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**IFRS-16 and Firm Investment: Leasing Commitment
and Intensity**

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Abstract: This study examines the economic consequences of IFRS-16, investigates whether commitment and leasing intensity affect firms' investment decisions, and illustrates the aspects of lessee behaviour in their decision to reduce operating leases before the effective date of IFRS-16 implementation. We used paired t-tests and regression with cluster robust standard error on five countries with the largest leasing volume (United States, China, United Kingdom, Germany, and Japan) during 2011-2022. The results of this study show a decrease in operating lease intensity and an increase in financial leases during the issuance of IFRS-16. This study serve evidence that the company complies with the new accounting standards. Even though the firm obtain benefit from operating lease, the company still follows the new rules that have been set and proves that managers do not always pursue reporting or non-reporting incentives. Furthermore, this study shows that operating and financial lease commitments affect investment decisions positively.

Keywords: IFRS-16, Operating Lease, Capital Lease, Leasing Commitment, Leasing Intensity

Introduction

Generally, this study examined the economic consequences of IFRS-16 and firm investment decisions (Lau, 2022; Wong & Joshi, 2015). In 2023, the Global Leasing Report stated that worldwide lease value was up to US\$ 1,463 billion and had grown by 84% in the last decade. This study uses all firms listed in five countries with the largest leasing volume: United States, China, United Kingdom, Germany, and Japan to examine the economic consequences of IFRS-16 implementation and analyze whether lease commitments and intensity affect a firm's investment decision. Combined, these five markets account for more than 72% of the world's leasing volume.

IFRS-16 adoption grips the attention of financial statement users and provides challenges for financial statement preparers (Delgado-Vaquero et al., 2022; Fuad et al., 2022; Giner & Pardo, 2018; Rey et al., 2020). The application of IFRS-16 has consequences for the economy that are connected to efficient contracting theory (Christensen et al., 2016; Luong et al., 2022). Accordingly, during the process of creating a new standard, the lessee actively mentioned and lobbied to refuse. Implementation of leasing standards brings economic consequences, such as changes in current or future contracts (Ma & Thomas, 2023; Rahman & Chowdhury, 2023). Some firms' financial ratios are maintained to fill up debt contracts. The firm experienced a decline in profitability due to some accounting treatment of the new leasing standard. Firms realized economic consequences before the new leasing standard was implemented. The question is whether the company reduces the commitment and intensity of leasing.

Leasing is an important source of funding (Devos et al., 2021) and accounting for leasing in practice is highly controversial (Lau, 2022; Ma & Thomas, 2023). The fundamental issue is some leasing contracts are capitalized while others are not. In other words, leasing rules are applied inconsistently. Some leases are not capitalized and disclosed, allowing off-balance sheet financing. According to Chen et al. (2023), a capital lease recognizes the present value of future lease assets and liabilities at the beginning of the lease term. Capital lease recognition has consequences called learning and contracting channels (Chen et al., 2023; Christensen et al., 2016). Learning channels have to do with how much managers are able to learn. Firms must gather, process, and report more information in order to comply with capital lease rules. Prior research has demonstrated that managers use the same data as external parties when making internal decisions, such as capital budgeting and investment reporting (Christensen et al., 2016; Utami et al., 2024). Managers collect data to comply with standards and inform them about returns from different projects. Furthermore, in the process of implementing capital lease standards, managers engage in a comprehensive review about firm operating activities. During the review process, managers identify project and investment activities that are excessive, to be stopped or streamlined (Chen et al., 2023; Shroff, 2017).

Contracting channels relate to accounting numbers changes in balance sheets and income statements (Chava et al., 2019; Chen et al., 2023). Adoption of capital lease standards reduces the ratios associated with debt contracts (Morales-Díaz & Zamora-Ramírez, 2018). Violation of debt contract used by creditors to take advantage from switching process, causing a lack of alternative financing options and increasing costs (Delgado-Vaquero et al., 2022; Fuad et al., 2022; Lau, 2022); provide strict requirements in the loan agreement (Christensen et al., 2016); or strengthening higher interest rates (Chen et al., 2023; Ma & Thomas, 2023). Thus, the project that initially had a positive net present value (NPV) became negative due to a debt contract violation. This study investigates whether the intensity and commitment of capital leases or operating leases affect firm investment decisions.

This study provides several contributions. First, this research contributes to the development of literature by providing empirical evidence about the economic consequences of IFRS 16-leases. Previous literature focuses on the constructive capitalization of operating leases and off-balance sheets as the ex-ante impact on financial statements and several important ratios (Caskey & Ozel, 2019; Morales-Díaz & Zamora-Ramírez, 2018). In contrast, this study examines the ex-post impact on financial statements and leverage ratios. This study records the behavioral aspects of reducing operating leases before IFRS-16 implementation. Concerns about increasing reporting costs, debt agreements due to violations of financial ratios (Lau, 2022), and possible changes to financial budgeting (Chen et al., 2023; Ma & Thomas, 2023)

are serial reasons why the lessees reduce leasing commitment and intensity (Delgado-Vaquero et al., 2022; Giner & Pardo, 2018).

Second, the findings of this study are practically relevant. For companies, this research shows a picture of economic consequences related to financial reporting. Implementation new standards affects the presentation of financial statements (Utami et al., 2023; Utami et al., 2024). Leasing contracts may improve the quality of financial reporting and efficiency. Increased reporting costs and contractual agreements have an impact on funding costs. Thus, the role of financial leases as funding alternatives needs to be reviewed because firms recognize them as operating leases (Bugenbayev et al., 2020; Cook et al., 2019, 2021). In other words, financial leases become less attractive and affect the lessor.

Finally, leasing regulations have economic consequences for both lessors and lessees. This research discusses the new accounting standards for leasing, thus providing a reference for standard setters in considering the economic consequences of standards that have been issued and how to manage these impacts. Each standard has guidelines to be applied, but often, the application of standards affects business activities. According to (Barth, 2022; Cho & Krishnan, 2021; Wang, 2014), high-quality standards reflect the economic substance of business activities.

Literature Review

Efficient contracting theory

Efficient contract theory takes the point of view that the company organizes itself in the most efficient way (Christensen et al., 2016; Holthausen, 1990; Luong et al., 2022). To improve corporate governance, these contracts must be efficient. That is, they must strike an ideal balance between contract benefit and cost. Finally, the theory's purpose is to comprehend and anticipate management accounting policy choices in diverse scenarios and across different organizations, as well as how financial accounting might contribute to contract efficiency (Luong et al., 2022). (Luong et al., 2022). Management remuneration contracts, for example, are frequently based on reported earnings, while loan contracts typically include accounting-based covenants (Lau, 2022). As a result, managers have a vital interest in accounting procedure that affect remuneration and covenant values (Urcan & Yoon, 2024). According to contracting theory, managers may be enticed to manipulate reported earnings and working capital valuations if they believe it would benefit them (Holthausen, 1990). The implementation of IFRS-16 solves the issue for financial preparers and users (Fuad et al., 2022; Morales-Díaz & Zamora-Ramírez, 2018; Utami et al., 2024). The primary justification is that, under the efficient contracting theory, introducing IFRS-16 will have economic effects. When everyone buys, sells, or leases something, a contractual relationship is established. The contract must take into account risk sharing, reward or benefit, and the protection of individual investments from opportunistic activity.

The core of contract theory is about transaction with predetermined price and immediate exchange (Hsu & Liu, 2024; Urcan & Yoon, 2024). In the leasing occurrence, lessee firms would have liked to continue using the present lease accounting practice. The transition to the new standard was projected to be costly and challenging (Chen et al., 2023; Lau, 2022). They believe that the suggested approach of leasing contracts would have negative economic repercussions, such as diminished profitability. In accordance to the theory of efficient contracting, firms

must have financial reporting in order to achieve efficient contracting (Urcan & Yoon, 2024). The statutory capitalization requirement of leases will have an impact on their debt contracting interests, and managers will need to modify their accounting strategy for leases with the implementation of IFRS 16 (Hsu & Liu, 2024).

Investment Decision

Specifically, many business contracts (such as leasing) consider a series of cash flows, both current and future (Chen et al., 2023). The decision about future cash inflow has a significant impact on financial reporting (Ma & Thomas, 2023; Rahman & Chowdhury, 2023). This decision is difficult, as accounting standards do not clearly define a set of principles in a conceptual framework for analyzing certain accounting issues (Barth, 2022). One accounting issue relates to leasing and off-balance sheet financing.

Firms with financial constraints prefer leasing rather than external funding, which is expensive (Chen et al., 2023; Devos et al., 2021; Ma & Thomas, 2023). Initially, an operating lease is used, and then a new standard (capital lease) is adopted. The transition process requires additional information to make investment decisions in the future. The firm reviews its operational activities, assets and return from its leasing activity to comply with new standards (Chen et al., 2023; Shroff, 2017). The review gives them an idea of investment areas that are overinvested or leasing activities to be stopped, reduced, or replaced.

This study explores the effect of capital and operating lease commitment on firms' investment decisions. Changes in leasing accounting standards affect firm or manager behavior (Delgado-Vaquero et al., 2022; Fuad et al., 2022; Morales-Díaz & Zamora-Ramírez, 2018). Firms have limited information in all investment portfolios, so collecting information related to investment commitments or debt contracts feels difficult and expensive. Managers, as firms' agents, collect investment information, learn, and reassess the contract to avoid losses (Ma & Thomas, 2023; Rahman & Chowdhury, 2023). Managers not only find (e.g., leased assets) less profitable investments but also other investments to be sold or stopped.

Financial-Operating Lease Commitment and Intensity

FASB issued SFAS-13 in 1976. Following SFAS-13, leasing is an agreement that provides the right to use PPE or depreciable assets for a certain period. Leases are categorized in two types: operating and capital leases. Previous literature states that there are four considerations to set as operating lease: ownership transfer; purchase option; lease term exceeds 75% of the asset's economic life; PV of lease payment exceeds 90% of the fair value (Ma & Thomas, 2023). If none of the four criteria are met, it's considered as operating lease. The concept of a capital lease is transferring all risks and benefits of ownership to the lessee. For lessees, in their statement of financial position, financial leases will be capitalized as lease assets or liabilities. For operating leases, the lessee must disclose information relevant to operating leases in their financial reports. The classification of leases is crucial because it relates to different accounting treatments used between financial and operating leases.

This study explains the commitment and intensity of leasing and their effect on company investment decisions. Various literature explains the reasons for operating or capital lease choices. Refers to (Caskey & Ozel, 2019; Ma & Thomas, 2023; Morales-Díaz & Zamora-Ramírez, 2018), changes in new leasing accounting standards have a significant impact,

increasing leverage and decreasing ROA. Changes in leasing standards significantly affect debt agreements (Giner & Pardo, 2018; Lau, 2022). Firms have trouble to obtaining debt funding and making changes in lease terms. The shorter the lease period, the higher the costs will be. The firm chooses an operating lease to decrease reported debt (Cook et al., 2021; Koga & Saudagaran, 2022; Ma & Thomas, 2023). Cornaggia et al. (2013) state that companies prefer to use operating leases as off-balance sheet debt financing. Credit rating agencies and banks consider operating leases when conducting risk assessments (Chava et al., 2019; Koga & Saudagaran, 2022). Operating leases increase the cost of equity capital (Bratten et al., 2013; Chava et al., 2019; Cook et al., 2019).

Hypothesis Development

Efficient contract theory takes the point of view that the company organizes itself in the most efficient way (Christensen et al., 2016; Holthausen, 1990; Luong et al., 2022). The theory's ultimate goal is to understanding and foresee managerial accounting policy decisions in various situations and across various companies, as well as how financial accounting might improve contract efficiency (Luong et al., 2022). Previous literature explains that firms tend to choose operating leases because of reporting incentives (Caskey & Ozel, 2019; Ma & Thomas, 2023). Reporting incentives consist of debt agreements (Lau, 2022), easy funding (Devos et al., 2021), the number of lease costs (Cook et al., 2019), reported debt levels (Cook et al., 2021), reported company risk (Giner & Pardo, 2018; Koga & Saudagaran, 2022), and executive compensation (Caskey & Ozel, 2019; Rahman & Chowdhury, 2023). The second group of literature is non-reporting incentives (Ma & Thomas, 2023). They summarize non-reporting incentives related to bankruptcy court, tax laws, and operating flexibility.

In bankruptcy, an operating lease increases the financier's rights. Thus, operating leases are more attractive to companies with funding constraints (Cornaggia et al., 2013; Delgado-Vaquero et al., 2022; Fahad & Scott, 2021). Ma and Thomas (2023) provide evidence that firms with fluctuating operating levels prefer operating leases to gain convenience in obtaining and returning assets. New leasing standard (IFRS-16) reduces the tendency of firms to do off-balance sheets or reduce the intensity and commitment of operating leases. In addition, due to the release of new standards, the recognition of operating leases encourages more disclosure and affects manager compensation, thereby reducing operating leases. Thus, the hypothesis (H1a,b) can be formulated as follows.

H1a: Operating lease intensity decreased after the issuance of IFRS-16

H1b: Financial lease intensity increased after the issuance of IFRS-16

The motivation of a company choosing operating lease is reporting incentive. The question arises of whether the new leasing standards affect firm performance. Various accounting research shows that managers make investment decisions by considering external parties (Caskey & Ozel, 2019; Rahman & Chowdhury, 2023). Accounting information will be useful for explicit or implicit contracts. Mandatory standards affect accounting information and rising economic costs (Giner et al., 2019; Lau, 2022; Ma & Thomas, 2023). For example, creditors no longer provide funding to the firm, or suppliers cut off long-term relationships due to increased risks, affecting productive assets requirements, disrupting operational activities, and affecting firm performance or investment decisions.

New standards improve firm performance for two reasons. First, sophisticated investors and creditors consider operating lease disclosures in their risk assessments (Chava et al., 2019;

Koga & Saudagaran, 2022). On the other hand, the existence of new standards encourages managers to switch from costly operating leases to cost-efficient asset acquisition so that firms obtain real economic benefits. Second, manager behavior shifts (Caskey & Ozel, 2019; Rahman & Chowdhury, 2023). Initially, managers choose off-balance sheets to gain personal benefits, recognition on the balance sheet, increase disclosure and eliminate agency costs, increase firm performance, and make good investment decisions. The arguments above encourage researcher to formulate the hypotheses (H2a, H2b) below.

H2a: Financial lease commitment affects investment decisions positively

H2b: Operating lease commitment affects investment decisions positively

Methods

This study uses all companies listed in five countries with the largest leasing volume in the world (the United States, China, the United Kingdom, Germany, and Japan) as a proxy for broader leasing practice. This research uses these five countries to examine the economic consequences of implementing IFRS-16 and analyze whether commitment and lease intensity affect investment decisions. Purposive sampling is used to get a sample, with the first criterion being available historical data related to operating and capital leases. The second criterion is annual financial reports on December 31. This study uses four years before (2015-2018) and four years after the adoption of IFRS-16 (2019-2022) to test hypothesis (H1). The use of several serial observation periods before and after the introduction of IFRS-16 follows Chen et al. (2023), and to compare the increases and decreases in leasing intensity around the introduction of IFRS-16 that effectively implemented per 1 January 2019.

We used an observation period from 2011 to 2018 to test hypothesis (H2). 2011 was chosen because it was the year the IASB published the Exposure Draft in July, while 2018 was the year before the implementation of IFRS-16, starting 1 January 2019. Data on this study is generated from the Thompson Reuters Database. This study measures each variable presented in Table 1 below.

Table 1. Variable Measurement

Variable	Notation	Measurement	Reference
Dependent Variable			
Company Investment	$INV_{i,t+1}$	Log_natural from capital expenditure	(Chen et al., 2023)
Independent Variable			
Lease Commitment Finance Lease	$FINCOM_{i,t}$	Log_natural from the financial lease	Development from Lau (2022)
Lease Commitment Operation	$OPCOM_{i,t}$	Log_natural from operating lease	(Lau, 2022; Morales-Díaz & Zamora-Ramírez, 2018)
Financing Lease Intensity	$FININT_{i,t}$	Financial lease scaled by total asset	Development from Lau (2022)
Operating Lease Intensity	$OPINT_{i,t}$	Operating lease scaled by total asset	Development from Lau (2022)
Control Variable			
Company Size	$SIZE_{i,t}$	Log_natural from the total asset	(Chen et al., 2023)

Variable	Notation	Measurement	Reference
Sales Growth	$GROWTH_{i,t}$	Percentage change in Sales	(Chen et al., 2023)
Profitability	$PROF_{i,t}$	Earnings before extraordinary items and depreciation, scaled by total asset	(Chen et al., 2023)

This study uses robust cluster standard error regression (clustering by country, year, and industry) to examine the effect of commitment and lease intensity on firm investment decisions (Hanafi, 2021; Ma, 2014; Utami & Irawan, 2022). This study used paired t-tests to compare capital and operating lease intensity before and after IFRS adoption (testing H1a,b). This study refers to Chen et al. (2023), which uses data from four years before and four years after the adoption of IFRS-16. We use regression in equation model (1) to test hypothesis (H2a). Hypothesis (H2b) uses the regression equation model (2). The regression equation can be seen as follows.

$$INV_{i,t+1} = \alpha_1 + \beta_1 FINCOM_{i,t} + \beta_2 OPCOM_{i,t} + \gamma CONTROL_{i,t} + \theta Fixed Effect_{y,c,ind} + \varepsilon_{i,t+1} \quad \text{..... (Eq.1)}$$

$$INV_{i,t+1} = \alpha_1 + \beta_1 FININT_{i,t} + \beta_2 OPINT_{i,t} + \gamma CONTROL_{i,t} + \theta Fixed Effect_{y,c,ind} + \varepsilon_{i,t+1} \quad \text{..... (Eq.2)}$$

$INV_{i,t+1}$ is a firm investment decision, measured by log_natural from capital expenditure. $FINCOM_{i,t}$ is commitment in finance lease, measured by the log_natural from financial lease, $OPCOM_{i,t}$ is commitment in an operating lease, measured by log_natural from operating lease. $FININT_{i,t}$ is intensity of finance lease payments, measured by financial lease scaled by total asset, $OPINT_{i,t}$ is the intensity of the firm operating lease payments, measured by operating lease scaled by total asset. $CONTROL_{i,t}$ s a series of control variables consisting of $SIZE_{i,t}$, measure by log_total assets to control company size, the percentage change in sales $GROWTH_{i,t}$ to control company growth opportunities and profitability $PROF_{i,t}$ t using operating cash flow, measured by profit before extraordinary items and depreciation scaled to total assets. This research includes fixed effects in the year, country, and industry ($\theta Fixed Effect_{y,c,ind}$) to control for differences in company characteristics based on year and industry type that have the potential to affect investment levels. Expected coefficient β_1 , has a positive value, indicating that capital and operating leases increase corporate investment along with the adoption of IFRS-16.

Findings

This study uses all listed companies in the United States, China, United Kingdom, Germany and Japan. This research uses five countries with the largest leasing volumes in the world to examine the economic consequences of implementing IFRS-16 and analyze whether commitment and lease intensity affect firm investment decisions. We use data from four years before and four years after IFRS-16 adoption to test hypothesis (H1, the effect of lease intensity before and after IFRS-16 adoption. We observe from 2011 to 2018 in testing hypothesis (H2). 2011 was the year IASB published the Exposure Draft in July, while 2018 was the year before the implementation of IFRS-16 on January 1st, 2019. Data in this study

obtained from the Thomson Reuters-Eikon Database. The results of data processing are presented below.

Hypothesis Test (H1a, H1b)

The first objective of this research is to investigate the intensity of operating and financial leases before and after the issuance of IFRS-16. Under IFRS-16, all leases are treated as financial leases. IFRS-16 aims to increase the transparency of financial reporting and meet financial statement users' needs. Table 2 presents the data distribution for each country—the USA dominates the operating lease data, and Japan and the USA dominate financial lease intensity data.

Table 2. **Distribution of Leasing Intensity Data (By-Country)**

No	Country	Operating	Financial
1	China	532	20
2	Germany	295	469
3	Japan	79	6.797
4	United Kingdom	484	795
5	United States of America	18.425	3.210
Total		19.815	11.291

Source: Data calculated by the author, 2024

This study presents data based on sector names. Seventy-four sectors are involved in this study, as presented in Table 3. The distribution of data is relatively equal. However, the bank and biotechnology sectors have the dominant sample size, with 2,143 and 1,659 observations, respectively.

Table 3. **Lease Intensity Based on Sector**

Sector Name	OPINT	CAPINT	Sector Name	OPINT	CAPINT
Aerospace & Defense	208	69	Household Durables	340	195
Air Freight & Logistics	62	105	Household Products	68	29
Automobile Components	181	342	Renewable Electricity	49	46
Automobiles	74	62	Industrial Conglomerates	24	63
Banks	2.143	390	Industrial REITs	53	5
Beverages	113	81	Insurance	450	107
Biotechnology	1.659	92	Interactive Media	213	27
Broadline Retail	144	125	IT Services	230	269
Building Products	197	161	Leisure Products	128	74
Capital Markets	574	130	Life Sciences Tools	250	52
Chemicals	221	443	Machinery	609	747
Commercial Services	347	372	Marine Transportation	55	55
Communications Equip.	334	58	Media	352	226
Construction & Engineering	184	446	Metals & Mining	156	236
Construction Materials	31	80	Mortgage Real Estate	62	-
Consumer Finance	190	41	Multi-Utilities	86	56
Consumer Staples	188	425	Office REITs	115	23
Containers & Packaging	67	92	Oil, Gas & Fuels	432	161
Distributors	44	77	Paper & Forest Products	20	50
Diversified Consumer	219	136	Passenger Airlines	66	57
Diversified REITs	71	17	Personal Care Products	155	69
Telecom. Services	128	98	Pharmaceuticals	588	158
Electric Utilities	169	107	Professional Services	398	223
Electrical Equipment	283	175	Real Estate Development	255	200
Electronic Equipment	556	476	Residential REITs	100	13
Energy Equipment	192	39	Retail REITs	138	15

Sector Name	OPINT	CAPINT	Sector Name	OPINT	CAPINT
Entertainment	195	118	Semiconductors Equip.	536	184
Financial Services	279	57	Software	805	196
Food Products	328	423	Specialized REITs	144	48
Gas Utilities	73	37	Specialty Retail	616	465
Ground Transportation	155	218	Technology Hardware	139	66
Health Care Equipment	687	170	Textiles, Apparel	241	155
Health Care Providers	406	273	Tobacco	28	6
Health Care REITs	63	9	Trading Companies	244	339
Health Care Technology	103	29	Transport Infrastructure	14	60
Hotel & Resort REITs	96	14	Water Utilities	48	13
Hotels & Restaurants	592	566	Wireless Telecom.	52	50

Source: Data calculated by the author, 2024

Table 4 presents descriptive statistics of the variables in testing hypothesis (H1). This study hypothesizes decreasing operating lease intensity and increasing financial lease intensity around IFRS-16 issuance. The descriptive statistics are summarised in Table 4 and show that the mean operating intensity decreases over time. Before the IFRS-16 adoption, the mean was 0.1032, and it was 0.0667 after the period. The means value in Table 4 provides preliminary support for hypothesis H1a.

Furthermore, Table 4 shows the mean score for financial lease intensity before and after IFRS-16 adoption. Respectively, the mean scores before and after IFRS-16 adoption from financial lease intensity are 0.0183 and 0.0262. These results indicate enhancement in financial lease intensity, thus providing preliminary support for hypothesis (H1b).

Table 4. Descriptive Statistics

Variable	Minimum	Maximum	Mean	Std. Dev.
Panel A: Operating Intensity				
Before_IFRS16	4,9653E-07	52,1739	0,1032	0,4339
After_IFRS16	5,1873E-07	7,3794	0,0667	0,1678
Observation	19.815			
Panel B: Capital Intensity				
Before_IFRS16	2,0573E-08	14,1661	0,0183	0,1395
After_IFRS16	9,568E-08	1,7235	0,0262	0,0645
Observation	11.291			

Source: Data calculated by the author, 2024

Table 5 presents the results of the mean-difference test before and after the adoption of IFRS-16. The results show that the mean of operating lease intensity before and after adopting IFRS-16 is 0.1032 and 0.0667, respectively, t-value of 12.443 and significant at the level 1% ($0.000 < 0.010$). This finding supports the hypothesis (H1a) the intensity of operating leases decreased after the issuance of IFRS-16. So, hypothesis (H1a) is supported. Table 5 in the capital lease intensity column shows the mean score before and after the IFRS-16 adoption, respectively, of 0.0183 and 0.0262, t-value of -5.754 and significance at the level 1% ($0.000 < 0.001$). This finding supports the hypothesis (H1b) the intensity of financial leases has increased after the issuance of IFRS-16. So, hypothesis (H1b) is supported. The results are summarized in Table 5 below.

Table 5. Paired t-test

	Operating Lease Intensity		Capital Lease Intensity	
	Before IFRS-16	After IFRS-16	Before IFRS-16	After IFRS-16
Mean	0,1032	0,0667	0,0183	0,0262
t-value	12,443 (0,000)		-5,754 (0,000)	
Std. Dev.	0,4339	0,1678	0,1395	0,0645
Minimum	4,96534E-07	5,1873E-07	2,0573E-08	9,56797E-08
Maximum	52,1739	7,3794	14,1660	1,7235
Observations	19.815		11.291	

Source: Data calculated by the author, 2024

Supported hypothesis (H1a, H1b) makes it clear that firms shift from operating leases to capital leases and comply with IFRS-16. The changes in operating leases affect managers' recognition behavior in the balance sheet. Furthermore, this finding shows an enhancement in capital leases along with the issuance of IFRS-16. This result is consistent with Ma and Thomas (2023); the release of new standards affects manager investment behavior. These findings support the argument that eliminating off-balance sheet financing reduces reporting incentives by managers who use operating leases.

Hypothesis Test (H2a, H2b)

The second purpose of this study is to investigate the effect of operating and capital lease commitment on firm investment decisions. Table 6 presents the distribution of data for each sector name and country in Table 7. Table 8 presents descriptive statistics for key variables in this study. Tables 9 and Table 10 present the results of robust and cluster standard error regression analysis.

Table 6. Data Distribution (by sector name)

Industry Name	OPINT	CAPINT	Industry Name	OPINT	CAPINT
Aerospace & Defense	591	205	Household Durables	943	484
Air Freight & Logistics	167	210	Household Products	168	97
Automobile Components	516	789	Renewable Electricity	82	57
Automobiles	172	123	Industrial Conglomerates	128	131
Banks	5	-	Industrial REITs	120	6
Beverages	258	161	Insurance	173	47
Biotechnology	2.228	350	Interactive Media	496	117
Broadline Retail	309	291	IT Services	709	683
Building Products	456	387	Leisure Products	277	177
Capital Markets	1.485	306	Life Sciences Tools	533	196
Chemicals	691	1.074	Machinery	1.688	1.932
Commercial Services	927	894	Marine Transportation	141	122
Communications Equip.	776	207	Media	912	539
Construction & Engineering	498	1.032	Metals & Mining	486	567
Construction Materials	120	218	Mortgage Real Estate	80	-
Consumer Finance	341	105	Multi-Utilities	20	10
Consumer Staples	427	925	Office REITs	235	56
Containers & Packaging	146	225	Oil, Gas & Fuels	1.058	350
Distributors	101	186	Paper & Forest Products	69	107
Diversified Consumer	497	362	Passenger Airlines	200	136

Industry Name	OPINT	CAPINT	Industry Name	OPINT	CAPINT
Diversified REITs	147	20	Personal Care Products	395	185
Telecom. Services	333	218	Pharmaceuticals	977	360
Electric Utilities	74	15	Professional Services	975	499
Electrical Equipment	772	449	Real Estate Management	762	451
Electronic Equipment	1.530	1.210	Residential REITs	215	14
Energy Equipment	407	94	Retail REITs	297	24
Entertainment	525	316	Semiconductors Equipt.	1.240	545
Financial Services	412	189	Software	1.990	702
Food Products	840	935	Specialized REITs	262	74
Gas Utilities	63	8	Specialty Retail	1.381	1.123
Ground Transportation	362	478	Technology Hardware	318	151
Health Care Equipment	1.510	498	Textiles, Apparel	592	448
Health Care Providers	937	611	Tobacco	60	5
Health Care REITs	126	12	Trading Companies	650	814
Health Care Technology	241	90	Transport Infrastructure	135	142
Hotel & Resort REITs	186	42	Water Utilities	72	24
Hotels & Restaurants	1.315	1.213	Wireless Telecom.	147	111

Source: Data calculated by the author, 2024

Seventy-four sectors are involved in this study, as presented in Table 6. The distribution of data is relatively equal. However, biotechnology (2.228), capital market (1.485), machinery (1.688), software (1.990), electronic equipment (1.510), and healthcare equipment (1.530) sectors have the dominant sample size. Table 6 summarizes the data based on sector names.

Table 7 presents the number of observations for each country. Panel A shows the largest number of data, which is the USA, at 30,477, followed by the UK, at 4,195, Germany, at 2,207, China at 1,782, and Japan at 580. Data in Panel A is used to test the effect of operating lease commitments on investment decisions. Panel B presents data to test the effect of capital lease commitments on investment decisions. The largest data distribution in Panel B is Japan (15,164 firm-year observations), the United States (7,842), the United Kingdom (1,688), Germany (999), and China (241).

Table 7. Data Distribution (by country)

No	Country	Sample
Panel A: Equation 1 (Eq.1)		
1	China	1.782
2	Germany	2.207
3	Japan	580
4	United Kingdom	4.195
5	United States of America	30.713
Total		39.477
Panel B: Equation 2 (Eq.2)		
1	China	241
2	Germany	999
3	Japan	15.164
4	United Kingdom	1.688
5	United States of America	7.842
Total		25.934

Source: Data calculated by the author, 2024

Table 8. **Descriptive Statistics**

Variable	Minimum	Maximum	Mean	Std. Dev.
Panel A: Equation 1 (Eq.1)				
INV	1,6989	10,7251	7,1152	1,2747
OPCOM	1,4771	10,8089	7,3038	1,1797
OPINT	5,49E-08	173,3999	0,1442	1,2142
SIZE	3,9624	12,0315	8,7198	1,0901
GROWTH	-11,6345	14016,398	2,0193	113,8267
PROF	-126,3066	12,2471	-0,0412	1,4764
Observations	39.477			
Panel B: Equation 2 (Eq.2)				
INV	3,0043	10,6036	7,2344	1,0758
FINCOM	1,0259	10,3878	6,3799	1,1427
FININT	3,048E-08	31,5004	0,0228	0,4032
SIZE	5,0979	12,0315	8,8066	0,9129
GROWTH	-1,5217	36777,2	4,4245	381,1838
PROF	-38,2051	3,2064	0,0572	0,5455
Observations	25.934			

Source: Data calculated by the author, 2024

Table 8 presents descriptive statistics for variables to test hypotheses (H2a, H2b). Table 8 presents the maximum, minimum, mean and standard deviation from the investment decision variable (INV), operating lease commitment (OPCOM), and control variables consisting of operating lease intensity (OPINT), firm size (SIZE), growth sales (GROWTH), and profitability (PROF). Table 8 shows the mean scores of operating and capital lease commitment variables are 7.3038 and 6.3799, respectively. The means for capital lease intensity, firm size, sales growth and profitability are 0.0228, 8.8066, 4.4245 and 0.0572, respectively. Meanwhile, the operating lease intensity group tends to be the same.

Table 9. **Operating Lease Commitment Regression Test**

Variable	Regular Regression	Cluster Robust Std. error	Clustered By- Country	Clustered By- Year	Clustered By- Industry
Equation 1 (Eq.1)					
Intercept	-1.8876	-2.0169	-1.8876	-1.8876	-1.8876
OPCOM	0.1729 (0.0000) [41.4207]	0.0154 (0.0000) [4.2749]	0.1729 (0.0027) [6.6443]	0.1729 (0.0000) [20.4318]	0.1729 (0.0001) [4.3024]
OPINT	-0.002275 (0.3549) [-0.9252]	-0.3870 (0.0000) [182.0496]	-0.0022 (0.5327) [-0.6819]	-0.0022 (0.4469) [-0.8058]	-0.0022 (0.6644) [-0.4355]
PROF	-0.0036 (0.0698) [-1.8130]	0.0121 (0.0000) [6.9248]	-0.0036 (0.4751) [-0.7873]	-0.0036 (0.3292) [-1.0485]	-0.0036 (0.3034) [-1.0364]

Variable	Regular Regression	Cluster Robust Std. error	Clustered By- Country	Clustered By- Year	Clustered By- Industry
GROWTH	-6.13E-05 (0.0165) [-2.3980]	-7.80E-05 (0.0004) [-3.5283]	-6.13E-05 (0.0000) [-18.5535]	-6.13E-05 (0.0001) [-7.9538]	-6.13E-05 (0.0000) [-8.7880]
SIZE	0.8876 (0.0000) [194.2085]	1.0360 (0.0000) [262.1681]	0.8876 (0.0000) [29.3996]	0.8876 (0.0000) [98.3216]	0.8876 (0.0000) [16.1201]
R-square	0.7942	0.6692	0.7942	0.7942	0.7942
F (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000
Observation	39477	39477	39477	39477	39477
Σ Clusters	-	-	5	8	74

Source: Data calculated by the author, 2024

The second purpose of this study is to examine the effect of operating and financial lease commitments on firm investment decisions. Table 9 shows that operating lease commitment affects firm investment decisions positively (coefficient of 0.1729, t-statistic 41.420, p-value 0.000). Clustered robust standard error shows consistent results. This study shows that operating lease commitment affects firm investment positively, so hypothesis (H2a) is supported.

Table 10. Financial Lease Commitment Regression Test

Variable	Regular Regression	Cluster Robust Std. Error	Clustered By-Country	Clustered By- Year	Clustered By- Industry
Equation 2 (Eq.2)					
Intercept	-1.8800	-1.8548	-1.8801	-1.8800	-1.8801
FINCOM	0.1021 (0.0000) [28.1364]	0.0937 (0.0000) [28.952]	0.1021 (0.0012) [8.2055]	0.1021 (0.0000) [23.2005]	0.1021 (0.0000) [6.7547]
FININT	-0.0191 (0.0105) [-2.5577]	-0.0172 (0.0094) [-2.5989]	-0.0191 (0.0053) [-5.5122]	-0.0191 (0.0156) [-3.1765]	-0.0191 (0.0002) [-3.9839]
PROF	0.0094 (0.0912) [1.6892]	0.0078 (0.1135) [1.5827]	0.0094 (0.7131) [0.3948]	0.0094 (0.3837) [0.9291]	0.0094 (0.6093) [0.5133]
GROWTH	3.80E-06 (0.6270) [0.4859]	4.10E-06 (0.5573) [0.5868]	3.80E-06 (0.6063) [0.5584]	3.80E-06 (0.6652) [0.4515]	3.80E-06 (0.6530) [0.4514]
SIZE	0.9609 (0.0000) [209.2134]	0.9694 (0.0000) [236.66]	0.9609 (0.0000) [107.6841]	0.9609 (0.0000) [185.1251]	0.9609 (0.0000) [42.8831]
R-square	0.8006	0.6764	0.8006	0.8006	0.8006

Variable	Regular Regression	Cluster Robust Std. Error	Clustered By-Country	Clustered By- Year	Clustered By- Industry
F (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000
Observation	25934	25934	25934	25934	25934
Σ Clusters	-	-	5	8	72

Source: Data calculated by the author, 2024

The hypothesis (H2b) in this study is capital lease commitment positively affects firm investment decisions. The results of the regression analysis in Table 10 show a coefficient of 0.1021, t-statistic of 28.1364, and p-value of 0.000, indicating that capital lease commitment has a positive effect on investment decisions (H2b is supported). Regression using robust standard error and clustered robust (by countries, years, and industries) show consistent results. The control variables, financial lease intensity and firm size, show a significant effect, while profitability and sales growth have no significant effect.

The first objective of this study is to investigate the use of operating leases during the adoption of IFRS-16. The data in this study includes two categories: before the implementation of IFRS-16 (2015-2018) and after (2019-2022). Table 4 presents the mean-difference tests for the two groups. Operating lease intensity has a mean score (before the adoption of IFRS-16) of 0.1032 and 0.0677 after IFRS-16 adoption, with t-value of 12.443 and p-value of 0.000, indicating a decrease in operating lease intensity. Meanwhile, the capital lease intensity mean score before and after IFRS adoption of 0.0183 and 0.0262, respectively, indicates an increase in capital lease intensity. These findings make it clear that firms and managers comply with IFRS-16, and firms shift from operating leases to capital leases.

This finding explains the increase in capital leases and decrease in operating lease along with the issuance of IFRS-16. The increase in capital lease is consistent with (Ma & Thomas, 2023). The release of new standards affects manager investment behavior. Furthermore, the decrease in operating intensity during the adoption of IFRS-16, indicating the use of operating leases is not always motivated by reporting incentives or agency-based problems. The adoption of capital lease standard may affect contractual outcomes and lead to decline in the performance measures used in compensation contract such as return on asset (Urcan & Yoon, 2024). Hence, managers considers to drop marginal project to increase their compensation (Luong et al., 2022; Wong & Joshi, 2015). Our evidence suggest that the intensity of capital and operating lease can be explained by efficient contracting theory.

The results of this study indicate operating lease commitment has a positive effect on firm investment decisions. Several reason to explain its relationship such as tax consideration, financial constraint, and agency cost (Devos et al., 2021). Operating lease expense are tax deductible, while capital lease have additional (related to deduction of interest). Hence, the choice to use operating lease is beneficial relative to other external funding or debt (Lau, 2022). On the other hand, financial contracting cost exhibits that firm with financially constrained have higher operating lease intensity (Cook et al., 2021; Koga & Saudagaran, 2022). In such condition, firm have difficulty to obtain the loans. Lastly, the agency costs decrease due to the use of operating leases as managers attempt to avoid risk in the asset residual value (Wong & Joshi, 2015). New standards on leasing encourage firms to make more disclosures. Off-balance sheet practices decline as new standards are implemented, agency costs decrease and manager

behavior changes (Chen et al., 2023; Ma & Thomas, 2023). Initially, managers chose off-balance sheets to gain personal benefits, but this behavior declined with the adoption of IFRS-16. Recognition of the balance sheet increases disclosure and eliminates agency costs, so firm performance and investment decisions increase.

Furthermore, this study shows that capital lease commitment has a positive effect on investment decisions. The adoption of IFRS-16 encourages firms and managers to disclose more lease assets and liabilities. This disclosure is useful in preparing capital budgeting. More disclosure increases the manager's information set, thereby increasing learning opportunities (Chen et al., 2023; Giner et al., 2019). Firms' compliance with leasing standards avoids overinvestment. Therefore, managers with higher-quality internal information gain comprehensive lease information in their decisions.

Conclusion

The first objective of this research is to provide concrete evidence of economic consequences related to the new accounting standard on leases (IFRS-16). The implementation of IFRS-16 increases firms' disclosures. Managers obtain a larger set of information that influences their behavior. The disclosed information increases its ability to prepare capital budgeting.

The second objective of this research is to examine the impact of IFRS adoption on increases or decreases in lease commitment and intensity. The results of this study show a decrease in operating lease intensity and an increase in financial leases during the issuance of IFRS-16. This finding proves that managers do not always pursue reporting or non-reporting incentives. The results of this research indicate that the company complies with the new standards. Even though the firm obtains incentives when using an operating lease, the company still follows the new rules that have been set. The final aim of this research is to test whether commitment and lease intensity affect firm investment decisions. The results of this study indicate operating and financial lease commitments improve investment decisions.

This research uses five countries with the largest leasing volume in the world and contributes less to the Indonesian government. For further research, it could involve Indonesia. Asia is the region with the third-largest leasing volume. Future research is recommended to include all listed firms in Asian countries. Operating leases were implemented widely, and for quite a long time, the new standards influenced the presenter's behavior in treating leases. Future research should investigate whether accountants apply financial leasing correctly or are influenced by the practice of operating leases. Operating leases is a rules-based approach, which mandates the same benchmark for all projects. The accountant is familiar with the rules for classifying operating or financial leases. The implementation of IFRS-16 removes these criteria and implies different benchmarks, based on judgment and contextual information. Biased treatment of leasing by accountants can be considered as an issue that needs to be investigated further.

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