208** (0.078)
IFRS × Sop_lender	-0.103*** (0.026)	-4,739 -3,111	0.021 (0.070)
AFTER × Sop_lender	-0.012 (0.027)	18.533*** -3,221	-0.120+ (0.072)
IFRS × AFTER	0.013 (0.025)	-15.437*** -2,927	-0.064 (0.066)
IFRS	0.074 (0.109)	26.178* -12,984	0.635* (0.291)
AFTER			
Sophisticated lender	0.265*** (0.024)	10.034*** -2,837	0.073 (0.064)
Big 4	0.010 (0.010)	5.237*** -1,236	-0.080** (0.028)
Size	0.992*** (0.006)	5.748*** (0.717)	-0.103*** (0.016)
Current ratio	-0.064*** (0.005)	2.283*** (0.593)	-0.059*** (0.013)
Leverage	3.684*** (0.022)	1,878 -2,621	0.171** (0.059)
Return on Assets	-0.166*** (0.046)	9.062+ -5,438	-0.332** (0.122)
Industry FE	No	No	No
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	32,329	23,849	32,329
R-squared	0.993	0.781	0.908
Adjusted R-squared	0.991	0.738	0.889
RMSE	0.24	28.15	0.63

Notes: + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001.

still negative and significant when control variables are added. Generally, borrowing rates are lower for companies reporting under IFRS after 2019, and this effect is strengthened when looking at sophisticated lenders, which means that sophisticated lenders charge an even lower borrowing rate. This is in line with the expectations that the effect of IFRS 16 is reinforcing for sophisticated lenders.

The last dependent variable tested with the triple interaction term is Maturity, presented in Table 4. In hypothesis 2, the expectation was that maturity would become more extended since there would be more transparency and thus, banks could spread the risks, but hypothesis 2 was rejected because the maturity becomes shorter after implementing IFRS 16. However, what is remarkable is that when the triple interaction term is added and I adjusted for firm and year-fixed effects, the maturity becomes longer and significant by almost ten months. This could imply that for sophisticated lenders, the effect of IFRS 16 results in longer maturities after 2019 for IFRS users, and therefore the hypothesis is supported.

5. Discussion and concluding remarks

5.1. Discussion

The results of the regressions show some interesting findings. As predicted in hypothesis 1, implementing IFRS

16 could lead to larger loan sizes. However, these results were insignificant and not sufficient to support the first hypothesis and therefore the null hypothesis is accepted. In the second hypothesis I looked at the maturity which was significant but not in the expected direction, implying that IFRS users would have lower maturities after 2019. This is different from what has previously been found by Chen et al. (2015) and Kim et al. (2011). Both articles found that firms would get higher loan sizes and longer maturities after adopting IFRS. This is not the case when IFRS 16 is adopted, so the second hypothesis is rejected.

The third hypothesis expects that firms are subject to a lower borrowing rate when reporting under IFRS after the implementation of IFRS 16. Altamuro et al. (2014) and Kim et al. (2011) found that lenders view the adoption of IFRS as a commitment to better reporting strategies and are, therefore, more eager to offer favourable contracts to lessees. Lower borrowing rates are considered favourable, so it is expected that the implementation of IFRS 16 would lead to lower borrowing rates. IFRS users are charged lower borrowing rates after the implementation of IFRS 16.

For the fourth hypothesis, the moderating variable *Sop_lender* is added. The sophisticated lender is determined as banks since they have more information available and can base their decisions on additionally disclosed information (Bandara and Falta 2021; Barber et al. 2009). Therefore it is expected that IFRS 16 has a reinforcing effect on loan contracting. Based on the findings, the maturities are longer, and the borrowing rate is lower. This hypothesis only holds for these two variables because the loan size was reduced by sophisticated lenders. Since that result is not significant, the fourth hypothesis is still accepted.

5.2. Conclusion

One of the main objectives of the IASB when IFRS 16 was drawn up, was that it would give a more faithful representation of a company's financials. With that in mind, it was expected that there would be larger loan sizes, longer maturities and lower borrowing rates. The borrowing rate was lower after the implementation of IFRS 16 for firms reporting under IFRS. Companies subject to lower borrowing rates can potentially reduce their borrowing costs, thereby improving their financial performance and access to capital in the future. The loan size was larger but insignificant, so no conclusion can be drawn on that aspect. Lastly, for maturity, it turned out that they became shorter after the adoption of IFRS 16. This might affect companies cash flow planning but most of all their financial flexibility. Companies must adapt their financial strategies by considering the potential implications this has on their operations. This was not expected based on the literature research and is different from the thought that a more faithful and transparent reporting rule would give more certainty to lenders and, therefore, would lengthen the term of a loan to spread risks.

What must be taken into account is that all dependent variables are related to each other and decisions about these loan terms are taken simultaneously at the time of loan origination. Therefore you could look at all these

components separate, but in the end one overall decision must be made. In this research the conclusion for loan contracting as a whole would be that IFRS 16 has a positive effect on loan contracting. This means that companies got more favourable contracts with lower borrowing rates, larger loan sizes and shorter maturities. Overall, it can be said that companies are given better contract terms then before the implementation of IFRS 16.

When the moderating variable *sophisticated lender* is added, the expectation is that IFRS 16 would have a reinforcing effect for sophisticated lenders, meaning even longer loan sizes, longer maturities and lower borrowing rates. What was immediately apparent was that in terms of loan size, the sophisticated lender did not give larger loan sizes but even lower loan amounts than unsophisticated lenders. For the borrowing rate, this was not the case. As expected, the borrowing rate that sophisticated lenders charged was lower than that of unsophisticated lenders; therefore, IFRS 16 has a reinforcing effect on sophisticated lenders. Lastly, I looked at the attitude the sophisticated lender has towards the maturity of a loan. With the regular regression, it turned out that IFRS 16 would lead to shorter maturities. However, when you look at the attitude of the sophisticated lenders, maturities were longer after the implementation of IFRS 16 for companies reporting under IFRS. Therefore it can also be concluded that IFRS 16 has a reinforcing effect on the attitude of sophisticated lenders when you look at borrowing rates and maturities.

The expectation was that lenders would have more trust in companies since their financial reports are showing their lease liabilities completely and therefore give a better overview of a company's financial situation which gives lenders a more faithful and complete picture. Unfortunately this was not directly shown from the results of this research, but even though the results did not indicate directly that IFRS 16 gives a more faithful representation resulting in more favourable loan contracting, there is still reason enough to believe that IFRS 16 has improved the reporting quality, since the financial statements now give a more complete overview of all the liabilities a company might have, and thus gives a more faithful representation of a company's debt position.

5.3. Limitations

This research also has some limitations. The main limitation was the reorganisation of the Thomson Reuters Dealscan database. This database generally contains more detailed information on loan contracting, such as lender types and restrictive contract covenants. However, this database was no longer helpful since many company-specific identifiers were mixed up or unavailable in the other databases used in this research. Another limitation of this research is that some firms are early adopters of IFRS 16. An early adopter reports under IFRS 16 before it is mandatory to use the standard. Unfortunately, this is not specified in the Compustat database; therefore, I could not make that distinction. The third limitation of this research is that COVID-19 might bias the results.

Since COVID-19 only happened in 2020, it only affects the period after it was mandatory to report using IFRS 16. Besides that, COVID-19 is a worldwide pandemic.

Therefore there is no control group available that did not undergo the effects of this pandemic, and therefore, I cannot control for this effect.

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Note

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