Empirical Paper

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Does the IFRS 16 affect the key ratios of listed companies? Evidence from Poland

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Abstract: The paper aims to assess the International Financial Reporting Standard (IFRS) 16 "Leases" impact on the lessees' financial situation. The study was conducted on the financial data for 2018–2019 of 494 companies listed on the Warsaw Stock Exchange using the difference-in-differences (DID) method. The hand-collected data on lease usage retrieved from the financial statements and the data for financial ratios obtained from the Orbis database were used. The research sample includes 308 preparers under IFRS and 186 entities applying accounting policies under the Polish Accounting Act. It is shown that the IFRS 16 implementation resulted in a significant increase in the debt-to-equity and debt-to-total assets ratios of lessees and a decrease in the profitability. We identified significant leverage increase in the trade and services sectors. The results confirm the conclusions of previous studies based on estimates, whose authors expected a significant differential effect of IFRS 16 implementation between industries.

Keywords: difference in differences, leverage, profitability, leasing
JEL Classification: M40, M41, M48

1 Introduction

Leasing is a popular source of financing as an alternative to a loan worldwide, including in Poland [Barone et al., 2014]. Leasing is easier to obtain and involves less-complicated creditworthiness analysis procedures than a loan, and it is cheaper or more cost-effective on closer analysis [Taylor, 2011; Jaszczuk et al., 2018].

In Poland, medium-sized and large companies more eagerly use capital leases than small firms. This is affected by tax regulations that are less restricted for small and micro-sized enterprises [Białek-Jaworska et al., 2014; Białek-Jaworska and Nehrebecka, 2016]. More long-term loan financing results in less capital leasing, which indicates the long-term bank loan and capital lease substitutability [Marston and Harris, 1988; Beattie et al., 2000; Singh, 2011; Lin et al., 2013]. Białek-Jaworska et al. [2014] confirm the substitutability of an operating lease and a short-term bank loan, similar to the reports by Beattie et al. [2000], Filareto-Deghaye and Severin [2007], and Singh [2011].

In 2019, the total financing of the Polish leasing industry amounted to PLN 77.8 billion, while the total value of the leasing industry's active portfolio increased by 9.4% year-on-year to 160.4 billion. The European Commission also confirmed that 63% of small and medium-sized Polish enterprises identified leasing in 2019 as an essential source of financing their activities [European Commission, 2019].

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Although a popular financial instrument, leasing raises controversies among regulators, preparers, users, and researchers [Mellado and Parte, 2017], who are concerned about its division into operating leases and finance (capital) leases. While the line between the two is blurred, the accounting methods differ significantly. The distinction between operating and capital leases has been made in International Accounting Standard (IAS) 17 [McGregor, 1996]. The different accounting treatment of leasing in accounting records and financial reporting affected the financial performance of companies, e.g., higher earnings before interest and taxes (EBIT) and earnings before interest, taxes, depreciation, and amortization (EBITDA) with capital lease financing [Imhoff et al., 1991]. The conclusion of the research conducted so far was unambiguous that the existence of two different ways of recognizing similar finance and operating leases affects the various dimensions of an entity's financial and asset position and adversely affects the comparability of financial statements. The answer to these dilemmas is the International Financial Reporting Standard (IFRS) 16, under which a contract is considered a lease "*if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration*" [International Accounting Standards Board [IASB], 2016a]. Hence, introducing IFRS 16 in 2019 marks the end of the distinction between operating leases and financial leases because the "right to use asset" and the "lease liability" will be carried into the balance sheet [Rey et al., 2020]. IFRS 16 allows for greater transparency and comparability of financial statements, but it is also a challenge for corporate finance managers in the context of reviewing existing leases. Furthermore, the new regulation creates an obligation to reflect the value of all leases in nonfinancial assets in the form of right-to-use assets and liabilities. Finally, the unification of the presentation of the off-balance-sheet (operating) and on-balance-sheet (financial) leases will also be noticeable in the cost structure [IFRS 16, 2016]. Although the IFRS 16 approach aims to help users' decision-making processes, preparers are concerned about its costs and consequences [Mellado and Parte, 2017].

The regulators' new view of leasing has prompted research to compare the financial position of companies when accounting for leasing under IAS 17 and IFRS 16. Researchers use a variety of calculation approaches, i.e., Imhoff's capitalization method, bankruptcy prediction models, or models based on the ordinary least squares method [Imhoff et al., 1991; Branswijck et al., 2011; Fitó et al., 2013; Öztürk and Serçemeli, 2016; Garvie et al., 2017].

The article aims to present the materiality of the impact of IFRS 16 on the assets and financial position shown in the financial statements, including on the financial ratios of lessees. The analysis covers financial data from the financial statements of 431 nonfinancial companies listed on the Warsaw Stock Exchange (WSE) for 2018 and 2019 (1 year before and after the implementation of IFRS 16). The study uses the difference-in-differences (DID) method, which minimizes the impact of time constant factors on the model.

Five research hypotheses were verified in the article. Four of them concern the significance of the impact of the introduction of IFRS 16 on selected financial ratios: return on sales (ROS), return on assets (ROA), return on equity (ROE), debt, and liquidity. In particular, we expect that companies listed on the WSE preparing their financial statements in 2018–2019 under IFRS would show a more significant change in financial ratios for 2019 (after the implementation of IFRS 16) compared to those for 2018 than companies preparing their statements following the Polish Accounting Act. Finally, the fifth hypothesis concerns the differential impact of IFRS 16 on the financial ratios between industries.

The study adds to the body of knowledge within national accounting research. There are a few national studies on the materiality of the influence of IFRS 16 on financial statements and lessees' financial ratios [Öztürk and Serçemeli, 2016; Tofanelo et al., 2021]. They are generally based on a small research sample. They do not take a holistic view of the subject matter undertaken (i.e., small number of metrics and failure to include the sector factor in the analysis) [Krawczak and Dyląg, 2018].

The results of the empirical study extend knowledge in the context of international studies assessing the effects of the implementation of IFRS 16–Leases on financial statements and financial measures. Previous foreign studies have covered different geographical areas, mainly well-developed countries (e.g., the USA, Spain, and Belgium; or the Netherlands, Germany, and the UK) [e.g., Branswijck et al., 2011; Garvie et al., 2017; Giner and Pardo, 2018] than Poland. Furthermore, a review of the articles shows that mainly companies from Anglo-Saxon and Western European countries have been analyzed [Barone et al., 2014; Wong and Joshi, 2015]. Consequently, our study complements the knowledge of the examined issues in the context of developing countries [Öztürk and Serçemeli, 2016; Tofanelo et al., 2021] or Central and Eastern Europe (CEE) countries [Białek-Jaworska et al., 2014].

The added value can also be seen in the DID method, which allows assessing the materiality of the IFRS 16's impact on selected financial ratios of lessees. The methods used by researchers in the literature have been based on data estimates rather than actual data. Our study is the first to use the DID method to analyze the effects of implementing IFRS 16, owing to the possibility of identifying a control sample of Polish companies that do not apply IFRS when preparing their financial statements. Furthermore, Poland provides unique conditions for this study due to the inability to use IFRS by companies that do not apply for admission of their securities to listing on a regulated market within the European Economic Area (EEA) or are not part of business groups listed on a stock exchange.

The article consists of four parts. The first one refers to the literature review describing the research showing the tendency of changes in 'financial statements of companies that so far have financed themselves with operating leases due to IFRS 16 coming into force. Moreover, it presents the results of empirical research conducted so far on an international scale assessing the impact of introducing a uniform way of accounting for leasing agreements on the image of financial and asset situation presented in the financial statements. The second part of the article presents hypotheses formulated based on the literature review and available results of empirical research. The third part describes the applied research methodology, and the fourth part presents the results of our own empirical research. Finally, the article ends with a summary.

2 Literature review

2.1 IFRS 16 and the financial position of the lessee

Although leasing is the most popular form of acquiring tangible assets regulated by the Civil Code, its dimension is essential for its accounting system. Leasing in the context of accounting was reflected in IAS 17. The regulation led to differentiation in accounting records due to the nature of leasing, i.e., operational and financial. However, this accounting model has been publicly criticized. Assets and liabilities resulting from leasing were not always recorded in the balance sheet [Mellado and Parte, 2017]. Only a few companies that wanted to show stakeholders the most accurate picture of their financial position chose to disclose the details of their leases in the notes to the financial statements. According to the estimates of the international institution IASB, >85% of leasing contracts in 2018 were recognized off balance sheets [Lloyd, 2016]. As a result, the existence of two significantly different ways of recording similar finance (capital) lease and operating lease transactions, or rather the lack thereof, affected adversely the comparability of financial statements. These arguments resulting from the progressive harmonization of accounting systems have become the basis for replacing IAS 17 with IFRS 16. It is stressed that IFRS 16 allows for greater transparency and comparability of financial statements, but it is also a challenge for corporate finance managers. This is because the regulation requires a review of all existing leases in a company. Under IFRS 16, the lessee is required to measure and recognize in the balance sheet the assets arising from the right to use it (or within the current position in which it would be realized if the entity owned it) and the liabilities arising from the lease. IFRS 16 requires a lessee to identify its lease obligations as a separate line item on its balance sheet and classify them as current and noncurrent. IFRS 19 introduces several other provisions relating to leases (e.g., initial recognition, measurement of assets and liabilities, and lease term) [Krawczak and Dyląg, 2018]. With the introduction of the new accounting standard, the value of assets would be expected to decrease faster than the value of lease liabilities. This would also result in a decrease in the equity shown on the balance sheet. Underlying this relationship is a different pattern of reduction of assets (usually straight line) from liabilities (contractual) [Săcărin, 2017].

The unification of leasing should be noticeable in the cost structure. Until 2019, corporate costs resulting from contracts that do not qualify as capital leases have been summarized only in operating expenses. Under IFRS 16, these costs will be split between depreciation and interest costs. This change will increase the company's EBITDA and EBIT. Other changes that may be seen in a company's financial position as a result of IFRS 16 relate to cash flows (e.g., an increase in cash flows from the company's operating activities and a decrease in cash flows from financing activities and tax reported in the income statement) [IFRS 16, 2016].

It is worth noting that European and US regulators were involved in harmonizing lease footnotes in the new IFRS 16. For example, the US Generally Accepted Accounting Principles (GAAP) (Accounting Standards Codification [ACS] Topic 842) includes the recognition of all leases on the balance sheet, but with minor exceptions (e.g., leaving the dual cost allocation model on a similar mechanism as under IAS 17) [Díaz and Zamora, 2018].

2.2 Impact of capitalization of operating leases on the financial position of lessees

The unification of the method of recording leases under IFRS 16 changes the financial position of the lessee, which at the time of the introduction of the new standard was a party to operating leases. Therefore, for companies publishing data on these contracts in the notes to the financial statements, it was possible to estimate the impact of the capitalization of off-balance-sheet leases on the companies' assets and financial position picture. This fact has been reflected in numerous international academic studies.

Garvie et al. [2017] examined the consequences of changes in leasing regulations by applying the so-called discriminant model, i.e., the Altman model based on financial ratios. The results showed that the implementation of IFRS 16 by the companies studied, compared to the previous regulations, decreases the Altman *Z*-score, i.e., increases the probability of bankruptcy due to the new accounting standard. On the other hand, Branswijck et al. [2011] considered the effect of industry, company size, and country in their model. Due to the local nature of the study, the industry variable was simplified into six categories, and the accounting culture variable was a dummy variable coding for Belgian or Dutch origin. This variable was introduced because the researchers wanted to verify the intensity of the new standard's impact on financial statements depending on the affiliation to the classification of European accounting systems. The researchers ran regressions on a sample of 31 Dutch and 35 Belgian companies. The Imhoff method was used to capitalize on operating leases. It was indicated that on average, the ROA remained constant; the leverage, as measured by the share of liabilities in equity, increased; while the current liquidity ratio decreased. Based on the results obtained, the industries where the change in the lease accounting model is the greatest were selected. These industries are telecommunications, transport, and retail. Larger companies are more likely to use operating lease financing. Therefore, the new lease accounting standard has, on average, a more significant impact on Dutch companies than on Belgian companies. Giner and Pardo [2018] verified the financial statements of Spanish-listed companies that published between 2008 and 2010 sufficient information about their operating leases in the notes (156 observations in total). The study also applied Imhoff's capitalization method. The results showed that the value of financial leverage was, on average, significantly higher than before capitalization, while the other indicators' levels were substantially lower on average.

Furthermore, it was assumed that there was a correlation between the size of the company and the sector it belonged to and the percentage change in financial ratios. The study results illustrated that belonging to the retail services sector is the significant variable, not the organization's size. A study on the subject under analysis, but with a broader scope, was conducted by Díaz and Zamora [2018]. Researchers examined the impact of adopting IFRS 16 on the balance sheet and financial ratios of companies listed on European markets and the dependence on the company's sector. The research sample consisted of 646 companies that reported operating lease expenses in their financial statements. The authors classified these companies into an industry according to the Global Industry Classification Standard (GICS). The study adopted asset growth, liability growth, and the share of lease expenses in total liabilities to measure the intensity of lease use. Therefore, it also measures the magnitude of the expected impact of the change in the lease accounting model.

In addition, the following ratios before and after the estimated capitalization of operating leases were taken into account: leverage on equity, leverage on assets, ROA, EBITDA coverage of finance costs, and an indicator of the relative volatility of the mentioned ratios. The researchers estimated that the surveyed companies' asset' value would increase by 10% on average and total liabilities by as much as 21.4% on average. The increase in liabilities indirectly increased leverage by an average of 32.1%. In the case of leverage calculated in relation to equity, the growth is lower and amounts on average to 9.3%. The average increase in ROA was 3.1%, and the ratio of EBITDA to debt decreased by an average of 13.6%. The average results obtained for the different industries are very different. This is since the popularity of leasing agreements varies depending on the industry. For example, some companies only use this type of financing to lease office equipment or a few company cars. At the same time, it is the basis for financing their operations for

other companies. The most pronounced variation occurs in the case of leverage on equity and ranges from a 2.6% increase for banks and insurance companies to a 94.7% increase for transport companies and a 99% increase for the hotel industry. According to the study, the industries with the most significant average changes in ratios are the hotel and transport industry, as well as retail, health care, and technology.

For the UK market, Beattie et al.'s [1998] study can be mentioned. The researchers reviewed the 1994 financial statements of 232 British public companies in the industrial and commercial sectors (randomly selected). The study results showed an average increase in debt-to-equity ratios and a decrease in the ROA ratio and the debt-to-total assets ratio.

In turn, Goodcare [2003] also indicated – among the 98 companies belonging to the retail sector listed on the UK stock exchange – the same correlations as those shown in the study by Beattie et al. [1998], with the changes being on average larger in this sector. Furthermore, the effect of lease capitalization on EBIT growth is highlighted.

The exact effects of changing the recognition of operating leases in the accounts of companies in the UK were observed by Fülbier et al. [2008], studying 90 German companies listed on *Deutsche Börse*. Additionally, they observed a decrease in the current ratio.

3 Research hypotheses

The analyses carried out by foreign and, to a lesser extent, domestic researchers on the topic and their results allowed the formulation of research hypotheses regarding the expected changes in individual balance sheet components and financial ratios.

Table 1 presents the financial ratios analyzed in the empirical study, their definitions, and the expected change based on the literature due to the entry into force of a uniform accounting method for leasing contracts. Based on the results of previous empirical research, it has been speculated that the application of IFRS 16 for the first time in 2019 by Polish companies using operating leases will significantly affect their financial and asset position, as shown in their financial statements. This mainly refers to the profitability, debt ratios, and liquidity ratios.

Table 1. Expected impact of IFRS 16 on selected financial indicators

Indicator		Formula	Expected change
ROS (for H1)	Return on sales ratio	$\frac{Net\ income}{Sales}$	Increase
ROA (for H2A)	Return on assets ratio	$\frac{Net\ income}{Total\ assets}$	Decrease
ROE (for H2B)	Return on equity ratio	$\frac{Net\ income}{Equity}$	Increase
D/E (for H3)	Debt-to-equity ratio	$\frac{Debt}{Equity}$	Increase
D/A (for H3)	Debt-to-total assets ratio	$\frac{Debt}{Total\ assets}$	Increase
CR (for H4)	Current liquidity ratio	$\frac{Current\ assets}{Current\ liabilities}$	Decrease

IFRS, International Financial Reporting Standard.

Source: Own elaboration based on the study by Krawczak and Dyląg [2018].

In particular, it is expected that companies listed on the WSE, preparing their financial statements in 2018–2019 under IFRS, after the implementation of IFRS 16 (in 2019) will show the following: on average, a greater increase in ROS (H1) because of an expected rise in operating profit (due to reclassification of

former lease costs to depreciation expense and finance costs); on average, a greater decrease in ROA (H2A) due to a rise in the value of the company's lease assets due to capitalization of leases; and a greater increase in ROE (H2B) owing to a higher increase in gross profit than equity; an increase in the debt-to-equity and general debt ratios (H3) due to the recognition of the lease obligations in the entity's balance sheet, thereby increasing the reported debt; on average, a more significant decrease in current liquidity ratio (CR) (H4) than companies preparing their statements under the Accounting Act. The latter is assumed because current lease liabilities will increase while current assets will not. Similar results were expected in the literature [IASB, 2016; KPMG, 2017; Stancheva-Todorova and Velinova-Sokolova, 2019; Raoli, 2021].

The formulated research hypotheses are presented below:

H1: *The adoption of IFRS 16 increases sales profitability (ROS).*
H2A: *The adoption of IFRS 16 decreases the ROA.*
H2B: *The adoption of IFRS 16 increases the ROE.*
H3: *The adoption of IFRS 16 increases debt.*
H4: *The adoption of IFRS 16 decreases liquidity.*

A fifth research hypothesis (H5) was added to the above research hypotheses, linking the average changes in the financial ratios included in the analysis to the sector (industry) to which the company belongs. The results of the studies by Branswicka et al. [2011], Fitó et al. [2013], and Díaz and Zamora [2018] indicated an existing relationship between the sector and the intensity of changes in financial ratios due to the capitalization of operating leases. For H5, the materiality of changes in the financial ratios of WSE-listed companies that prepared their financial statements under IFRS in 2018–2019 is expected to be significantly different depending on the sector in which the company operates.

H5: *There is significant variation in the impact of implementing IFRS 16 between industries.*

4 Research design

4.1 Data source and research sample

The empirical study analyzed companies listed on the WSE in 2018–2019. The choice of analysis period is dictated by the significant change introduced in the area of lease regulation by the implementation of IFRS 16–""Leases" in 2019. The new standard replaces the previous standard IAS 17, for reporting periods beginning on or after January 1, 2019, in Poland. Due to such a significant change in accounting regulations, we would like to illustrate the impact of IFRS 16 on key financial ratios.

Data on lease usage were hand-collected from the financial statements, while those needed for calculating financial ratios were obtained from the Orbis database. The sample did not include companies operating in the financial industry to enable consistent analysis. Furthermore, to standardize the comparison of financial data from 2018 and 2019, only those listed on the WSE in 2018 and 2019 were analyzed. The sample included data from the financial statements of 494 companies, including 308 preparing financial statements under IFRS and 186 that applied accounting policies under the Polish Accounting Act.

It is worth noting that not all companies listed on the WSE are obliged to use IFRS. The scope of companies required to apply IFRS and prepare financial statements according to international accounting standards is determined by the Polish Accounting Act. The obligation to apply IFRS applies to entities preparing consolidated financial statements, emitters of publicly listed shares, and banks. The optional use of IFRS applies to issuers intending to apply or applying for admission to public trading on the regulated market of the EEA area, members of a business group in which a higher-level entity (a parent company) prepares its consolidated financial statements under IFRS, and divisions of a foreign entrepreneur group that prepares its financial statements in accordance with IFRS [Kędzior, 2015]. Therefore, the studied WSE entities that had not prepared consolidated financial statements were not obliged to apply IFRS. And if they did not declare themselves to use the above regulations voluntarily, they were subject to the Polish Accounting Act.

The Accounting Act valid in Poland is adjusted to the solutions binding in the countries of the European Union (EU) and to international accounting standards. However, there are differences in specific areas between the Polish Accounting Act and the IFRS. Leasing in Poland is regulated by the Accounting Act (Article 3 Paragraph 4) and the National Accounting Standard No. 5 "Leasing, renting and tenancy". Under these regulations, the distinction between operating and capital leases is still valid. In a capital lease, lessees do recognize right-of-use assets and lease liabilities, in contrast with operating leases that are limited only to off-balance-sheet disclosure of assets and lease-based debt [Jaszczuk et al., 2018]. In addition, if materially fixed or dependent on an index or rate variable, lease payments are included in the liability measurement, with others being included in earnings [Trzpioła, 2020].

The sample is highly heterogeneous, as evidenced by the high standard deviation of total assets shown in Table 2. For example, the total assets of the smallest company in 2019 amounted to PLN 35,000, while that of the largest crossed PLN 77 billion. A similar divergence applies to the companies' liabilities.

Table 2. Descriptive statistics and changes in total assets and liabilities (in thousands of PLN) by standard users before and after implementing IFRS 16

Item	Year, Δ	Standard users	N	Mean	Minimum	Maximum	Standard deviation
Total assets	2018	Polish Accounting Act users	186	30,908	49	563,668	63,456
		IFRS adopters	308	2,107,938	54	75,905,000	7,773,162
		Total	494	1,325,898	49	75,905,000	6,216,285
	2019	Polish Accounting Act users	186	31,347	35	591,346	63,398
		IFRS adopters	308	2,299,975	90	77,650,000	8,357,781
		Total	494	1,445,795	35	77,650,000	6,686,596
	Change	Polish Accounting Act users	186	1.42%			
		IFRS adopters	308	9.11%			
		Total	494	9.04%			
Total liabilities	2018	Polish Accounting Act users	186	15,171	16	223,246	27,709
		IFRS adopters	308	1,005,321	164	28,402,000	3,344,601
		Total	494	632,511	16	28,402,000	2,682,695
	2019	Polish Accounting Act users	186	14,352	21	164,686	24,210
		IFRS adopters	308	1,191,435	37	34,513,000	3,921,738
		Total	494	748,242	21	34,513,000	3,146,991
	Change	Polish Accounting Act users	186	-5.40%			
		IFRS adopters	308	18.51%			
		total	494	18.30%			

IFRS, International Financial Reporting Standard.

Source: Own elaboration based on data retrieved from financial statements from the Orbis database.

The level of assets and liabilities of companies preparing their financial statements under IFRS may be affected by the entry into force on January 1, 2019, of a new standard for recognizing leases, namely, the IFRS 16. However, this change does not affect companies that maintain their books following the provisions of the Polish Accounting Act. Therefore, at this analysis stage, changes in the average assets and liabilities were verified according to the accounting policy applied. The average change in total assets of companies not affected by the change in the standard was >7.5 pp lower than in the case of companies reporting under IFRS 16. As a result, an average decrease in total liabilities could be observed in companies using the Polish Accounting Act. On the other hand, average increases of >18% could be observed among IFRS users.

The sample (consisting of 494 companies, 988 observations) was divided into industries in which the companies operate to verify the sectoral impact in the context of the research problem (H5). The division into

17 groups contained in the Orbis database according to the EU statistical sector classification – *Nomenclature of Economic Activities of Enterprises* (NACE) Rev. 2 – was aggregated into four general industries: construction (42 observations of 21 firms), trade (140 observations of 70 firms), manufacturing (344 of 172), and services (462 of 231 entities). This was to obtain larger, representative survey samples (see Table 3).

Table 3. Characteristics of research subsamples by industry

Sector	Number of companies	Number of companies using IFRS 16 (test group)	Average lease liability (in thousands of PLN)
Construction	21	15	21,799
Trade	70	48	124,376
Manufacturing	172	121	94,502
Services	231	124	101,014

IFRS, International Financial Reporting Standard.

Source: Own elaboration based on data retrieved from financial statements from the Orbis database.

The data in Table 3 show a significant disparity between the test group (companies applying IFRS 16) and the control group (companies using Polish Accounting Act) in the different industries. The preparers under the IFRS in the specified sectors range from 54% among the services to 71% in the construction industry. The average lease liabilities in 2019 were also calculated among firms disclosing such an item on their balance sheet in a given sector. The trade sector has the highest average value of lease liabilities, while the construction sector has the lowest.

4.2 Choice of research method

To date, to examine the impact of introducing the new standard for the accounting treatment of leases, the literature has compared data from the report for a specific year before and after the capitalization of operating leases. However, these were only estimates, often on a limited research sample. At the time of the empirical study, the companies' financial statements for 2019 had been published, making it possible to apply the DID method to look at the impact of the IFRS changes on the key financial indicators of nonfinancial companies listed on the WSE. Therefore, the research sample was divided into four subgroups:

- 2018 financial data of companies reporting under the Polish Accounting Act;
- financial data for 2019 of companies reporting under the Polish Accounting Act;
- 2018 financial data of companies reporting under IFRS, including IAS 17;
- financial data for 2019 of companies reporting under IFRS, including IFRS 16 for the first time.

Comparing the changes both in the group of companies exposed to the impact of IFRS 16 (only IFRS users) on their financial ratios and in the group of companies not affected by this problem (Polish Accounting Act users) but influenced by the same macroeconomic variables allows us to reduce the impact of time-invariant variables on the results of the study. The imperfection of this method arises from the need to assume that no time-varying variables are affecting the indicators under study. In a way, it combines two estimates (between 2018 and 2019 and between groups of companies depending on the accounting standards used) into one – devoid of the main limitations of the two initial ones. Instead of comparing indicators, trends are compared [Gertler et al., 2016].

DID estimation is based on simple linear regression, more precisely on the ordinary least squares method. The key variables are the zero–one variables coding the grouping of observations of companies depending on the year of the report from which their financial data come, the accounting policy use, and the interaction between these variables [Künn, 2018].

$$Y_{it} = \beta_0 + \beta_1 \, year + \beta_2 \, standard + \beta_3 \, year \; x \; standard + \varepsilon_{it} \quad (1)$$

where Y_{it} – indicator for company *i* in year *t*; *year* – binary variable encoding year, for which the financial statements are prepared, equal to "1" for 2019 (IFRS 16 year) and "0" for 2018 (before IFRS 16); *standard* – binary variable encoding the accounting policy used, equal to "1" for IFRS and "0" for Polish Accounting Act; *year* × *standard* – DID variable (interaction between year and standard variables).

4.3 Statistical analysis of variables

Six explanatory variables were analyzed in the study. The explanatory variables in the model were the financial ratios: profitability – ROS, ROA, and ROE (using net profit); debt-to-equity and debt-to-total assets ratios; and current ratio. High correlation occurred only between the interaction and the variables involved (see Table 4). Table 5 shows the descriptive statistics of the explained variables.

Table 4. Correlations matrix

Variables	Year	Standard	Year × Standard	ROS	ROA	ROE	D/E	D/A	CR
Year	1								
Standard	0	1							
Year × Standard	0.673	0.523	1						
ROS	−0.024	0.033	0.016	1					
ROA	−0.014	0.05	0.031	0.083	1				
ROE	0.032	0.046	0.052	0.077	0.302	1			
D/E	−0.009	−0.02	0.012	0.01	0.017	−0.198	1		
D/A	0.031	−0.03	0.011	0	−0.319	0.005	−0.028	1	
CR	−0.018	−0.091	−0.048	0.028	0.008	0.005	−0.023	−0.014	1

CR, current liquidity ratio; D/A, debt-to-total assets ratio; D/E, debt-to-equity ratio; ROA, return on assets; ROE, return on equity; ROS, return on sales.

Table 5. Descriptive statistics of the dependent variables

Ratio	Year	Standard users	N	Mean	Q1	Q3	Standard deviation
ROS	2018	Polish Accounting Act users	186	−14	−0.08	0.06	170
		IFRS adopters	308	−9.2	0	0.08	113
		Total	494	−11	−0.02	0.07	137
	2019	Polish Accounting Act users	186	−87	−0.03	0.08	1340
		IFRS adopters	308	−11	−0.004	0.08	133
		Total	494	−40	−0.01	0.08	828
ROA	2018	Polish Accounting Act users	186	−0.16	−0.09	0.05	1.03
		IFRS adopters	308	−0.06	−0.003	0.07	1.76
		Total	494	−0.1	−0.03	0.07	1.5
	2019	Polish Accounting Act users	186	−0.38	−0.04	0.09	4.2
		IFRS adopters	308	−0.03	−0.005	0.06	0.82
		Total	494	−0.16	−0.02	0.07	2.7
ROE	2018	Polish Accounting Act users	186	−0.33	−0.19	0.14	2.1
		IFRS adopters	308	−0.13	0.01	0.14	3.4
		Total	494	−0.21	−0.02	0.14	3
	2019	Polish Accounting Act users	186	−0.24	−0.05	0.005	2.4
		IFRS adopters	308	0.11	0.16	0.14	3.1
		Total	494	−0.02	−0.02	0.15	2.8

(Continued)

Table 5. Continued

Ratio	Year	Standard users	N	Mean	Q1	Q3	Standard deviation
D/E	2018	Polish Accounting Act users	186	2.1	0.37	1.67	8
		IFRS adopters	308	1.2	0.41	1.44	4.9
		Total	494	1.5	0.4	1.5	6.3
	2019	Polish Accounting Act users	186	1.2	0.29	1.4	3.8
		IFRS adopters	308	1.6	0.46	1.6	5.4
		Total	494	1.4	0.39	1.6	4.9
D/A	2018	Polish Accounting Act users	186	1.4	0.29	0.69	8.7
		IFRS adopters	308	0.6	0.35	0.62	1.1
		Total	494	0.92	0.33	0.63	5.4
	2019	Polish Accounting Act users	186	1.8	0.26	0.66	12
		IFRS adopters	308	1.4	0.36	0.66	14
		Total	494	1.5	0.32	0.66	13
CR	2018	Polish Accounting Act users	186	8.9	1	2.8	65
		IFRS adopters	308	2	1	2	2.1
		Total	494	4.6	1	2.3	40
	2019	Polish Accounting Act users	186	6.3	1.1	3.2	26
		IFRS adopters	308	1.9	0.92	2.1	2.2
		Total	494	3.5	1	2.41	16

CR, current liquidity ratio; D/A, debt-to-total assets ratio; D/E, debt-to-equity ratio; IFRS, International Financial Reporting Standard; ROA, return on assets; ROE, return on equity; ROS, return on sales.

Source: Own elaboration based on data retrieved from financial statements from the Orbis database.

5 Results and discussion

As part of the empirical study, estimations of 10 models described by the equation according to Eq. (1) with the DID method for 988 observations were carried out in the STATA program. In addition, it allows convenient estimation of the *p*-value for the DID variable, which allows assessing whether there are grounds to reject the hypothesis of the significance of the impact of the introduction of IFRS 16 on a given indicator (see Table 6).

Table 6. DID results of model estimation on the total research sample

Variables	Model 1 (ROS)	Model 2 (ROA)	Model 3 (ROE)	Model 4 (D/E)	Model 5 (D/A)	Model 6 (CR)
Year × Standard (DID variable)	71.7	0.24	0.17	1.27*	0.47	2.57
	(99.45)	(0.34)	(0.35)	(0.77)	(1.34)	(5.12)
Standard	4.68	0.11	0.19	−0.87	−0.85	−6.96
	(14)	(0.13)	(0.25)	(0.65)	(0.64)	(4.74)
Year	−73.34	−0.21	0.08	−0.9	0.32	−2.67
	(98.95)	(0.32)	(0.23)	(0.65)	(1.09)	(5.12)
Constant	−13.9	−0.16**	−0.33**	2.06***	1.44**	8.94*
	(12.42)	(0.08)	(0.15)	(0.58)	(0.64)	(4.74)
R^2	0.0025	0.0034	0.0033	0.0035	0.002	0.0089

***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

DID, difference in differences; CR, current liquidity ratio; D/A, debt-to-total assets ratio; D/E, debt-to-equity ratio; ROA, return on assets; ROE, return on equity; ROS, return on sales.

Source: Own elaboration based on data retrieved from financial statements obtained from the Orbis database (Bureau van Dijk, A Moody's Analytics Company, Amsterdam, the Netherlands) and calculations using the STATA program (StataCorp LLC, Lakeway Drive,Texas, USA).

In the case of linear regression in the DID method, the parameter estimates with the variables *year* and *standard* are equal to the difference in the average values of the indices between the groups to which they belong.

The obtained results of the estimation of six models give grounds to reject the hypotheses H1, H2A, H2B, and H4 concerning the influence of the change in the standard of accounting for leasing contracts on the size of the profitability ratios, namely, ROS, ROA, and ROE; and the CR, of the companies included in the study. However, in the fourth model, where the dependent variable is the debt-to-equity ratio, the coefficient of the DID variable is significant at the 10% level. Hence, we have no basis for rejecting hypothesis H4 regarding the impact of entry into force of IFRS 16 on companies' debt ratios.

The diversity of the research sample affects the high value of the standard deviation of the variables. At the same time, the database contains outlier observations significantly. Thus, there is a risk that they may substantially distort the results of the conducted study. Therefore, each of the six models was reestimated on the following transformed research samples:

- reduced by observations smaller than the first percentile and larger than the 99th percentile (research sample one percentile [1p]) (Table 7);
- reduced by observations smaller than the fifth percentile and larger than the 95th percentile (test sample five percentile [5p]) (Table 8).

Table 7. DID model estimation results on research sample truncated by 1p outliers

Variables	Model 1 (ROS)	Model 2 (ROA)	Model 3 (ROE)	Model 4 (D/E)	Model 5 (D/A)	Model 6 (CR)
Year × Standard (DID variable)	−0.19	−0.07*	−0.08	0.67**	0.05	−0.13
	(0.31)	(0.04)	(0.09)	(0.3)	(0.05)	(0.19)
Standard	0.45*	0.06*	0.14**	−0.31	0.01	−0.22*
	(0.24)	(0.03)	(0.06)	(0.23)	(0.03)	(0.13)
Year	0.23	0.07**	0.07	−0.52**	−0.02	0.18
	(0.29)	(0.03)	(0.08)	(0.23)	(0.04)	(0.15)
Constant	−0.63***	−0.07***	−0.11**	1.5***	0.53***	1.93***
	(0.23)	(0.02)	(0.05)	(0.19)	(0.03)	(0.11)
No. of observations	969	969	969	970	968	889
R^2	0.0086	0.0066	0.0073	0.0056	0.0028	0.0233

***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

1p, one percentile; DID, difference in differences; CR, current liquidity ratio; D/A, debt-to-total assets ratio; D/E, debt-to-equity ratio; ROA, return on assets; ROE, return on equity; ROS, return on sales.

Source: Own elaboration based on data retrieved from financial statements obtained from the Orbis database and calculations using the STATA program.

Reducing the research sample by one percentile of outlier observations (Table 7) increased the coefficient of determination R^2 in each of the six estimated models. For the cutoff test sample, the significance of the change in the accounting treatment of leases' effect on the value of the debt-to-equity ratio increased. In addition, the impact of introducing a new standard on the ROA ratio was also found to be significant in the cutoff research samples. It is also worth mentioning that a coefficient for the *standard* variable was significant at the 10% level in four models. This means that in these samples, the difference between the values of the profitability ratios (i.e., ROS, ROA, and ROE), as well as the CR between companies preparing financial statements under the Polish Accounting Act and those applying IFRS, is statistically significant, regardless of the year for which the reports were prepared. Similarly, the average change in the ROA ratio

and the debt-to-equity ratio between 2018 and 2019 is statistically significant, regardless of the accounting policy applied.

In the research samples constrained by the value of the fifth and ninety-fifth percentiles (Table 8), the value of the coefficient R^2 improved relative to the research sample only in Models 1, 2, and 5. Moreover, it worsened in Model 4, in which the effect of the change in lease accounting on the debt-to-equity ratio became statistically insignificant. On the other hand, in Model 5, the DID variable, which estimates the impact of the new IFRS on the total debt ratio, showed significance at the 5% level. This indicates that there are no grounds to reject H3.

Table 8. DID model estimation results on research sample truncated by 5p outliers

Variables	Model 1 (ROS)	Model 2 (ROA)	Model 3 (ROE)	Model 4 (D/E)	Model 5 (D/A)	Model 6 (CR)
Year × Standard (DID variable)	−0.03	−0.02	−0.02	0.15	0.08**	−0.13
	(0.03)	(0.02)	(0.03)	(0.14)	(0.03)	(0.19)
Standard	0.05**	0.04***	0.04*	0.03	−0.02	−0.22*
	(0.02)	(0.01)	(0.02)	(0.1)	(0.02)	(0.13)
Year	0.02	0.01	0.01	−0.08	−0.05***	0.18
	(0.03)	(0.01)	(0.03)	(0.12)	(0.02)	(0.15)
Constant	−0.05***	−0.02*	0.02	1.08***	0.52***	1.93***
	(0.02)	(0.01)	(0.02)	(0.09)	(0.02)	(0.11)
No. of observations	888	889	890	889	890	889
R^2	0.009	0.019	0.0054	0.0039	0.0098	0.0132

***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

5p, five percentile; DID, difference in differences; CR, current liquidity ratio; D/A, debt-to-total assets ratio; D/E, debt-to-equity ratio; ROA, return on assets; ROE, return on equity; ROS, return on sales.

Source: Own elaboration based on data retrieved from financial statements obtained from the Orbis database and calculations using the STATA program.

In Model 2, despite an improvement in R^2, the significance of the average change in the ROA ratio did not increase compared to the model on the sample after truncation of 1p outliers; again, it became statistically insignificant. Furthermore, significant differences between the mean values of the ratios depending on the accounting policy applied occurred in the case of models in which the explanatory variables were the profitability ratios (ROS, ROA, and ROE) and the CR.

The results obtained for both the original and the cutoff research samples allow us to reject hypotheses H1, H2B, and H4, while they do not provide grounds to reject H3. The entry into force of IFRS 16 on January 1, 2019, significantly increased the debt and (to a lesser extent) the ROA ratios of companies listed on the WSE in 2018–2019.

In the empirical study undertaken, profitability ratios were additionally analyzed in detail. So far, profitability ratios (i.e., ROS, ROA, and ROE) have been analyzed net, i.e., using the value of net income in the numerator of the ratio formula. They indicate the company's profitability after considering all costs and income tax. However, using this measure raises the concern that the direct influence of capitalization of operating leases on the level of net income, signaled in the literature, may distort the results. This is because its value decreases in the initial stages of the lease agreement and then increases [Goodacre, 2003]. Therefore, we also estimated models for profitability ratios at operating activities, i.e., having EBIT in the

numerator, to analyze average changes in profitability ratios excluding this dependence. This made it possible to reduce the standard deviation of these ratios (see Tables 9 and 10).

Table 9. Descriptive statistics of profitability indicators

Indicator	Numerator	No. of observations	Mean	Q1	Q3	Standard deviation
ROS	Net income	988	−7.38	−0.15	0.08	593
	EBIT	988	−2.7	0	0.11	54
ROA	Net income	988	−0.13	−0.02	0.07	2.2
	EBIT	988	−0.03	−0.0004	0.09	1.8
ROE	Net income	988	−0.11	−0.02	0.14	2.9
	EBIT	988	0.08	0.01	0.2	1

EBIT, earnings before interest and taxes; ROA, return on assets; ROE, return on equity; ROS, return on sales.

Source: Own elaboration based on data retrieved from financial statements obtained from the Orbis database and calculations using the STATA program.

Table 10. DID results of models with different numerators of profitability ratios on the total sample

Variable	Model 1 (ROS with net income)	Model 7 (ROS with EBIT)	Model 2 (ROA with net income)	Model 8 (ROA with EBIT)	Model 3 (ROE with net income)	Model 9 (ROE with EBIT)
Year × Standard (DID variable)	71.7	0.37	0.24	0.12	0.17	−0.08
	(99.45)	(5.51)	(0.34)	(0.3)	(0.35)	(0.14)
Standard	4.68	−3.51	0.11	0.07	0.19	0.24*
	(14)	(4.03)	(0.13)	(0.07)	(0.25)	(0.12)
Year	−73.34	−0.18	−0.21	−0.11	0.08	0.16
	(98.95)	(0.58)	(0.32)	(0.3)	(0.23)	(0.12)
Constant	−13.9	−0.56***	−0.16**	−0.06	−0.33**	−0.13
	(12.42)	(0.22)	(0.08)	(0.06)	(0.15)	(0.12)
R^2	0.0025	0.0009	0.0034	0.0016	0.0033	0.0126

***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

DID, difference in differences; EBIT, earnings before interest and taxes; ROA, return on assets; ROE, return on equity; ROS, return on sales.

Based on the estimations of Models 7, 8, and 9, it can be concluded that the introduction of the new standard will not significantly affect operating profitability ratios. For the models mentioned above, estimations were also carried out for the cutoff samples by 1p and 5p outliers, but the results obtained were analogous to those obtained from the analysis of Models 1, 2, and 3. Therefore, they did not affect the conclusions of the study.

To verify hypothesis H5, DID estimation was also used on additionally extracted subgroups. The results of this are presented in Tables 11–14.

In line with intuition, the DID variable for the model testing the significance of the impact of IFRS 16 on the debt-to-equity ratio turned out to be significant in the sectors with the highest average value of lease liabilities, namely, trade and services. Therefore, Model 4 estimated on these subsamples is also characterized by a higher R^2 coefficient.

Table 11. DID results for the construction sector

Variables	Model 1 (ROS)	Model 2 (ROA)	Model 3 (ROE)	Model 4 (D/E)	Model 5 (D/A)	Model 6 (CR)
Year × Standard (DID variable)	0.66	−0.14	−2.44	−0.23	0.12	−0.15
	(1.54)	(0.29)	(2.8)	(4.3)	(0.33)	(0.34)
Standard	0.7	0.06	1.19	−1.56	0.08	−0.09
	(0.71)	(0.06)	(1.09)	(4.85)	(0.12)	(0.2)
Year	−0.6	−0.02	1.52	−3.95	0.08	0.04
	(1.49)	(0.14)	(1.1)	(2.68)	(0.18)	(0.3)
Constant	−0.74	−0.07	−1.22	5.16**	0.71***	1.35***
	(0.71)	(0.06)	(1.09)	(2.55)	(0.07)	(0.16)
No. of observations	42	42	42	42	42	42
R^2	0.0916	0.0149	0.0096	0.0739	0.0262	0.0357

***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

DID, difference in differences; CR, current liquidity ratio; D/A, debt-to-total assets ratio; D/E, debt-to-equity ratio; ROA, return on assets; ROE, return on equity; ROS, return on sales.

Table 12. DID results for the trade sector

Variables	Model 1 (ROS)	Model 2 (ROA)	Model 3 (ROE)	Model 4 (D/E)	Model 5 (D/A)	Model 6 (CR)
Year × Standard (DID variable)	−39.1	−0.02	0.79	1.75*	0.35	−0.93
	(39.57)	(0.28)	(0.8)	(0.91)	(0.3)	(1.3)
Standard	0.96	−0.14*	0.16	−0.97*	0.14*	0.14
	(1.03)	(0.08)	(0.13)	(0.54)	(0.08)	(0.5)
Year	−0.35	−0.09	−0.22	−0.42	−0.03	0.94
	(1.59)	(0.07)	(0.2)	(0.48)	(0.06)	(1.04)
Constant	−1.01	0.06	0.06	1.58***	0.49***	1.94***
	(1.03)	(0.04)	(0.07)	(0.42)	(0.04)	(0.21)
No. of observations	140	140	140	140	140	140
R^2	0.0134	0.0061	0.0128	0.0298	0.0272	0.007

***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

DID, difference in differences; CR, current liquidity ratio; D/A, debt-to-total assets ratio; D/E, debt-to-equity ratio; ROA, return on assets; ROE, return on equity; ROS, return on sales.

Table 13. DID results for the manufacturing sector

Variables	Model 1 (ROS)	Model 2 (ROA)	Model 3 (ROE)	Model 4 (D/E)	Model 5 (D/A)	Model 6 (CR)
Year × Standard (DID variable)	−44.03	0.96	0.53	−0.74	−0.83	−0.14
	(48.12)	(1.09)	(0.55)	(1.24)	(3.1)	(1.12)
Standard	32.63	0.36	0.21	0.29	1.8	−0.9
	(46.73)	(0.26)	(0.16)	(0.77)	(1.73)	(0.83)
Year	44.67	−0.99	−0.53	0.82	0.86	−0.06
	(45.08)	(1.09)	(0.54)	(1.01)	(3.1)	(1.1)
Constant	−44.95	0.35	−0.15	0.84*	2.26	3.04
	(45.08)	(0.26)	(0.15)	(0.43)	(1.73)	(0.81)
No. of observations	344	344	344	344	344	344
R^2	0.0063	0.0238	0.0263	0.0018	0.0147	0.018

***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

DID, difference in differences; CR, current liquidity ratio; D/A, debt-to-total assets ratio; D/E, debt-to-equity ratio; ROA, return on assets; ROE, return on equity; ROS, return on sales.

Table 14. DID results for the services sector

Variables	Model 1 (ROS)	Model 2 (ROA)	Model 3 (ROE)	Model 4 (D/E)	Model 5 (D/A)	Model 6 (CR)
Year × Standard (DID variable)	159.24	0.04	0.16	2.48**	1.64	4.77
	(171.11)	(0.31)	(0.58)	(1.15)	(2.26)	(8.86)
Standard	−8.36	0.003	0.25	−1.36	−0.6	−11.76
	(10.77)	(0.25)	(0.54)	(1.01)	(0.76)	(8.22)
Year	−148.68	0.12	0.35	−1.64*	0.15	−4.81
	(170.78)	(0.19)	(0.3)	(1)	(1.17)	(8.86)
Constant	−2.49*	−0.13***	0.43*	2.58***	1.29*	13.61*
	(1.48)	(0.04)	(0.25)	(0.98)	(0.75)	(8.21)
No. of observations	462	462	462	462	462	462
R^2	0.0053	0.0337	0.0048	0.0116	0.0028	0.0125

***, **, and * indicate statistical significance at 1%, 5%, and 10%, respectively.

DID, difference in differences; CR, current liquidity ratio; D/A, debt-to-total assets ratio; D/E, debt-to-equity ratio; ROA, return on assets; ROE, return on equity; ROS, return on sales.

Moreover, among the companies in the trade sector, in as many as three models, namely, Models 2, 4, and 5, despite the insignificance of the DID variable, there was a significant difference between the average values of the ratios between companies keeping their accounts under the Polish Accounting Act and those applying IFRS. Therefore, the results above do not warrant rejection and confirm hypothesis H5 about the significance of the industry effects of the new standard's (IFRS 16–Leases) impact on financial ratios.

To sum up, the entry into force of the new IFRS 16 standard had no significant impact on the profitability ratios (except for ROA in the sample after removing outliers) and the liquidity of the studied companies. The results of the empirical study are opposite to the findings of foreign research in this regard, which pointed out the significant impact of IFRS implementation on the elements of financial statements and financial ratios [Öztürk and Serçemeli, 2016; Díaz and Zamora, 2018; Tofanel et al., 2021]. However, in part, the results are consistent with the study of Todorova and Velinova-Sokolova [2019]. However, in the area of liquidity, the researchers indicated a decrease in the ratio or no change in the net cash flow measure. ROS or ROE did not show a clear answer because these indicators depend on various factors, e.g., the effect of profit or loss. Furthermore, based on the study results, no grounds were found to reject hypothesis H3. Thus, we confirmed that the change in the standard of presentation of leases from IAS 17 to IFRS 16 increased the debt ratio. This result is consistent with the findings of studies by Stancheva-Todorova and Velinova-Sokolova [2019] and by Raoli [2021]. Researchers indicate that if lease obligations increase the total liabilities on an entity's balance sheet, they increase the reported debt burden.

The unification of the accounting treatment of leasing contracts significantly affects the increase in lessees' debt ratios. Furthermore, belonging to a sector characterized by higher lease liabilities affects the significance of the changes caused by the new standard. On this basis, H5 can be confirmed for the trade and services sectors. This is in line with the study of Díaz and Zamora [2018]. The authors found that IFRS 16 affects key balance sheet financial ratios (mainly leverage ratios), but this impact depends primarily on the entity's sector. According to the researchers, the most affected sectors are retail, hospitality, and transportation.

6 Conclusion and limitations

Empirical studies to date have indicated a significant impact of the new accounting treatment of leases under IFRS 16 on the financial and asset position of lessees as presented in the financial statements. Researchers inferred this based on estimation of the capitalization of operating leases on financial data for 1 year using bankruptcy prediction models or simple linear regression using the ordinary least squares

method. Operating leases' capitalization affects the balance sheet by increasing right-of-use assets and liabilities by lease liabilities. In addition, it affects the income statement by changing the classification of leasing costs. However, these changes were only estimated [Branswijck et al., 2011; Garvie et al., 2017; Giner and Pardo, 2018]. Therefore, the real impact of IFRS 16 on the financial data of companies could not previously be directly observed until 2019, the year of introduction and the first year of application of the new standard.

The study contributes to science on accounting and business practice in this regard. Our article extends previous research in two respects. First, it contributes to accounting research, specifically previous research in leasing. It shows the impact of "the leasing revolution" in the form of a new regulation – IFRS 16 – on the financial position, including the financial ratios of companies. However, our study coincides with the arguments of foreign researchers in the context of sectoral/industry analysis [Branswijck et al., 2011; Díaz and Zamora, 2018]. Second, this study will contribute to the new lease accounting standard literature. No previous research has tested the impact of lease capitalization on financial statements and financial ratios under Polish conditions. In this way, we add new knowledge from the analyzed research problem related to developing countries, which complements the available results among developed countries, mainly Anglo-Saxon countries [Wong and Joshi, 2015; Giner and Pardo, 2018]. In contrast, from a business perspective, we indicate that adopting IFRS 16 will not result in significant changes in the financial ratios, except for an increase in the debt-to-equity ratio in the trade and services sector. Nevertheless, it may be important information for auditors performing financial analyses as part of a financial audit.

The survey has certain limitations. First, the DID method assumes that no time-varying factors affect the indices under examination. However, this assumption is not fully met in the case of WSE companies. Additionally, the analysis covered data 1 year before and 1 year after the IFRS 16 standard came into force. Indeed, its results would have been more accurate if the investigation had covered 2 years or more before and after, which was impossible due to the shock of the coronavirus pandemic. Furthermore, quantitative research could be extended by conducting qualitative research, e.g., case studies on selected companies from various industries. This way, it would be possible to learn holistically about the conditions in which companies operate, apply regulations, and measure achievements.

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