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*From IAS 17 to IFRS 16: empirical analysis of the
consequences on European Banking sector.*

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Abstract

Thanks to the rapid spread of the leasing contract, over the years it has been necessary to revise the old accounting principles related to the lease. The most recent development in the subject of lease accounting occurred few years ago, with the International Accounting Standards Board (IASB) introducing the new IFRS 16 standard in January 2016, which replaced the preceding IAS 17. Effective from 1st January 2019, IFRS 16 completely abolishes the accounting distinction between operating and financial leasing, providing for the accounting of all assets and liabilities related to the lease, regardless of the nature of the lease. The reflection in the financial statements of the capitalization of operating leases is highlighted by the presence of “Right of Use” assets and “Leasing Liabilities”.

The purpose of this discussion is to bring to light the impact of the new IFRS 16 on the financial statements and on the main performance indicators of financial companies in the European banking sector. The analysis was carried out on a sample of 300 banks and financial institutions, statistically processing the data through t-tests. The result of this analysis, presented in detail in the final chapter of the thesis, will demonstrate how the impact - however significant it may be on the banking sector - is not such as to influence the investments and financial strategies of the institutions analyzed. However, the extent of the change is smaller than in other sectors.

Introduction

Leasing is a contract that is used nowadays in practically every economic sector. This contractual form has undergone strong growth in recent years due to the versatility and advantages that derive from the use of it for the most varied purposes, from traditional financing to the use of frequently used goods such as cars, computers, real estate and even planes. Leasing normally provides for two parties involved, the lessee and the lessor: the lessee undertakes to grant the rights of use of an asset to the lessor for a specific period while the lessor, in exchange, will pay the fees provided for in the contract. The dissemination of this contract over the years has led the IASB to revise the accounting principles used, to ensure greater transparency and greater clarity at the time of accounting for the lease. Following a long process of proposals, criticisms and drafts, the new IFRS 16 was introduced, published in 2016 but entered into force only from 1st January 2019, an accounting standard that replaced the previous IAS 17. The need to a change comes from the problems arising from the previous distinction, in accounting, between operating leasing and financial leasing and from the relating off-balance sheet presence of operating leases.

In this thesis, leasing as a tool will be described in the first chapter, starting from the birth and the first forms of leasing dating back to several centuries ago, up to a practical example of sectors that are gradually using this contractual form more and more.

Subsequently, in the second chapter, the regulatory framework regarding the accounting of leasing will be analyzed in depth, explaining the transitional process that has taken place over the years since IAS 17 and IFRS 16, principles that will both be described specifically in the following paragraphs. The chapter will close with the presentation of a practical example to illustrate the accounting differences and the effects on the balance sheet and income statement.

The third chapter will instead present the analytical studies that have been carried out since the 1960s, through empirical analyses to test the impact of the capitalization of operating leases on the various financial ratios. During the chapter we will see the evolution of empirical studies up to the most recent regarding the impact of IFRS 16 in the various sectors.

Finally, the fourth chapter will describe the empirical analysis underlying this paper, presenting first how the analysis sample was selected and then the observations that were removed for various problems encountered in the data collection. The chapter will continue with a description of the hypotheses, the type of test carried out and the main results found from the empirical analysis.

The conclusions will provide the candidate's point of view following the analysis conducted, with a comment on the results obtained.

Chapter 1

1.1 What is “leasing” and how is born.

The term "leasing" is used more and more frequently in recent years to express the existence of a contract - typically between two or three parties - in which a subject, called "lessor" undertakes to lend, as the term expresses, the rights of use of an asset owned by him to another person, called "lessee", who in exchange will pay, over time, the costs relating to the rental for a certain period of time that can reach a maximum of 99 years.

The leasing contract provides for a fixed deadline, at the end of which the person who received the asset can decide whether to redeem it, paying the amortized value, or to return it.

Leasing is particularly useful for companies that decide to maintain financial flexibility but above all accounting flexibility, as it would avoid a fixed cost to be amortized over time such as the purchase of a property, for example, in favor of the rent provided for in the contract that is configured therefore as a variable cost far less expensive.

This type of contract, although it has established itself in recent decades, can be considered ancient. The origins of this contract date back to ancient Egypt, where some scholars have confirmed and supported the presence of some leasing contracts as early as the third millennium BC, where a man sold a land complete with equipment for use and slaves to another man, all in exchange for a periodic fee to be paid equal to 7 floods of the Nile.

Also, in the code of Hammurabi, dating back to the eighteenth century, a mention is made of a leasing transaction with the object of granting land and assets related to it in a formula completely different from the purchase of property rights. The first activity based on leasing is instead traced by some archaeologists to the Justinian Age and around the fourteenth century in various areas, including Venice. This shows that already 5 millennia ago, man has worked hard to find different forms of economic contracts that are not limited to simple purchases.

The real starting point, however, occurred in the post-war period, around the middle of the last century in the United States, where numerous companies of various kinds began to need funding.

The first appearance of the "lease agreement" took place in 1952 in San Francisco. This contract was issued by the company "United States Leasing Corporation", the first equipment leasing company, born with the aim of benefiting from various tax breaks related to the transfer to third parties of the rights of use of the asset and the related maintenance costs associated.

Few years later the banks were allowed to operate leasing as a new form of financing, and in the 60s there began to have a rapid increase in these forms of contracts: in the early 60s there was a volume of business related to leasing contracts of around 1 billion, while around the end of the 80's the turnover was around 110 billion. The expansion took place all over the world, starting from North America, passing through Northern Europe and ending in Asia and Europe. In our continent, the first leasing-based business was founded in 1962 in Germany in Dusseldorf, under the name of "Deutsche leasing GMBH".

Although innovative, the leasing contract in its early forms was uncertain from a legal, fiscal and economic point of view, and for this reason regulatory intervention was necessary when the importance of this novelty was realized. This obstacle has been overcome in 1965 with the "Leasing and Selling Law of 1965", which gave way to a worldwide expansion at a wild rate.

1.2 Different types of leasing

With the passage of time and with the rapid spread of leasing, the discipline has evolved by presenting multiple types of this contract, depending on the characteristics and agreements that are established within the contract regarding various factors such as the duration, the number of parties involved, the benefits and charges of the lessor / lessee and so on.

Among the most common types we find financial lease, operating lease, leveraged and non-leveraged leases, conveyance type lease, sale and leaseback, full and non-pay-out lease. Describing all of them would be useless. Therefore, for the sake of simplicity, in the analysis of this report we will present the first two types mentioned above, which are the most widespread and most important to be explored in both economic and accounting terms.

Financial Lease

Financial leasing is a way of financing applied by banks or financial intermediaries and is defined in the Statement of Standard Accounting Practice 21 (SSAP 21) as a lease that transfers virtually all the risks and rewards of ownership of the asset to the lessee. This implies that this form of leasing is the one that comes closest to the actual purchase of the asset by the lessee. As already mentioned above, the lessee will receive the exclusive use of the property, provided that the established terms are respected and in exchange will periodically pay rental fees. Among the charges borne by the lessee

we can find the so-called risk of technological obsolescence and any expenses related to ordinary and extraordinary maintenance.

The amounts paid to the grantor are typically of three types: maxi-rent, periodic rent, and redemption price. The first consists in a fee of an increased amount compared to the periodic fees (which are generally of the same amount), while the last, the redemption price, corresponds to an agreed amount (usually below the market value at that time) for purchasing the asset at the end of the leasing contract. Financial leasing does not oblige the lessee to redeem the asset at maturity but provides for a clause of "redemption option" exercisable by the contracting party.

The lessor, through the income from the fees, will recover the initial investment within the established time, and will be able to make a profit from the sale of the asset upon expiry of the contract.

The financial lease is defined as “non-cancellable”, but it is still possible to insert clauses that allow it to be terminated even before the envisaged expiry date. When the contract expires, several events can occur, but typically the possible options are the following:

- ◆ Sale of the asset by the lessee to a third party, acting on behalf of the lessor.
- ◆ Return of the asset by the lessee so that the lessor can then sell it to a third party.
- ◆ Renewal of the lease agreement which takes the name of “secondary lease”, which can continue for an indefinite period if lessor and lessee agree, or when the property is sold.

Operating Lease

Operating leasing, unlike financial leasing, does not see a real transfer of the risks and rewards of ownership to the lessee. The duration of the contract is generally shorter than that of the economic life of the asset in question, as the person who decides to grant the asset in the form of an operating lease expects to resell the asset after the contractual expiry, even to an external party, for a certain value called "residual value", which will in any case be significant.

Operating leasing is widely used for assets which, even after years of use by a subject, continue to have an objective value for other subjects who wish to purchase or rent it. Examples of assets under operating leases are aircraft, large vehicles and construction plant or machinery. Due to its characteristics, this contract is very similar to the classic rental.

Also, for the operating lease, the contract provides for rents that are paid by the lessee to the lessor for the agreed period, which also include the maintenance costs of the asset, which are in fact borne by the lessor. The fees are of a lower amount since there is no redemption option or duration restrictions in the contract. Unlike financial leasing, the total amount of these amounts paid will not

cover the entire value of the investment made by the lessor. Furthermore, the main advantage of operating leases lies in the possibility of deducting the entire fee paid from a tax point of view.

The ownership of the asset will be maintained by the lessor, who will then regain control of the asset in question at the expiry of the contract where the scenarios may be different:

- ◆ The asset is sold on the market at a price equal to the residual value.
- ◆ The asset is placed as the subject of a new operating lease agreement with a third party.
- ◆ The asset continues to be granted to the initial policyholder, always in exchange for a fair rent that considers the residual value of the asset.

There is no better type than another, but each context sees operating or financial leasing as the best option for use. A fundamental criterion in choosing between leasing is undoubtedly the type of asset and its useful life. Operating leasing, in fact, will be more suitable for highly obsolescent assets, acquired with a contract like that of rental, which will allow for greater flexibility and fewer constraints both in economic terms and in future purchase. Operating leasing is very useful for this type of asset as the lessee may request the lessor at any time to replace the obsolete or worn asset.

On the other hand, a financial leasing contract is more appropriate for acquiring those more durable assets such as plant and machinery and more onerous. In this case, in fact, instead of buying an asset, it will be possible to lease it by paying the corresponding installments and receiving in exchange, as we have already said, almost all the risks and benefits associated with it. At the end of this, instead of the classic installment or deferral of payment which provides for coverage of the entire cost of the asset, there will be no obligation to pay the final redemption price. This option allows considerable accounting and financial flexibility.

The second crucial criterion in the choice concerns the accounting needs of the organization, as the two types of leasing are treated differently in accounting terms. The accounting difference will then be dealt with in the following chapters as it appears to be the focus of the research carried out at the origin of this paper.

In **Table 1** it will be possible to find a summary of the main differences between the two most common types of leasing.

	Financial Lease	Operating Lease
Ownership of the asset	Leasing Company	Leasing company
Who takes risks and rewards of ownership	Lessee	Leasing company
Who has the responsibility for maintenance and repairs	Lessee	Leasing company whether maintenance is included in contract
Length of the leased asset	Most of useful lifespan	Part of useful lifespan
Balance sheet treatment	On balance sheet	On/off-balance sheet, depending on accounting standard used

Table 1 – Financial Lease vs Operating Lease summarized.

1.3 Leasing Industry

The leasing contract is used in the most varied economic sectors thanks to its simple adaptability to goods of all kinds. Financial flexibility and tax advantages are two of the factors that have favored, over the years, the birth of real companies that base their economic activity on the concession of leased assets.

But which assets are the subject of leasing contracts nowadays?

Very often we can find large construction companies, which, thanks to their earnings over time, have had the opportunity to buy all the equipment and machinery to carry out the construction works, and which perhaps have unused equipment that they grant in leasing to other companies. The latter, which can also be smaller company belonging to same sector, do not have the economic availability to access plants and machinery through direct purchase, and for this reason they can opt for leasing to get hold of equipment that would otherwise have been inaccessible. The same goes for companies, large or small, that need to move their offices, sometimes spread over huge surfaces, to other structures, which

in the event of a purchase would be inaccessible but which are acquired thanks to leasing. Here, the company can either contact a construction company that will lease the structure they built themselves or contact another company that can lease a structure in their possession, or part of it.

The affirmation of leasing, however, does not only concern industries that operate with very expensive assets such as machinery and buildings or with low "repeat purchases".

The automotive sector is the main example of this, as cars are necessities, and deserves a particular analysis.

The traditional idea of acquiring a car outright from a dealership has now given way to the more modern leasing or long-term rental solution. This change was based on the possibility to offer the consumer the chance to own a car for a specific time, after which, in a sort of "satisfied or reimbursed" formula, it is possible to request a new car or redeem the one already covered by the leasing contract. This allows for fewer constraints than direct purchase. In fact, a consumer who buys a car can keep it until the end of its useful life or resell it if his needs change. However, it is not certain that the replacement process that starts from the sale of one's car to the purchase of a new one is so rapid. Leasing comes to the aid of this type of consumer need, to keep up to date and to have a new car quickly and in a much faster way.

Initially, new forms of intermediation in the sale of cars were born compared to the more traditionally widespread ones. Companies have taken hold, among the most famous in Europe, it is worth mentioning Sixt and LeasePlan, which instead of selling cars through classic financing or direct purchases, have proposed long-term rental formulas with leasing contracts where the customer is simply required to pay a fee including all expenses related to ordinary and extraordinary maintenance. In addition to this, the customer did not have to worry about paying the insurance premium and car ownership taxes.

Subsequently, thanks to the success of this sales model, the car manufacturers decided to introduce this form of purchase/rental from their commercial representatives, the dealers. In fact, it is increasingly visible, within commercial advertisements, the presentation of the classic purchase methods with the final price and with the installments connected to the traditional financing and in addition the possibility of long-term rental, as does the "Why-Buy" service from BMW.

Even companies that offer their employees the so-called "company car" turn to leasing to maintain greater flexibility and to reduce costs that would otherwise be enormous.

Therefore, as we have seen, leasing can have all kinds of facets as regards contractual agreements, but above all it can concern goods of all kinds, and the examples presented clearly express how much this type of contract is now the primary choice by many consumers and by numerous companies.

Chapter 2

2.1 Introduction to International Accounting Standards

Before describing what is the accounting discipline of leasing, it is necessary to present an examination of the historical evolution of the international IAS and IFRS standards, to allow a better understanding of what was then the transition that is the subject of this report.

The introduction of international accounting standards arose from the need, in the early 70s of the twentieth century, to have a general guideline followed by all companies in all countries so that it was possible to compare companies that had followed different accounting rules up to that time. In fact, each country internally proposes guidelines to companies to follow in the preparation of the financial statements and other related documents, guidelines that could in fact concern one country and not the other. It was therefore difficult to compare different companies in the same sector but from different countries with different accounting principles. To date, we can still find the accounting principles of the OIC in Italy, U.S GAAP in the United States, SWISS GAAP in Switzerland, HGB in Germany, FRS in United Kingdom and many others.

Therefore, in response to the need to standardize the accounting standards of all countries, the International Accounting Standard Committee (IASC) was founded in 1973 by the agreement between the major professional associations of Australia, Canada, France, Germany, Japan, Mexico, United Kingdom and United States. Today it is called the International Accounting Standard Board (IASB), which from its foundation in 1973 until 2001 published a total of 41 IAS, each concerning a specific indication on the accounting of an economic operation. The IAS principles do not necessarily have to be followed by companies in the preparation of financial statements, but it is useful to stick to these for comparison needs often and willingly even with international competitors, in addition to the advantage of allowing international investors to have an objective and linear valuation criterion of the company. For this reason, companies usually prepare their financial statements according to both national and international accounting standards.

Since 2001, the IAS standards have been reviewed and replaced by International Financial Reporting Standards (IFRS), also published and disseminated by the IASB. This operation has not fundamentally led, except in some cases such as the one that will be analyzed below, radical changes in the accounting guidelines. The IFRS simply replace in a modern and updated revision key some accounting principles that over time may have had some inconsistencies within them, proposing themselves as more understandable and easier to adopt to further favor the "accounting harmonization" process which represents the main purpose of the IASB.

To date, a total of 9 new IFRS have been introduced which have replaced the corresponding IAS, while all the other IAS which have not yet been replaced are still in use.

Despite the numerous initiatives undertaken by the IASB and the European Commission (EC) to encourage adherence to international accounting standards, the adaptation process was long and not simple, so much so that in June 2000 the European Commission put forward the proposal, then accepted, to make adherence to the IAS standards mandatory by 2005 at least for all listed companies in Europe, with the aim of creating greater efficiency, transparency and accountability in the financial markets. However, the commitment also came from individual countries with auxiliary documents to the transition drawn up for listed companies.

The Italian Accounting Body, for example, presented in 2005 the "Operating Guide for the transition to international accounting standards (IAS/IFRS) and numerous other documents over the years to help companies prepare financial statements according to the new standards.

2.2 Transition from IAS 17 to IFRS 16

Going depth into the subject of this report, the accounting standards that have been issued by the IASB for the accounting of leases are identified in IAS 17, used until 31st December 2018, and the new IFRS 16, used starting from 1st January 2019.

The very first guideline for the accounting of leases in chronological order is IAS 17, introduced by the IASC first under the name of "Accounting for Leases" in 1982 with effect from 1st January 1984, then under the name of "Leases" in 1997 with effect from 1st January 1999.

According to IAS 17, it was first necessary to divide the leasing into financial or operating (the differences were reported in the previous chapter), and based on the distinction it could be found:

- ◆ Operating lease accounted for as a cost in the income statement and in the notes to the cash flow statement.
- ◆ Financial leasing accounted for both as an asset and as a liability in the balance sheet.

Starting from the years following the introduction of the first IAS 17, gaps in IAS 17 began to be glimpsed, as very often companies tended not to account for operating leasing transactions in the income statement, altering the image that the budget provided externally. For this reason, an attempt was made to immediately identify the solution to this problem, a solution that was proposed in 1996

by the "G4+1" body and which suggested to standardize leasing accounting without making the distinction between operational and financial.

The transition process, towards a definitive accounting standard, begun with a cooperation project between the IASB and the FASB (Financial Accounting Standard Board), the US correspondence of the IASB, defined by the "Memorandum of Understanding" agreement in 2006, to encourage an improvement in accounting representation. However, over the years, the two "Standard Setters" have opted for different solutions in some areas: the FASB has decided to continue the accounting model based on the dichotomy between financial leasing and operating leasing; the IASB has definitively abandoned the original distinction by proposing a single accounting model.

The turning point, however, came in 2009 with the publication of the initial Discussion Paper called "Leases: Preliminary Views". This document presented the will, on the part of both the IASB and the FASB, to reach a common standard that would definitively be based on the removal of the distinction, in the accounting field, between operating leasing and financial leasing, thus assuming registration in the state balance sheet of all assets and liabilities deriving from leasing contracts. Following the initial Discussion Paper, two "Exposure Draft" are presented within a few years:

- ◆ ED/2010/9 of August 17, 2010.
- ◆ ED/2013/6 of 16 May 2013.

The first published ED provided, on the lessee side, a single model based on the right-of-use model, recording in the financial statements an intangible asset (that had to be amortized over the expected lease term) and a liability that corresponded to the amounts to be paid. On the other hand, two different models were envisaged for the lessor based on the transferability or otherwise of the most significant part of the risks and benefits associated with ownership of the asset ("derecognition model" or "performance obligation model"). These models proposed by ED/2010/9 were deemed excessively complex to apply, according to some national accounting bodies. This led to a further revision of IAS 17, carried out in July 2011 by the IASB and FASB, which led to the publication of a "Revised Exposure Draft", ED/2013/6.

The latter had the aim of removing, through changes and revisions, the criticisms received in the consultation for ED/2010/9. The changes concerned various aspects such as the scope of application of the standard, the criteria for identifying one or the other lease, the definition of the duration of the contract, the accounting of the transaction in the financial statements for both the lessor and the lessee, and finally the reintroduction of the distinction between leasing. However, the distinction was no

longer based on the criterion of transferring risks and benefits but based on the nature of the asset: “Type A” leasing for capital goods other than real estate and “Type” B for real estate. This distinction, for example, is no longer present today. The result led to some changes from the previous ED:

- ◆ Removal of the distinction between financial and operating leasing.
- ◆ Change in the accounting guidelines for the lessee, who had to insert, for all types of leasing except those with a duration of less than 12 months, the “right to use” as an intangible asset and the expenses related to leasing in the liabilities, valued as the present value of the fees to be paid.
- ◆ Maintenance of the guidelines provided by the previous IAS 17 for accounting by the lessor, except for some details on the recognition of revenues and the discounting of the residual asset.

The model presented by ED/2013/6 is the one that gave life to the new IFRS16, introduced in 2016 by the IASB effective from 1st January 2019. This change and the accounting transformation have put many companies in difficulty because they were required for in-depth analyses to ensure the consistent and correct representation of the assets and liabilities in the financial statements. We will go in depth of IAS and IFRS analysis in following paragraphs.

2.3 International Accounting Standard 17 (IAS 17)

IAS 17 was officially introduced in December 1997 and today represents the first international accounting standard issued to align the accounting of leasing. IAS 17 describes leasing as “an agreement whereby the lessor conveys to the lessee in return for a payment or series of payments the right to use an asset for an agreed period”. It lists the accounting principles for all types of leasing, except for two specific cases reported, which are:

- ◆ Leases to explore for use minerals, oil, natural gas and similar non-regenerative resource;
- ◆ Licensing agreements for such items as motion picture films, video recordings, plays, manuscripts, patents and copyrights.

Furthermore, IAS 17 should not be applied for situations in which:

- a) Property held by lessees that is accounted for as investment property;
- b) Investment property provided by lessors under operating leases;
- c) Biological assets within the scope of IAS 41 Agriculture held by lessees under finance leases;
- d) Biological assets within the scope of IAS 41 provided by lessors under operating leases.

As reported in the previous paragraphs, the peculiarity of IAS 17 lies in the clear distinction that is made for leasing, dividing it into two different types. These two types are described within IAS 17, together with the various indications for accounting for them, both from the lessor side and from the lessee side. The distinction is reported as follows:

- ◆ A finance lease is a lease that transfer substantially all the risks and rewards incidental to ownership of an asset; title may or may not be transferred. This solution is near to the complete acquisition of an asset.
- ◆ An operating lease is a lease other than a financial lease and do not transfer risks and rewards. For that reason, operating lease is more like a pure rent.

Despite the clarity in the distinction and definition of the two types listed above, IAS 17 specifies a series of specific situations and conditions according to which it is possible to define a lease as a financial:

- ◆ Ownership of asset transferred to lessee by the end of lease;
- ◆ Bargain purchase option at the end of the lease;
- ◆ Lease term is a major part of economic life of asset;
- ◆ Present value of the minimum lease payments amounts to substantially all of asset fair value;
- ◆ Lease asset of a specialized nature.

It is also possible to find a general distinctive criterion to distinguish the two types:

- ◆ If lessee cancels lease, lessee bears lessor's losses associated with cancellation.
- ◆ Gain/losses in residual value fall to lessee.
- ◆ Lessee can continue lease for secondary period at low rent.

Financial leases:

About financial leasing, the guidelines to be followed by the parties stipulating this contract will be detailed below.

For the initial recognition, IAS 17 requires that lessee should recognize finance lease both as asset and liability in their financial statements, at an amount equal to the inception of the lease to:

- a) the fair value of the leased property or, if lower,
- b) at the present value of the minimum lease payments.

“Fair value” is the amount for which is fair to trade an asset for both parties into a transaction.

IAS 17 also requires the lessee to publish further disclosures for finance leases:

- a) For each class of assets, the net carrying amount at the end of the reporting period;
- b) A reconciliation between the total of future minimum lease payments at the end of the reporting period and their present value;
- c) Contingent rents recognized as an expense in the period;
- d) The total of future minimum sublease payments expected to be received under non-cancellable sublease at the end of the reporting period;
- e) A general description of the lessee’s material leasing arrangements.

Differently from the lessee, the lessor must record the amount owed by the lessee as a "receivable" in the balance sheet, for an amount corresponding to the net investment in the lease, defined as the payments not yet paid on the date of signing the contract (fixed and variable payments, residual value guarantees, exercise price of purchase option and penalties for terminating). This amount must also be divided into two different items:

- ◆ Gross investment, the total of the minimum lease payments;
- ◆ Gross earnings (interest) allocated to future periods.

Here follows the accounting in journal entries in **Table 2** and **Table 3**:

Lessee

	<i>Initial Date</i>		
BS	Leased Asset	Dr	
BS	Finance Lease Liability		Cr
	<i>Upfront advance for lease payment</i>		
BS	Finance Lease Liability	Dr	
BS	Cash		Cr
	<i>Periodic Lease Payments</i>		
BS	Finance Lease Liability	Dr	
IS	Interest Expense	Dr	
BS	Cash		Cr
	<i>Depreciation</i>		
IS	Depreciation Expense	Dr	
BS	Depreciation Provision		Cr

Table 2 - Journal entries for lessee under a financial lease.

Lessor

	<i>At initial date</i>		
BS	Lease Receivable	Dr	
BS	Property, Plant and Equipment		Cr
	<i>Lease Payments</i>		
BS	Cash	Dr	
IS	Interest Income		Cr
BS	Lease Receivable		Cr

Table 3 - Journal entries for lessor under a financial lease.

Operating Lease:

Regarding operating leasing, a totally different logic is followed due to the nature of this contract, which is decidedly less binding than the previous one.

On the lessee side, IAS 17 provides that "the amount of operating lease payments recognized as an expense in the financial statement over the lease term on a straight-line basis, unless another basis, is more representative of the timing of the user's benefit". Required disclosures in this case are:

- a) The total of future minimum lease payments under non-cancellable operating leases;
- b) The total of future minimum sublease payments expected to be received under non-cancellable subleases;
- c) Lease and sublease payments recognized as an expense in the period;
- d) A general description of the lessee's significant leasing arrangements.

The mandatory disclosures allowed asset users to forecast potential cash outflows that were not represented elsewhere in the accounts. Disclosures were to be provided in the notes of the statement of financial position because there was no liability indicated in there.

On the lessor side, however, at the beginning of the lease term, the assets underlying the operating lease must be reported in the balance sheet following the nature of the asset and must be depreciated in accordance with IAS 16 and IAS 38. Regarding revenues, it is established that rentals received over the lease term are treated as income and recognized over the lease term on a straight-line basis, unless another basis is more representative of the timing of the asset's benefit. The disclosures required for the lessor are:

- a) Future minimum lease payments under non-cancellable operating leases in aggregate and for subsequent years;
- b) Total contingent rents recognized as income in the period;
- c) A general description of the lessor's leasing arrangements.

Lessors were obliged to provide a basic description of leasing agreements as well as the aggregate and future amounts of minimum lease payments under non-cancellable operating leases at the balance sheet date.

As for operating leasing, a description of accounting in journal entries follows in **Table 4** and **Table 5**.

Lessee

	<i>Initial Date: no journal entries</i>		
	Rental / Lease payments		
IS	Lease Expense	Dr	
BS	Cash		Cr
	<i>Purchase of the asset (optional)</i>		
BS	Property, Plant and Equipment	Dr	
BS	Cash		Cr

Table 4 - Journal entries for lessee under an operating lease.

Lessor

	<i>Purchase of the asset</i>		
BS	Property, Plant and Equipment	Dr	
BS	Cash		Cr
	<i>Depreciation</i>		
IS	Depreciation Expense	Dr	
BS	Depreciation Provision		Cr
	<i>Rental / Lease payment received</i>		
BS	Cash	Dr	
IS	Rental Income		Cr

Table 5 - Journal entries for lessor under an operating lease.

2.4 International Financial Reporting Standard 16

The International Accounting Standards Board (IASB) adopted IFRS 16 "Leasing" in January 2016, which replaced the old accounting standard IAS 17 and became mandatory for financial years beginning on or after 1st January 2019. This move has resulted in new accounting and valuation standards for leasing contracts in financial statements, affecting the company's value and financial indicators. Various considerations pushed for the adoption of a new accounting standard, as shown above, but one of the key reasons that encouraged the IASB and the FASB to collaborate is the problem of so-called "off-balance sheet" leases. This practice was used by many companies to hide a portion of liabilities (the ones that are related to leasing in this case) to show up a garbled vision of their financial health. According to an SEC (Security Exchange Commission) estimate from 2005, US public businesses had around \$1.25 trillion in off-balance sheet leases.

The new International Financial Reporting Standards (IFRS 16), which is the result of years of recommendations and changes, eliminates the former distinction between operating and financial leasing. Regardless of the contractual structure of the leasing arrangement, the right to use the asset and the corresponding obligation assumed will always appear in the financial statements, according to this new principle, avoiding that any form of lease agreement is not accounted for. However, this one-of-a-kind methodology for recognizing rights of use and lease obligations has resulted in a slew of disagreements over the benefits and costs connected with them. To avoid these conflicts, IFRS 16 gives the lessee the option for not reporting leases with a length of less than 12 months and supporting assets with a low value in the financial statements. All other leases, except for this one, must be declared on the balance sheet. IFRS 16 gives the same scope for application as IAS 17.

Lessee

With the new accounting standard, the lessee is required to:

- (i) Recognize lease assets and lease liabilities in the balance sheet, initially measured at the present value of unavoidable future lease payments;
- (ii) Recognize depreciation of leased assets and interest on lease liabilities in the income statement over the lease term;
- (iii) Separate the total amount of cash paid related to the lease and include it in the cash flow statement, considering: a principal portion, presented as financing activities and interest, typically presented within either operating or financing activities.

The new IFRS 16 uses the so-called "right of use" paradigm to portray leasing. If any of the following three events occur, the lessee has the right of use (ROU) of the asset:

- (i) The lessee has the right to obtain the economic benefits arising from the use of the asset throughout the period of use;
- (ii) The lessee has the right to determine how and for what purpose the good is used throughout the period of use;
- (iii) The lessee has the right to use the goods for the entire period of use, without the supplier having the right to change the operating instructions.

The ROU must be represented as an asset in the balance sheet at the start of the lease, while the associated debt must be recorded as a liability. The following equation can be used to calculate ROU:

Lease liability	+
Upfront lease payment	-
Lease incentives received	+
Initial lessee costs	+
Estimate of dismantling costs	=
Asset ROU	

Figure 1 - ROU equation.

Where lease incentives are payments supplied by a lessor to a lessee in accordance with a lease, or repayments made by a lessor of a lessee's costs. The lease liability is the present value of future lease payments that were not made at the opening date.

These payments consist of the following:

- a) Fixed payments at the net of incentives received;
- b) Penalties for breaking a lease if it is reasonable to expect that the option to break the lease will be exercised;
- c) Amounts to be paid in case of guaranteed residual value;
- d) Price for the redemption of the asset if the exercise of this option is reasonably certain;
- e) Variable amounts calculated at the lease start date, rather than later, based on indexes/taxes (e.g., inflation rate). Because the lessee can avoid them, variable payments tied to future use of an asset are not included in the original lease liability calculation.

If the interest rate inherent in the lease can be easily calculated, the lessee shall discount the lease payments using that rate; otherwise, the lessee's incremental borrowing rate shall be used. Depreciation must also be estimated using the asset's useful life in the event of redemption, or the closest period between the contract's expiry and the end of the asset's useful life if this does not occur.

In following table will be shown a representation of journal entries on lessee's perspective:

	<i>Initial Date</i>		
BS	Right of Use	Dr	
BS	Lease Liability		Cr
	<i>Lease Payments</i>		
BS	Lease Liability	Dr	
BS	Bank Account		Cr
	<i>Interest Payments on Lease Liability</i>		
IS	Interest Expense	Dr	
BS	Lease Liability		Cr
	<i>Depreciation of ROU</i>		
IS	Depreciation Expense on ROU Asset	Dr	
BS	Depreciation Provision		Cr

Table 6 – Journal entries for lessee.

Lessor

As regards the accounting of leasing on the lessor side, there are no changes introduced by IFRS 16, but the indications provided by the previous IAS 17 continue to be valid. Accounting for the lessor has been judged and considered, by various analysts and investors during the presentations of the two Exposure Drafts, as excessively burdensome in relation to the benefits it would have brought. This implies that the distinction between financial and operating leasing continues to be present on the side of the lessor, but it is necessary that the latter provide additional information on the components of

rental income that are found in the reference period. The IASB expects that the introduction of IFRS 16 will improve disclosure on a lessor's exposure to asset risk - particularly for operating leases, which have a higher risk than finance leases - lowering the cost of analysis for users of a lessor's financial statements and resulting in lower additional costs for many lessors than would be incurred under IAS 17.

2.5 Benefits and costs of IFRS 16 introduction

The introduction of IFRS 16 was not immediate, as illustrated in the previous paragraphs, and has left some analysts perplexed about the usefulness of removing the well-known distinction between operating leases and financial leases. However, it should be emphasized that the benefits resulting from this accounting innovation are many and will be presented in detail below.

- ◆ Companies that apply IFRS 16, which we recall having become mandatory for those born on or after 1st January 2019 and for companies listed on the stock exchange, are far easier to compare with each other in terms of performance, as well as more transparent following the abandonment of the most confusing national principles;
- ◆ The financial statements, in terms of faithful representation (as also required by the Italian Civil Code in Article 2423, paragraph 2), is significantly improved as it provides more and more precise information, an extremely useful factor for investors and analysts who must process information budget for multiple purposes;
- ◆ Internally, companies are more orderly and more aware of their financial allocation among the various activities. This allows them to more easily identify any excessively expensive costs to cut.

On the other hand, it is right to mention and describe the costs arising from this change. It is fair to say that the costs depend above all on two factors:

- ◆ size of a company's leasing portfolio: the greater the volume of a company's leasing portfolio, the greater the costs of transitioning from IAS 17 to IFRS 16;
- ◆ terms and conditions established during the signing of the leasing contract between the parties involved.

In addition, companies that have previously used operating leasing or off-balance sheet accounting schemes will face significantly higher costs than companies with finance leases.

The costs relating to the first implementation of the new accounting standard identified by the IASB are mainly three:

- 1) Costs associated with the reconfiguration of systems and processes. Companies, in applying the new IFRS 16, will have to make greater efforts to change methodologies and frequency of information collection to be presented in the financial statements, unlike the scenario provided for by IAS 17 which required the collection of such information only for disclosure purposes;
- 2) Costs relating to the determination of the discount rate. Companies that have a significant number of off-balance sheet lease agreements will be required to determine the discount rate for each lease, so that they can then evaluate lease assets and liabilities at the present value of future lease payments. As regards the first application of IFRS 16, however, it is possible to use the incremental borrowing rate, precisely to reduce this type of costs;
- 3) Training and communication costs. Companies with off-balance sheet lease agreements will have to face substantial outlays so that staff are trained and updated on internal but also external procedures, to communicate changes made to the balance sheet to investors and lenders.

These listed represent the costs identified by the IASB to be incurred in the first phase and represent the preponderant part of the total costs. The remaining part, albeit less onerous, is related to costs on a "continuous" basis, those costs that remain and that will periodically have to be incurred. This category includes costs associated with the collection of information which will take place more frequently than under IAS 17.

2.6 Effects of transition

In the following paragraph. The effects that the transition from IAS 17 to IFRS 16 entail mainly on the three main accounting areas will be analyzed: balance sheet, income statement and cash flow statement.

Balance Sheet

Regarding the balance sheet, the effects of the transition were studied by the IASB, which highlighted how the greatest impact is recorded in companies that previously held off-balance sheet leasing contracts of significant amounts. For these companies, the transition involves an overall increase in assets and liabilities in the balance sheet, due to the requirement of the new accounting standard to report all types of leasing, therefore also the operating one, which has a significant impact. All leases, in fact, are accounted for by recording the current value of the lease payments, reported in the financial statements as "right of use" assets or together with the item "property, plant and equipment". Furthermore, if payments relating to leasing contracts are deferred over time, a company is also required to record the corresponding financial liability. The company's equity, following this change, will be modified as the book value of the leased assets will suffer a faster reduction than the amount of the lease liability: while the assets will be reduced due to amortization on a straight-line basis, the liabilities will be reduced by the lease payments made, but increased due to the interest accumulated over the term of the contract. Therefore, assuming all other factors as constant, the company's shareholders' equity will be of a lower amount than in the previous case with the application of IAS 17. Finally, according to the IASB, the effect on shareholders' equity is bound by additional factors such as: contractual terms, discount rates, leverage and ratio between leasing liabilities and shareholders' equity. This implies that the effect of the transition on the balance sheet will not be the same for all companies.

Income Statement

Unlike the balance sheet, the income statement should not undergo significant changes, since already from the previous application of IAS 17, companies were required to record a classification of costs in the income statement for both financial and operating leases. By applying IFRS 16, however, it is noted that the total expenditure relating to each individual reference period is different from the expenditure recognized in the application of IAS 17 for a single off-balance sheet lease. This occurs because, with IAS 17, off-balance sheet loans provided for a typical recognition of expenses of equal amounts for the entire duration of the leasing contract (except for variable fees), given that operating expenses were recognized in a linear manner. On the other hand, with the transition to IFRS 16, due to the separation of costs, the costs relating to leasing are no longer constant and equal but depend on the duration of the contract, the timing of payments and the rent charged in the leasing. In addition, a distinction is applied in the forecast of the effects in the first and second semester from the application of IFRS 16:

- ◆ In the initial phase, typically attributed to the first half, the sum of depreciation and interest expense is expected to be higher than a constant amount recorded by applying IAS 17 with off-balance sheet loans.
- ◆ In the second phase, attributed to the second half, the expected effect is the opposite as the amortization of the leased asset takes place on a straight-line basis while interest expense decreases over the duration of the contract as the leasing liability decreases.

The situation is different for companies that own leasing portfolios. The impact due to the application of the new IFRS 16 will be linked to factors such as established contractual conditions, distribution and portfolio diversification. Companies that hold equally distributed leasing portfolios, and therefore with the same number of lease contracts with the same beginning and end (therefore, the same duration), should have a zero impact. Differently, companies that hold a leasing portfolio that is not uniformly composed will have a significant impact on the income statement. In fact, a company that expands its leasing portfolios by entering new contracts, could face higher expenses than it would have with the application of IAS 17, as it will have a greater number of leases in the first part of their life. According to the IASB, this favors external users of the financial statements as it qualitatively improves the accounting comparability.

The IASB then conducted a "portfolio test" to demonstrate the effects that the application of IFRS 16 has on EBITDA and profit margin, reaching the same conclusions as the test conducted by the US correspondent FASB. The first evidence presented concerns the correlation between the number of leases within a portfolio and the amount of the impact of IFRS 16, an impact that will increase as the number of contracts increases. Furthermore, unlike the case of IAS 17, IFRS 16 implies a clear distinction in accounting between depreciation and interest expense: the company will be required to present interest expense as a portion of the total financial costs and to present depreciation within of a similar voice. IAS 17, on the other hand, envisaged the leasing fee as the sole operating cost.

Another evidence concerns the difference in the EBITDA value between the application of the two accounting principles. According to IFRS 16, the company must present, within the "financial charges", the implicit interest in the lease payments for the previous "off-balance sheet" leases, while in the application of IAS 17 the charge connected to the lease off-balance sheet is included in the item "operating costs". This results in a reduction in the value of EBITDA with IAS 17 and on the contrary in an increase in EBITDA with IFRS 16.

EBITDA is of fundamental importance as it is used by financial analysts and investors as a benchmark in evaluating the company's performance when comparing financial statements with other companies. In addition, EBITDA provides information on leverage.

The last aspect to consider concerns taxes, which however have a separate comparison as their effect varies from national rates and therefore it is not possible to provide an objective indication on the change resulting from the transition of accounting standards.

Statement of Cash Flow

According to the IASB, the application of the new IFRS 16 has no effect on the total cash flow of a company but changes the presentation of cash flows associated with previous off-balance sheet leases. IFRS 16 requires maintaining consistency with IAS 7 "cash flow statement", the classification of cash payments for:

- (i) the principal amount of leasing payables as part of the financing activities;
- (ii) the interest portion of the leasing liabilities in accordance with the requirements linked to the other interest paid.

Compared to the previous IAS 17, the effects concern an increase in liquidity following the operating activity and a corresponding decrease in liquidity following the financial activity. This derives from the fact that in applying IAS 17, companies were required to present cash outflows relating to off-balance sheet leases as operating assets, while in applying IFRS 16, repayments of capital on all liabilities leasing contracts are incorporated into the financing activities.

Impact On Key Financial Metrics

The IASB also analyzed the effect of IFRS 16 on the main financial metrics and on the main financial statement ratios used in the study of financial statements for valuation purposes. As for companies that previously had financial leasing, the impact on financial metrics is zero. On the contrary, for companies that presented operating leases, the IASB - through an "Effect Analysis" - provides for significant changes. These will be presented and described in **Table 2** to provide a complete view on the impact:

Table 2 – Impact given by IFRS 16 application on key financial metrics.

Metric	Computation	Effect given by IFRS 16 application
EBIT	Earnings before interest & taxes	<u>Expected Increase:</u> in substitution of “operating lease expense”, a smaller “depreciation expense” will be reported.
EBITDA	Earnings before interest, taxes, depreciation, amortization	<u>Expected Increase:</u> “operating lease expense” will be deleted, meaning that depreciation and interests are not detracted to this level of profit.
ROE	Ratio: Profit (loss) / Equity	<u>Expected variation depends on profit (loss):</u> if the effect on profit (loss) is zero, the ratio will increase considering that the reported equity will decrease.
ROCE	Ratio: EBIT / (Equity + Financial Liabilities)	<u>Expected variation depends on characteristics of lease portfolio:</u> with the application of IFRS 16, EBIT and financial liabilities will both increase.
Leverage (gearing)	Ratio: Liabilities / Equity	<u>Expected Increase:</u> lease liabilities will contribute to increase the total amount of liabilities while equity is expected to decrease. Consequently, the reported debt load will increase.
Profit Margin	Ratio: Operating Income / Sales	<u>Expected Increase:</u> interest on lease liabilities will be excluded.
Asset turnover	Ratio: Sales / Total Assets	<u>Expected Decrease:</u> applying IFRS 16, lease assets will now be recognized as a portion of total assets.
Interest cover	Ratio: EBITDA / Interest Expense	<u>Expected variation depends on characteristics of lease portfolio:</u> considering that both EBITDA and interest expenses will increase (as

		shown), expected variation depends only on lease portfolio.
Profit (loss)	-	<u>Expected variation depends on characteristics of tax rate and lease portfolio.</u>
EPS	Ratio: Profit (loss) / Number of shares in issue	<u>Expected variation depends on characteristics of tax rate and lease portfolio:</u> number of shares will not be influenced by IFRS 16 and the variation on profit (loss) depends on type of portfolio and tax rate (as shown).
Current ratio	Ratio: Current Assets / Current Liabilities	<u>Expected Decrease:</u> there will be an increase in current liabilities given by the reporting of lease liabilities, while current assets will not increase.
Quick ratio	Ratio: (Cash + Account Receivables) / Current Liabilities	<u>Expected Decrease:</u> current liabilities will increase given by the reporting of lease liabilities (as shown), while cash and account receivables will not be influenced by the IFRS 16.

2.7 Numerical Examples for IAS 17 and IFRS 16

As a conclusion of the chapter, it is useful to provide a numerical example of an operating lease to illustrate the practical differences encountered with the transition from IAS 17 to IFRS 16. The example provided will be completely random and imaginative and will provide a view on the impact registered on lessee's financial statements.

Let's assume that a real estate company owns several buildings to be leased to companies that need offices for their businesses. Company A, owner of the buildings, decides to lease Building X to company B, in need of offices. A 4-year contract is established, with lease payments to be paid at the end of each year of \$50,000. In addition to this, we assume that there are no additional costs to be

faced at the beginning (disassembly costs, removal and restoration costs). The implicit discount rate established is 4%.

IAS 17

According to IAS 17, on the contractual effective date, the lessee does not record anything. At the end of each year, an expense equal to the amount of the fee of \$50,000 is reported in the income statement, impacting only the Profit and Loss statement.

IFRS 16

The scenario for the application of IFRS 16 is quite different: the lessee will have to record, at the start date of the contract, both the lease liability and the right of use (ROU). The lease liability corresponds to the Net Present Value (NPV) of all lease payments (\$50,000 each) under the contract discounted at the expected discount rate (4%), while the ROU is initially recorded at the value of the lease liability by adding the direct costs which we have assumed to be equal for \$0. So:

$$NPV = 50.000/1.04 + 50.000/1.04^2 + 50.000/1.04^3 + 50.000/1.04^4 = 181.494,761 \$$$

$$\text{Lease Liability} = 181.494,761 \$ = \text{ROU}$$

Subsequently, the required financial statements relate to the depreciation of the ROU, calculated using the "straight-line method" and the interest expense, calculated on the balance of the leasing liability for each year. The interest expense, therefore, will decrease over the years as the balance decreases.

IFRS 16 - Lease Liability Recognition					
Year	Lease Liability	Lease Payment	Interest	Capital	Lease Liability Updated
Initial Date	\$ 181.494,76				\$ 181.494,76
Year 1		\$ 50.000,00	\$ 7.259,79	\$ 42.740,21	\$ 138.754,55
Year 2		\$ 50.000,00	\$ 5.550,18	\$ 44.449,82	\$ 94.304,73
Year 3		\$ 50.000,00	\$ 3.772,19	\$ 46.227,81	\$ 48.076,92
Year 4		\$ 50.000,00	\$ 1.923,08	\$ 48.076,92	\$ -

Figure 2 – Lease Liability Recognition

IFRS 16 - Asset and Depreciation Recognition			
	Asset	Depreciation	Net Asset
Year 1	\$ 181.494,76	\$ 45.373,69	\$ 136.121,07
Year 2	\$ 136.121,07	\$ 45.373,69	\$ 90.747,38
Year 3	\$ 90.747,38	\$ 45.373,69	\$ 45.373,69
Year 4	\$ 45.373,69	\$ 45.373,69	\$ -
Tot		\$ 181.494,76	

Figure 3 – Asset and Depreciation Recognition

Below, in **Figure 4**, it will be possible to see the difference in terms of effects on the financial statements between IAS 17 and IFRS 16:

IAS 17 vs IFRS 16 - Effects on Balance Sheet					
	IAS 17			IFRS 16	
Year	Assets	Liabilities		Assets	Liabilities
Year 1	\$ -	\$ -		\$ 181.494,76	\$ 181.494,76
Year 2	\$ -	\$ -		\$ 136.121,07	\$ 138.754,55
Year 3	\$ -	\$ -		\$ 90.747,38	\$ 94.304,73
Year 4	\$ -	\$ -		\$ 45.373,69	\$ 48.076,92

Figure 4 – IAS 17 vs IFRS 16 – Effects on Balance Sheet

IAS 17 vs IFRS 16 - Effects on Income Statement							
	IAS 17				IFRS 16		
Year	Lease Expense	Depr. and Int.	Total Expense		Depreciation	Interest	Total Expense
Year 1	\$ 50.000,00	\$ -	\$ 50.000,00		\$ 45.373,69	\$ 7.259,79	\$ 52.633,48
Year 2	\$ 50.000,00	\$ -	\$ 50.000,00		\$ 45.373,69	\$ 5.550,18	\$ 50.923,87
Year 3	\$ 50.000,00	\$ -	\$ 50.000,00		\$ 45.373,69	\$ 3.772,19	\$ 49.145,88
Year 4	\$ 50.000,00	\$ -	\$ 50.000,00		\$ 45.373,69	\$ 1.923,08	\$ 47.296,77
Total	\$ 200.000,00	\$ -	\$ 200.000,00		\$ 181.494,76	\$ 18.505,24	\$ 200.000,00

Figure 5 – IAS 17 vs IFRS 16 – Effects on Income Statement

As it is possible to notice, the effect on the Balance Sheet is much greater than on the Income Statement. In fact, in the case of IAS 17 there is no recognition for the items of assets and liabilities, while in the case of IFRS 16 the updated value of both is reported year by year. In the Income Statement, the impact is decidedly more limited as the total expenses at the end of the contract will be of the same amount both with IAS 17 and with IFRS 16, while the amounts will vary over the duration of the contract. The total expenses of less depreciation of the lease expense and with a total expense that is greater in the first year, almost the same in the second and less for the third and fourth years of the contract.

Chapter 3

3.1 Empirical studies on operating leases' capitalization

In this paragraph, the various studies and empirical analyses conducted by various scholars from around the world over the years will be presented in chronological order, to highlight the effects deriving from the accounting of operating leases on the main financial indexes.

The first contribution in chronological order comes from Nelson (1963) over half a century ago, who began conducting an empirical analysis on 11 US companies with the aim of drawing evidence of the effects of accounting for operating leases on financial ratios. In fact, at that time there was a boom with the introduction of this contract in the United States. Nelson's goal was to see if accounting for operating leases was useful in improving the reliability of the financial statements. To achieve this, it has drawn up a pre-accounting ranking of the leasing based on 15 financial statements calculated for each company. A ranking was then drawn up again, based on the same ratios used previously, this time post-accounting. The result showed that in 56% of the observations, the ranking moved by two or more positions. Specifically, the ratio most affected by the accounting was Debt/Equity.

Nelson's work was then resumed in the following years for an investigation, this time in a British framework, conducted by Ashton (1985) to analyze the effects of accounting for finance leases. In this case, an analysis was carried out on a doubled sample of 23 British companies, taking as a reference - to test the impact of accounting - five main indicators: profit margin, ROCE, return on shareholders' funds, gearing ratio and asset turnover. The result of the study conducted by Ashton showed that the only factor significantly influenced by the accounting was the gearing ratio.

Always in line with previous studies, the analysis is resumed by Imhoff et al. (1991) to analyze additional US companies with the constructive capitalization method they devised. This method, later used in many areas, provides for the application of numerous assumptions so that the minimum lease payments, the residual life of the asset, the tax rate and the discount rate can be determined (Giner et al. 2019).

To estimate the debt, the program of future cash outflows to be disclosed for the remaining non-cancellable operating leases was used. Subsequently, these flows were discounted with an estimate of the company's incremental financing rates and an estimate of the residual life of the leased asset. The present value of all non-cancellable obligations was instead used to estimate the off-balance sheet

debt for the operating lease. The model then estimated the off-balance sheet assets, analyzing the relationship between assets and debt, the relationship presented in **Figure 6**:

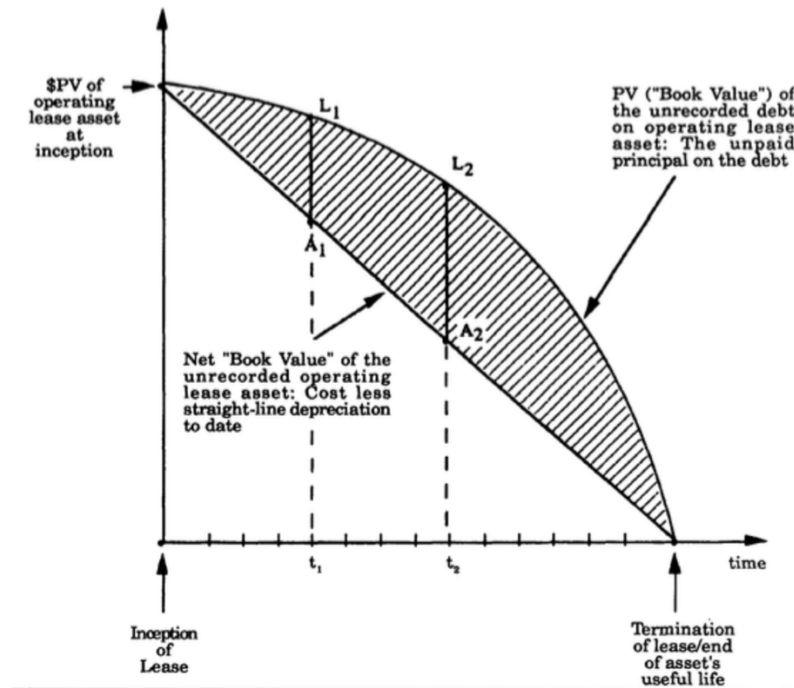


Figure 6 - Relation between the unrecorded operating lease asset and the unrecorded operating lease liability (Imhoff 1991).

As it can be seen in the graph, when the lease begins, the value of the liabilities and the leased asset not recorded in the balance sheet equals the present value of the future minimum cash outflows. On the other hand, starting from the first payment and the start of amortization at a constant rate, the liability of the operating lease is greater than the value of the leased asset and, with the passing of the useful life of the asset, debt payments and depreciation tend to zero, value reached at the termination of the contract in which both assets and liabilities are equal to zero. This model is applied by Imhoff et al. (1991) to a sample made up of 14 companies belonging to 7 different sectors. Each sector had two observations, representing high and low level of operating lease utilization. The result obtained shows that among the relationships analyzed, the most influenced were:

- ♦ ROA: average significant decrease of 34% for the high level of use of operating leases and 10% for the low level;
- ♦ D/E: average significant increase of 191% for the high level of operating lease usage and 47% for the low one.

The conclusion reached, however, saw the effect of accounting significant and considerable but also unpredictable.

Analogue to the method used by Imhoff et al. is the one proposed by Bettie et al. (1998) to estimate the book value of the operating lease and the impact it caused on the financial statement ratios. The analysis in this case was carried out on a random sample of 232 listed companies in the industrial and commercial sectors of the UK area. The analysis, carried out in the years 1990-1994, was based on nine selected ratios: ROE, ROA, ROCE, profit margin, asset turnover, interest coverage and 3 other gearing measures. Through the paired t-tests, the result provided by the analysis showed that mainly 6 out of 9 reports had undergone a significant change:

- ◆ Asset turnover and ROA reported a significant decrease;
- ◆ ROE, profit margin and the three gearing measures reported a significant increase;
- ◆ ROCE and interest coverage did not report any significant changes.

Considering that most of the indexes considered have undergone a change, the conclusion of Bettie et al. was that the accounting of the operating lease would probably have changed the company's cash flows and the relative accounting reliability in making decisions.

Subsequently, a study was conducted on the impact on the balance sheet of the constructive capitalization on the New Zealand Stock Exchange by Bennett and Bradbury (2003), also following the approach developed in 1991 by Imhoff et al. (1991). The study concerned a sample of 38 New Zealand companies listed after December 1995, asking them the amounts of future lease rentals in four moments: within year 1, within year 2, within years 3-5 and after year 5. The results obtained by Bennett and Bradbury showed a significant impact of the leasing accounting on fundamental factors of the company: financial leverage increased while profitability and liquidity decreased. These changes could distort the accounting situation present at that time, which was fundamental for the company's strategic decisions.

In the same year, a study was conducted by Goodacre (2003) also following the constructive capitalization procedure of Imhoff et al. The analysis was conducted, in the years 1994-1999, on a sample of 106 companies in the UK area operating in the retail sector, to analyze the impact of leasing capitalization but also to analyze the trend of use the leasing instrument in this sector. The performance indicators studied were nine: operating margin, asset turnover, income gearing, three measures for return on capital and three measures for capital gearing. The result highlighted that:

- ◆ Operating margin, the three gearing measures and the ROE reported a significant increase;
- ◆ ROA, ROCE, asset turnover and interest coverage reported a significant decrease.

These variations in the indicators analyzed demonstrate once again how much unaccounted operating leases do not provide a true picture of the company's financial situation and how much this alteration affects the decision-making processes and the company's performance.

The subsequent analysis in chronological order was conducted by Mulford and Gram (2007) on the retail sector, analogue to what was previously done by Goodacre (2003). The research was carried out following the announcement of collaboration by the IASB and FASB in revising the old accounting standards, and in this case an attempt was made to estimate the book value of off-balance sheet operating leases. More specifically, Mulford and Gram tried to report all the unaccounted-for leases of the analyzed companies found in the 10-K documentation but had to make estimates on the expiry dates of the contracts and on the discount rates, as they had no real indications. The analysis has given evidence, again, of the fact that the accounting omission of operating leases altered the financial situation of the company. The result achieved by Mulford and Gram in fact sees an increase in EBITDA, an increase in financial leverage, a reduction in profitability measures, an increase in operating cash flow and free cash flow.

Subsequently, Durocher (2008) presented a new method for constructive capitalization, reviewing the one previously developed by Imhoff et al. In this model, the specific assumptions of the company were used to calculate the impact of the leasing accounting on the performance indicators taken into consideration. These mainly concerned: financial strength, return on investment and management performance. The study was conducted on a sample made up of the 100 main Canadian public companies in order revenues, and the result of the analysis demonstrates how the accounting of operating leases can vary the value of the Debt/Equity ratio in a range from 66.2 % to 68.9% and significantly reduce the current ratio. These results were found in all the industrial segments that make up the sample, but further evidence arose from three specific industrial sectors that also reported significant results in the ROA, ROE and on earnings per share: merchandising and lodging, oil and gas and financial services.

Duke et al. (2009) took up the constructive capitalization model of Imhoff et al. to conduct an analysis slightly different from those presented up to that moment. The research started from the selection of the sample from the list of companies of the Standard & Poor 500 index of 2003, to arrive at the evidence that the companies, through the omission of leasing liabilities in the balance sheet, were falsifying data due to increase in their performance indices. The sample was divided into subgroups

of positive and negative income, arriving at two evidences: companies on average had omitted about 582 millions of liabilities (with a relative incidence of 11% on total liabilities) and about 450 million of assets (with a relative incidence of 4% on total assets). This had a negative impact on the Debt/Equity, Debt/Total Equity, and current ratio performance indicators, as well as having reduced retained earnings and net profit over time.

In the same year, Jesswein (2009) carried out an analysis of the US non-financial sector on a sample of 595 companies. Also in this case, an attempt was made to estimate the impact of the accounting of the operating lease on the main financial metrics, reaching an estimate of the omission of the activities of about 10%. Furthermore, it was found that the declared interest expense was about double even though the rents were not recorded in the balance sheet as a rental expense. The indexes affected were: ROIC (decrease of 28.6%), current ratio (decrease of 10%), quick ratio (decrease of 12.1%), interest coverage (decrease of 78.47%), debt ratio (increase of 72.7%).

The results showed that in addition to the already demonstrated alteration of company performance, the failure to account for the operating lease alters the financial analysis and the rating process.

In 2009, as illustrated in the previous chapter, the first Discussion Paper for the revision and amendments to IAS 17 was introduced by the IASB and FASB, also presenting studies and analyses that have favored and encouraged further studies on the accounting for operating leases and the effect caused by their absence in the financial statements.

Grossman & Grossman (2010) continued the analysis in the US non-financial sector, sampling 91 companies selected from the "Top 200" of Fortune 500 list, choosing those that had published 10-K reports the previous year. The objective of the analysis was to analyze the incidence of the accounting of operating leases on two main indicators such as the current ratio and the Total Liabilities/Total Assets ratio, arriving at the evidence that many companies in the sample had a significant alteration of the current ratio but not particularly important of the ratio between assets and liabilities. This implies that accounting for leases would lead to a greater presence of debt in the balance sheet, which could limit the activity of companies in obtaining external financing.

Also in the same year, Singh (2010) used the discounted cash flow and constructive capitalization method introduced by Imhoff et al. to conduct an analysis on a sample of 234 companies belonging to the restaurants (170) and retail (64) sectors in the years 2006-2008, studying the impact on 11 main performance indicators related to financial leverage, interest coverage and profitability. All the selected indicators reported a significant change following the accounting of the operating lease, modifying important financial factors such as corporate risk, credit rating and debt financing, as well as decisions on cash flows. Specifically, a decrease of over 50% was reported for interest coverage

ratios such as EBIT and EBITDA, against an increase in debt ratios such as Debt/EBITDA, financial leverage and D/E, all changes due to increase in total liabilities with the inclusion of leasing liabilities. Lastly, performance ratios such as ROIC and ROA have decreased.

Kostolansky and Stanko (2011) carried out an empirical analysis to estimate the impact on the performance indexes of the new standard proposed by the IASB and FASB. In this case, the 100 companies belonging to the Standard & Poor's 100 were selected as a sample, specifically analyzing leasing agreements by taking information from the 10-K Form, the financial statement and footnotes. To provide a more complete analysis, the variation of the indices was estimated taking as reference point three different discount rates (3%, 6% and 9%), arriving, in all cases, to demonstrate that the Total Debt/Total Assets ratio increase on average by more than 1% while ROA decreases significantly.

Branswick et al. (2011) took the analysis to the Netherlands and Belgium, taking as a sample 244 listed companies of which 128 Belgian and 116 Dutch, with data referring to the year 2010. The research also aimed to analyze the change in performance metrics, with results in line with previous studies: the D/E ratio increased from 2.03 to 2.20 following the inclusion of leasing liabilities in total liabilities, the current ratio went from 1.4 to 1.39 and the ROA remained unchanged on average.

Two years later, Cornaggia et al. (2013) have changed their perspective of analysis to trace a trend in the use of off-balance sheet operating leases. The sample initially chosen contained the companies registered in the CRSP-Compustat database with data in the period 1980-2007. The result of the analysis brought to light the tendency by US companies to use operating leasing as a form of off-balance sheet financing, significantly altering the accounting situation. Specifically, the leases recorded in the financial statements over the years have halved and, on the other hand, the average financing of off-balance sheet leases has increased by more than 700% in proportion to the debt in the analyzed period. This underlines how traditional measures such as leveraged β , Z Score and conventional leverage, favor the omission of leasing from the balance sheet so that the performance of companies is overestimated.

Fitò et al. (2013) focused on a Spanish reference framework, also to estimate the effect of the capitalization of operating leases. The sample selected was composed of all Spanish companies listed on the stock exchange with consolidated financial statements in the period 2008-2010. The ratios examined were eight in total, but the first part of the study saw the analysis of four initially selected indexes relating to the presentation of financial leverage in the financial statements: equity to assets, equity to liabilities, debt quality, financial leverage. The following four indexes analyzed were the ratios: ROE, ROA, Current Assets/Current Liabilities (liquidity ratio), Non-current Assets /Total

Sales (non-current assets turnover). The results obtained by Fitò et al. saw an average increase in leverage of 11%, an average increase in the equity to assets ratio of 6%, an average decrease in equity to liabilities of 9%, an average decrease in debt quality of 10% and significant changes but not linear in the ROE and ROA ratios. Therefore, in addition to altering the presentation of items in the financial statements, the omission of leasing in the accounting field leads to reductions in the company's performance and can also guarantee lower returns to shareholders due to the significant change in ROE and ROA.

The latest study conducted before the publication of the definitive new IFRS 16 is attributed to Wong and Joshi (2015), who analyzed the impact of the standard proposed through the latest 2013 Exposure Draft, on a final sample made up of 107 listed Australian top companies to the Australian Stock Exchange (ASX) in 2010. The sample consisted of over 6 main sectors including: financial sector, metal and mining sector, healthcare / biotechnology, IT and telecommunication, energy and utilities and industrial and material sector. The analysis was carried out using the constructive capitalization model of Imhoff et al. and was based on three main corporate aspects:

- ◆ Management performance, analyzed through the debt / asset ratios and the debt / equity ratio;
- ◆ Financial solidity and return on investments analyzed through ROE and ROA.

The result of the analysis showed, in line with the other studies, an increase in financial leverage ratios (especially the D/E with an increase of 31.69%) and a decrease in investment returns (with a decrease of 15.35% of the ROA). The figure that differs from the previous analyzes concerns the ROE, which has undergone, in this case, a significant but less significant decrease compared to ROA, unlike what emerged from the analysis by Beattie et al. (1998) where ROE saw a significant increase. Wong and Joshi's analysis was criticized both for the analysis period, considered too narrow since it was carried out in just one year, and for the data collected in the analysis that did not contain qualitative or managerial information on the decision-making process of accounting for the leasing (these data were in fact not accessible to the public).

In summary, the studies presented in this paragraph were conducted in different periods (from 60s to our days), in different geographical areas (USA, Canada, Belgium, Spain, UK, New Zealand) and in different sectors, but all came to roughly the same conclusions. It is clear, in fact, that the accounting of operating leases has a non-negligible impact on the main performance metrics, practically worsening the leverage ratio, ROA, D/E and other indices and measures useful for evaluating the

company and his financial health. Furthermore, these metrics are of vital importance for external parties, who risk finding themselves making choices in distorted accounting situations.

3.2 Empirical studies on expected impacts of IFRS 16's introduction

In 2016, as previously mentioned, the new IFRS 16 was issued by the IASB to replace the previous IAS 17. In the paragraph just concluded, the empirical studies conducted by various scholars were described to analyze the impact it would have had, on the financial statements, the accounting of operating leases, largely omitted before the introduction of the new accounting standard. This paragraph will instead present the studies conducted over the past five years, starting from the year of the introduction of IFRS 16, to analyze the effects on the financial statements resulting from the change in the accounting guidelines.

The first contribution in this regard comes from Oztürk et al. (2016), who conducted an analysis on the financial data of the Pegasus Airline Company using the constructive capitalization method of Imhoff et al. (1991). The research aimed to analyze the balance sheet of the leasing company selected in the period following the introduction of IFRS 16. The 2015 data of Pegasus Airline were taken as this Turkish company had acquired most of its aircraft through leasing, reported in the financial statements as operating leases. The results obtained by Oztürk et al. saw a significant increase in assets and liabilities, an increase in D/E and D/A ratios of 75.3% and 16.9% respectively, a 15.6% increase in ROE and finally a decrease of 34.4 % of ROA. While useful, the study had the main limitation of having a single observation sample from a single country.

In the same year, Fafatas and Fischer (2016) analyzed a sample consisting of 50 listed companies, all with a high composition of operating leases, to study the impact of the new IFRS 16 on three macro areas: financial leverage, solvency and profitability. The results obtained saw an increase in assets and liabilities, with the EBIT/Assets ratio decreased by over 400 basis points for 44% of the companies considered.

The study is taken up by Morales-Diaz and Zamora-Ramirez (2018) who tried to conduct an analysis using a new method they devised, a reinterpretation of the constructive capitalization method adopted by almost all scholars. The selected sample consisted of 646 companies belonging to the STOXX Total market. The estimates made by Morales-Diaz and Zamora-Ramirez concerned the economic impact, future rents and the discount rate according to the rating and the sector. The impact of IFRS

16 had to be assessed on different indices and metrics belonging to 3 areas of interest: balance sheet and financial leverage, profitability, interest coverage.

The results obtained showed:

- ◆ 9.28% increase in financial leverage on average;
- ◆ ROA increased by 3.07% on average with a strong variation between different sectors;
- ◆ The interest coverage rate decreased on average by 13.6% (calculated as EBITDA/Interest Expense).

Although the study shows a significant variation in the indices, it was not possible to find a consistency between sectors. In fact, the sectors most affected are those of retail trade, transport and software, as the leasing intensity ratio (calculated as the ratio of operating leasing expenses to total assets) is higher than in sectors such as the retail and hotels (which had a limited impact) and banking and insurance (which had almost no impact).

Dated to 2016 are the studies conducted by two well-known consulting firms, PricewaterhouseCoopers (PwC) and Deloitte. The latter conducted an empirical analysis on a sample of 50 Dutch companies listed on the stock exchange, which as a result saw an expected increase of about 30% on net debt, an increase in EBITDA and an increase in investment of capital, which leads to a consequent decrease in the ROIC.

PwC instead conducted a study in cooperation with the Rotterdam School of Management to evaluate the effect of leasing capitalization on the balance sheet following the introduction of IFRS 16, examining various financial and performance ratios. The sample, of considerable size, was made up of 3,199 organizations that followed IFRS, all listed in different countries and belonging to different sectors. In this case, the analysis showed an average increase in debt loads of about 22%, a median increase in EBITDA of about 13%, an increase in median leverage of 11 basis points (from 2.01 to 2.14) and in the end an increase in debt of over 25%. In addition to this main evidence, the analysis revealed how the introduction of IFRS 16 would lead to non-homogeneous variations between sectors, but would affect the retail, airlines, health and professional services, apparel and wholesale (among the main ones).

In July 2016 there was also the publication of a study carried out by the European Financial Reporting Advisory Group (EFRAG) which focused attention on the European context. In fact, a sample was analyzed consisting of the companies that in the Euro area had the highest operating leasing commitments, also selected based on a market capitalization order. The result obtained by EFRAG sees an estimate of the rental debt and the right of use asset of 450.9 and 420.7 billion euros

respectively, an average incidence of 4% of the estimated rental debt on the total debt (percentage that reaches 16% if the financial sector is excluded from the sample) and an increase in EBITDA.

To conclude, two important studies were conducted by the IASB and EBA to analyze the financial and banking sector, neglected until that moment in the empirical analyses.

In 2016, the IASB selected a sample consisting of 20 banks into a research analysis aimed at seeing how the application of the new IFRS 16 impacted the Total Capital Ratio (TCR). This ratio is fundamental in the banking sector as it represents one of the financial solidity indices of banks, being calculated as the ratio between Total Capital/Risk Weighted Assets (RWA). The result highlighted an increase in RWAs deriving from the recording of ROUs in the financial statements, which led to a decrease in Tier1 Capital and a consequent change in TCR. However, the decrease recorded was less than 0.5% of the assets reported for all banks belonging to the sample, and less than 0.2% for the assets reported for about half of the observations. Therefore, according to the IASB, the new IFRS 16, unlike what is found in other sectors, should not have a significant impact on banking sector.

The other study was conducted by the European Banking Authority (EBA), which selected a sample of 69 banks belonging to the EEA (European Economic Area). The analysis sought to obtain evidence on the changes in three main indicators: Total Capital, CET Capital and Leverage ratio. The useful data was mainly taken from the financial statements made available by the banks and from the documents relating to Pillar III (which will be discussed in more detail in the following chapter). The result obtained by the EBA was in line with that of the IASB, concluding that, although there may be an impact on the selected indicators, this was of limited relevance and largely dependent on the incidence of the ROU activities compared to the total activities of the bank.

Chapter 4

In this last chapter, the empirical study underlying this paper will be illustrated, a study used to highlight the effects of the adoption of the new IFRS 16 on a selected sample of 300 European banks and financial institutions. The choice underlying the banking sector is dictated by the almost absence of empirical studies on this sector, which was often and willingly excluded from the analyzes due to the reporting methods of the sector. The chapter will describe in detail the sample used, the selected variables for the research, the methodology of the analysis and the results obtained by performing specific t-tests through the STATA software.

The purpose of the study is to understand whether the result underlying this analysis is in line with the hypotheses deriving from past studies, including the one carried out by the European Bank Authority (EBA) in 2017: IFRS 16 has no significant impact on the key performance ratio of the banking sector.

4.1 Sample description and data collection

To come to evidence on the impact of the new IFRS 16 on the banking sector, a sample of different banks and financial institutions was chosen. For the selection of the sample, the top 300 in order of market capitalization were selected from the list provided by Thomson Reuters Eykon, a list which includes a total of 1086 banks and institutions. From the initial sample, it was necessary to make some changes due to the problems encountered.

32 observations did not prepare their financial statements following IAS and IFRS: 6 of these followed the FRS 102 regulation as they were in the UK and Ireland; 14 of these followed Swiss GAAP regulations; 5 adopted the HGB German Civil Code; 4 followed U.S GAAP; 2 adopted the Belgian GAAP and finally one, in France, followed the Règlement n.2014-03 5 June 2014.

28 were not considered because: 3 of them were part of the Crédit Agricole group, whose financial statements had already been considered in the first part of the sample; 9 did not present their financial statements or their website in a different language from the original one (mainly located in Russia and Norway); 6 did not have any items relating to lease contracts and 10 of these did not present financial statements for the year of interest considered by the analysis.

Net of the exclusions that were made, the sample analyzed consists of 240 observations, of which 124 were European Banks and 116 financial institutions. Various documents were downloaded for data collection, including: 2018 financial report, 2019 financial report, Pillar III disclosure (for information regarding CET1). The financial statements downloaded are from 2018 and 2019 as it was essential to analyze the accounting difference between the pre and post adoption of IFRS 16, which entered into force on 1st January 2019. The exception in the data collection was made for the observations that had a fiscal year with a different deadline from 31/12, such as some UK institutions that had a deadline of 31/03 or in subsequent months. In these cases, the financial statements analyzed were those relating to 2019 and 2020. The data extrapolated from the financial statements to empirically analyze the impact of IFRS 16 are as follows:

- ◆ *Tangible Assets*, usually taking the data relating to Property, Plant & Equipment (PPE) as the value of the ROU is generally included in this item.
- ◆ *Total Assets*, to analyze the relative incidence of tangible assets on total assets.
- ◆ *Other Liabilities* or *Financial Liabilities*, where the item relating to Lease Liabilities is usually included;
- ◆ *Total Liabilities*, to analyze the relative incidence of Lease Liabilities on total liabilities.
- ◆ *Shareholders' Equity*;
- ◆ *Net Income*;
- ◆ *Risk Weighted Assets (RWA)*;
- ◆ *Common Equity Tier 1 Capital (CET1)*, obtained in some cases by analyzing the Annual Report while in other cases by analyzing the Pillar III disclosure, mandatory for the banking sector and optional for financial institutions not classified as banks.

Finally, the notes of the Annual Report 2018 and 2019 were reviewed (except for cases in which the fiscal year had a different maturity) relating to tangible assets and financial liabilities, to analyze the impact of the application of IFRS 16 starting from 1st January taking the following data:

- ◆ Right of Use assets (ROU);
- ◆ Lease Liabilities.

Subsequently, having collected all the data subject to analysis, the impact of the adoption of the new accounting standard on profitability and performance ratios was estimated, comparing the value of these before and after implementation. Following the adoption of IFRS 16, the ROU was typically

included in the PPE, while the Lease Liabilities in the Other Liabilities category. The value of the ROU was then added to that of the PPE, and the value of the Lease Liabilities to that of the Other Liabilities, to arrive at the "reformulated" data to calculate the value of the coefficients after the adoption of IFRS 16.

- ◆ *Reformulated PPE*: PPE at 31st December 2018 + ROU asset at 1st January 2019;
- ◆ *Reformulated Total Assets*: Reformulated PPE + All Other Assets.
- ◆ *Reformulated Other Liabilities*: Other Liabilities at 31st December 2018 + Lease Liabilities at 1st January 2019;
- ◆ *Reformulated Total Liabilities*: Reformulated Other Liabilities + All Other Liabilities.
- ◆ *Reformulated Total Shareholders' Equity*: Reformulated Total Assets – Reformulated Total Liabilities.

4.2 Variable Selection and Methodology

For the analysis of the effect of the IFRS 16 adoption, three main gearing measures were selected as they are the most impacted in other sectors as well. As already illustrated several times, the accounting according to IFRS 16 provides for the recognition in the balance sheet of ROUs as assets and of Lease Liabilities as liabilities. This impacts on various performance ratios as the value of assets and liabilities inevitably varies, especially on total assets and total liabilities. The fact that some values in the financial statements undergo a change can involve several aspects, especially since these gearing measures are the main measurement parameters used by investors and lenders to make certain decisions. The debt ratio, the value of financial leverage and financial stability are therefore decisive for a company.

Along with the three selected gearing measures, two measures have been added that are equally important in providing a broader picture of the effects in the banking sector. The relationships analyzed are therefore:

Debt to Equity (D/E): Total Debt / Total Equity

This ratio is the main indicator of a company's financial leverage. In fact, comparing the level of debt with that of equity provides an indication of how the company finances its operations, with prevalence of capital or with prevalence of debt, depending on the value of the relationship.

Having too high levels of debt could indicate that the company in the long term is unable to repay its financial obligations. Usually, if the D/E is less than 0.50, the situation is perceived as positive; if the value is between 0.5 and 1, the situation must be monitored; if the value is greater than 1 there is a risky situation.

Debt to Asset (D/A): Total Debt / Total Assets

The D/A ratio is a further measure of corporate financial leverage and is also configured as a measure of solvency. This ratio provides an indication of how the total assets are financed and to what extent these are financed by debt and is of fundamental importance for creditors as through this report they can determine the company's ability to repay its debt.

Assets to Equity (A/E): Total Assets / Total Shareholders' Equity

The third indicator of leverage is the A/E ratio, Asset-to-Equity. This provides an indication of the relationship between the company's total assets and the shares held by the shareholders. A low A/E ratio indicates that the company's activities were financed mainly through lenders and investors with a small percentage of debt, while a high ratio indicates that the company has used debt to finance its activities, a symptom of risk high as it may not repay the debt and may not have access to additional external financing.

Return on Equity (ROE): Net Income / Total Shareholders' Equity

ROE is the main measure of corporate profitability and provides an indication of the company's operational efficiency. The greater the value of the ROE, the greater the ability of management to satisfy shareholders by managing the assets they provide. This index is used by major investors to compare the operational efficiency of companies at global levels and is also compared with the yields of securities to determine the risk premium of an investment, just like it is for financial securities.

Common Equity Tier 1 (CET1): Common Equity Tier 1 Capital / Risk Weighted Assets

The CET1 ratio relates a bank's core capital to its risk-weighted assets to determine its ability to withstand financial hardship. This report indicates the solidity of a banking institution and is one of the main elements of assessment by sovereign bodies such as the EBA and the ECB, as it can give an indication of the availability and the possibility that a bank has in covering losses in cases of economic

crises and recessions. This value was included in the analysis as, as already mentioned, it is of fundamental importance in the banking sector. The CET1 ratio is introduced following the Basel agreements, a series of three fundamental agreements for banking regulation established by the BCBS (Basel Committee on Banking Supervision), specifically in the "Basel III" agreement disclosed in November 2010.

Following the financial crisis that affected the whole world in 2008, a revision of the previous Basel I and Basel II agreements was necessary. In fact, the global banking situation at that time was not the best, with banks having very high levels of debt and a very low level of equity. Following these events and as a response to the global crisis of 2008, the Tier 1 Capital Ratio was therefore introduced in 2010, precisely to analyze the state of health of the banks at that time to avoid replicating the events of 2008.

The Basel III agreement also introduced legislation for commercial banks to maintain minimum levels of capital ratio, specifically a minimum of 8% of which 6% reserved for CET1. The Tier1 Capital ratio is expected to comprise 4.5% of CET1 by the end of 2019 and banks are also required to hold a capital buffer of 2.5% of the Risk Weighted Assets. All this has put most of the banks in difficulty, which at that time found an inability to cope with the effects of the financial bubble of that period. Banks are required to comply with the indications of the Basel Accords, on which compliance is monitored periodically by the ECB which carries out the tests of the Supervisor Review and Evaluation Process (SREP).

Regarding the analysis of the value of CET1, the calculation of the value before the adoption of IFRS 16 was carried out as previously reported with the data for 2018:

$$\blacklozenge \text{ CET1 Ratio (Pre-Adoption): Common Equity Tier 1 Capital 2018 / RWA 2018}$$

Instead, to calculate the post-adoption value of IFRS 16, the sum between the 2018 RWAs and the entire value of the ROU as of 1st January 2019 was compared to the value of the Common Equity Tier 1 Capital of 2018. This because according to Article 134 of the Capital Requirements Regulation (CRR), the ROU can be considered as a Tangible Asset, and for this reason it must be assigned a risk weight of 100%:

$$\blacklozenge \text{ CET1 Ratio (Post Adoption): Common Equity Tier 1 Capital 2018 / (RWA 2018 + ROU 1^{st} \text{ January 2019})}$$

Finally, it is important to underline that it was not possible to obtain the CET1 and RWA data of all observations. For all banks and financial institutions, the document relating to the Pillar III disclosure was sought, if the necessary information was not already present in the Annual Report, but not all of them presented this specific document because, as previously mentioned, the disclosure of such information is not mandatory for financial institutions but only for banks. To obtain the missing data, a contact email was sent to all institutions asking if it was possible to provide the required values. The request was ignored by all institutions, leading, ultimately, to have a sample of analysis for the impact on CET1 made up of 175 banks and financial institutions. The lack of data is attributable to:

- ◆ 4 financial institutions that presented the document relating to Pillar III for previous years or not relevant for the analysis;
- ◆ 61 financial institutions, including only 2 banks, which did not submit documentation on their website.

Lloyds Banking Group PLC			
	31st December 2018	Changes for IFRS 16	Reformulated Values
Balance Sheet (in millions)			
Assets			
Tangible Assets	12.300,00 €	1.716,00 €	14.016,00 €
All Other Assets	785.298,00 €		785.298,00 €
<i>Total Assets</i>	797.598,00 €		799.314,00 €
Liabilities			
Other Liabilities	19.536,00 €	1.813,00 €	21.349,00 €
All Other Liabilities	727.863,00 €		727.863,00 €
<i>Total Liabilities</i>	747.399,00 €		749.212,00 €
Shareholders' Equity			
Reformulated Tot. Assets			799.314,00 €
Reformulated Tot. Liabilities			749.212,00 €
<i>Total Equity</i>	50.199,00 €		50.102,00 €
Income Statement (in millions)			
Net Income	4.506,00 €		4.506,00 €
Ratios			
D/E	14,89		14,92
% of change			0,24%
D/A	0,94		0,94
% of change			0,03%
A/E	15,89		15,92
% of change			0,22%
ROE	0,09		0,09
% of change			0,00%
CET1	14,62%		14,50%
CET1 Capital	30.167,00 €		30.167,00 €
RWAs	206.366,00 €	1.716,00 €	208.082,00 €
% of change			-0,12%

Figure 7 – Lloyd Banking Group PLC's example in processing data

4.3 Hypothesis development and testing

This paragraph will describe the analysis conducted to carry out the empirical study on the accounting impact of the adoption of the new IFRS16. The starting point is undoubtedly identifiable in the two previous researches that were carried out by EBA and IASB, the only two that concerned the banking and financial services sector. Both researches brought to light an insignificant impact of IFRS 16, but it must be said that all this was carried out on a sample of 20 and 65 banks, which may not be true for larger samples. The sample analyzed in this paper, as described at the beginning of the chapter,

consists of 240 observations precisely to try to understand if the results obtained were in line with those expected following the analyses already conducted.

To get a result, the data of the 240 observations (which we recall are composed of 124 banks and 116 financial institutions) were collected and inserted into an Excel document, to quickly calculate all the balance sheet ratios selected at the time before IFRS 16 adoption. Subsequently, t-tests were performed on paired samples using the STATA software. The t-test statistical method of analysis is particularly useful for checking whether the mean value of a distribution varies significantly from a value set as a reference. So, as in our case, it is useful for analyzing a data in two different contexts. The t-test belongs to the inferential statistic, useful for determining the existence of a significant difference between the means of two groups. Having calculated the averages on a sample of an entire sector, it may happen that the difference in the means is random and does not constitute a relevant result, which is why paired t-tests were performed to precisely see the relevance of the difference in the means. The analysis, therefore, aims at first to compare the averages of the same sample before and after the adoption of IFRS 16, to arrive at statistical evidence. After the calculation of the averages in the two moments considered, the two values were combined.

The starting hypothesis chosen was standardized for all five reports selected for the analysis and consists in assuming as null the effect of accounting for operating leases on the selected ratios.

The first hypothesis developed is the so-called "null hypothesis", at the basis of a paired t-test, which in our case consists in assuming the average of the distribution ratios equal in the two moments considered (before and after the adoption of IFRS16).

♦ **H0: $\mu_1 = \mu_2$**

With:

- μ_1 = mean of our distribution ratios before the adoption of IFRS 16.
- μ_2 = mean of our distribution ratios after the adoption of IFRS 16.

Assuming that the averages are the same in the two moments considered, the null test corresponds to the starting hypothesis, the one that states that IFRS 16 has a zero impact on the sample analyzed for the selected data.

The alternative hypothesis, on the other hand, is chosen during the analysis and corresponds to the hypothesis that refutes the initial null. In this case, the alternative hypothesis is the one which states that the impact of IFRS 16 is present and can be found on the analyzed performance measures of the banking sector.

♦ **H1: $\mu_1 \neq \mu_2$**

To develop this paired t-test the following hypotheses were tested:

- ♦ The scale of the measures applied to the data follows an ordinal scale;
- ♦ The data is taken from a sample large enough to be able to approach a normal bell curve;
- ♦ The selected data results in a normal distribution, which is why it was possible to specify a significance level (p) as an acceptance criterion;
- ♦ It is possible to state the presence of homogeneity of variance since the standard deviations are almost equal.

After testing the hypotheses, we proceeded with the calculation of the t-test statistic using the formula below:

$$t = \bar{x}_{\text{diff}} / (s_{\text{diff}} / \sqrt{n})$$

Where:

- \bar{x}_{diff} = difference of the sample means.
- s_{diff} = difference in the standard deviations of the sample,
- n = sample size expressed as the number of observations.

Table 3 represents the descriptive statistics used in the analysis as data for the relative estimate of the t-value:

Descriptive Statistics					
Variable	Obs	Mean	Std.Dev.	Min	Max
DEbefore	240	10.913	29.397	.009	434.388
DEafter	240	10.976	29.391	.01	434.388
DAbefore	240	.747	.266	.009	.998
DAafter	240	.753	.258	.01	.998
AEbefore	240	11.913	29.397	1.009	435.388
AEafter	240	11.976	29.391	1.01	435.388
ROEbefore	240	.225	1.78	-1.187	27.553
ROEafter	240	.225	1.78	-1.187	27.553
CET1before	175	.179	.108	0	.896
CET1after	175	.169	.096	0	.875

Table 3 – Descriptive Statistics

A p-value was established for the analysis, a fundamental criterion for data acceptance. This value in fact describes the probability that during the analysis the data obtained are purely random. Considering that the null hypothesis H_0 affirmed the non-existence of a relationship between the variables under study and IFRS 16 introduction, it could happen that the results that denied this hypothesis were random. Thus, after estimating the t-value, we found a p-value that corresponds to the t-test statistic with $(n-1)$ degrees of freedom. The p-value is usually included in an interval between 0 and 1 and, in this case, we have selected a significance level $\alpha = 0.05$. This means that:

- ◆ If the value of $p < \alpha$, then this means that it is statistically significant as there is a probability of less than 5% that the null hypothesis is correct and that therefore the data are random. In the case of $p < \alpha$, H_0 should be rejected and H_1 should be accepted.
- ◆ If the value of $p > \alpha$, then this means that it is not statistically significant and therefore there is strong evidence of the occurrence of H_0 .

Table 4 shows the t-values and the relative p-values for each ratio analyzed:

Paired t-test							
Paired t test : DEbefore DEafter							
	obs	Mean1	Mean2	dif	St_Err	t_value	p_value
DEbefore - DEafter	240	10.912	10.976	-.063	.009	-6.95	0
Paired t test : DAbefore DAfter							
	obs	Mean1	Mean2	dif	St_Err	t_value	p_value
DAbefore - DAfter	240	.747	.753	-.006	.001	-5.9	0
Paired t test : AEbefore AEafter							
	obs	Mean1	Mean2	dif	St_Err	t_value	p_value
AEbefore - AEafter	240	11.912	11.976	-.063	.009	-6.95	0
Paired t test : ROEbefore ROEafter							
	obs	Mean1	Mean2	dif	St_Err	t_value	p_value
ROEbefore - ROEafter	240	.225	.226	0	0	-3.35	.001
Paired t test : CET1before CET1after							
	obs	Mean1	Mean2	dif	St_Err	t_value	p_value
CET1before - CET1after	175	.179	.17	.01	.004	2.3	.022

Table 4 – Paired t-tests for all selected ratios.

The result obtained sees the $p < \alpha$ for $\alpha = 0.05$ for all the selected ratios. This implies that the null hypothesis H_0 must be rejected in favor of the alternative hypothesis H_1 . Specifically, we can see how four out of five ratios (D/E, D/A, A/E and ROE) have a p-value equal to or close to 0, and consequently 0% chance of providing random data as a result, while for CET1 has a p-value of 0.022, and therefore a possibility of less than 2.2% which is also irrelevant as it is lower than the selected α value.

4.4 Findings and discussion

Thanks to the data obtained from the statistical analysis, it can be stated with extreme certainty that the result is not due to chance as all p values are close to 0. Confirmation is also provided by the value of the standard deviation, which is useful for understand how much distance there is between the average of a sample compared to the average of the entire population. The standard deviation in our case is close to 0, since it provides an indication of the accuracy of the data obtained from the selected

sample, large enough to faithfully represent the banking sector under analysis. Said that, we can support the result obtained, which states that the averages of the ratios are different in the two moments analyzed, before and after the adoption of IFRS 16.

To provide a simplified picture of the variations in the average of the ratios, in **Table 5** below it will be possible to see the percentage variation of increase and decrease.

Change ($\Delta\%$) in Mean			
Ratio	Mean1	Mean2	$\Delta\%$
D/E	10.912	10.976	0,59%
D/A	0,747	0,753	0,80%
A/E	11.912	11.976	0,54%
ROE	0,225	0,226	0,44%
CET1	0,179	0,17	-5,03%

Table 5 – Change ($\Delta\%$) in Mean

The data obtained allow us to make further important considerations. In line with the studies carried out in the other sectors, the accounting of operating leases with IFRS 16 will increase the D/E ratio, as the total assets will increase with the recognition of the ROUs, while the total liabilities will increase with the recording of leasing liabilities in the balance sheet, given that it was previously omitted to alter the debt situation of the company and therefore to favor financial leverage. The average 0.59% increase in D/E is near to the expected increase in the A/E ratio of 0.54%, again due to the increase in total assets given by the reporting of the ROU. The performance metric most affected with an increase of 0.80% is the D/A, due to the strong impact of leasing liabilities previously held off-balance sheet. The least affected is the ROE, as IFRS 16, albeit leading to an overall increase in assets and liabilities, sees a recurring equality (or slight difference) in the values of ROU and Lease Liabilities, causing a negligible effect on Equity.

The CET1 Ratio, on the other hand, deserves a separate discussion. As repeated on several occasions, the CET1 coefficient is the most important indicator of the financial health of a credit institution such as banks and financial institutions and, in our analysis, it is also the one that reported the most significant change with a decrease of 5.03%. This implies that IFRS16 has undoubtedly set off an alarm bell within banks and financial institutions that may have found themselves revising their choices regarding capital reserves.

Conclusions

The transition from the old IAS 17 to the new and recent IFRS 16 is an event that sees its beginning many years ago, with various researches carried out by numerous scholars to analyze the problem underlying the revision of the IASB: the accounting of operating leases off-balance sheet. This practice and the consequences it implied on the financial statements of the companies, has pushed towards the change we are talking about today, reaching a result that currently guarantees transparency and clarity in the accounting representation of the company's economic and financial situation.

IFRS 16, which we recall has become mandatory for all activities started after its introduction, fundamentally removes the distinction between operating leasing and financial leasing, obliging companies to report liabilities attributable to any type of lease in the financial statements and to record the related ROU, eliminating the problem of off-balance sheet accounting. In addition, it provides that the related expenses for interests and the relative depreciation of the asset taken into use are reported in the income statement.

In this paper, an attempt was first made to provide a general picture of what revolves around leasing, explaining the evolution of the accounting principles connected to this discipline, and explaining the practical and accounting differences between IAS 17 and IFRS 16, also presenting a concrete example of how the vision of the financial statements was different in relation to the use of the two principles.

Subsequently, the review of the empirical studies carried out by numerous scholars was useful to present ex-ante what were the expected results from the analysis we conducted on our sample. Almost all past researches were based on sectors other than banking, except for those carried out by the IASB and EBA which had predicted the impact on our sector of analysis, albeit presenting analyzes carried out on samples of limited scope.

For this reason, our research has significantly expanded the sample, with the initial goal of bringing 300 observations, an objective not achieved due to several problems described at the beginning of the fourth chapter. However, the sample obtained of 240 observations was large enough to provide an adequate representation of the European banking sector. The metrics selected to study the impact of IFRS 16 were the same ones analyzed in past empirical analyses, with the addition of the CET1 ratio (studied for 175 observations due to lack of information), of fundamental importance, as illustrated, in the banking sector.

The results of the analysis, obtained through t-tests processed on the STATA software, allowed us to arrive at some evidence commented on in the last paragraphs of the report.

With the results obtained, we can conclude by stating that the accounting of operating leases introduced in 2016 and entered into force on 1st January 2019 with IFRS 16 has an accounting impact on the banking sector, albeit of a decidedly lesser extent than the sectors analyzed by the literature starting from since 1963 with Nelson. The reason for this reduced impact can be found in the primary activity of the banking sector, whose core business model does not require the procurement of many leased assets such as property, plant and machinery. Banking is mainly carried out using other technological tools that can be leased but which in any case cannot have a significant impact on the balance sheet of a bank, consisting of billions of euros of other assets. In addition, large banks have their own offices and headquarters as the banking activity is usually carried out over a long period of time in a specific place, a characteristic that has historically led banks and financial institutions to directly acquire properties in which to place their headquarters.

Although small in scope, the impact is still present, which is why it is worthy of study and analysis and should not be neglected, especially for issues relating to capital reserves, as seen in the average change in the ratio regarding the CET1 ratio. The neglect of this impact on the part of the institutions could lead to making choices of allocation and use of capital that are not perfectly calibrated.

Lastly, leaving out the numerical impact of the transition, the introduction of IFRS 16 has satisfied the objective set by the IASB, obtaining a better quality in the accounting representation and greater transparency and comparability.

Appendix A – Sample Analyzed – 240 observations

Number	Company	Country	Type	Market Cap
1	HSBC Holdings PLC	United Kingdom	Bank	\$ 108.348.954.733,83
2	Sberbank Rossii PAO	Russia	Bank	\$ 75.109.898.764,66
3	BNP Paribas SA	France	Bank	\$ 65.009.791.051,33
4	UBS Group AG	Switzerland	Bank	\$ 56.313.308.352,15
5	Banco Santander SA	Spain	Bank	\$ 50.742.990.281,36
6	Intesa Sanpaolo SpA	Italy	Bank	\$ 44.862.985.129,19
7	ING Groep NV	Netherlands	Bank	\$ 38.812.633.995,66
8	Lloyds Banking Group PLC	United Kingdom	Bank	\$ 36.063.608.810,44
9	Nordea Bank Abp	Finland	Financial Institution	\$ 35.589.005.285,61
10	Credit Agricole SA	France	Bank	\$ 33.861.261.968,05
11	Barclays PLC	United Kingdom	Bank	\$ 33.240.390.552,99
12	Credit Suisse Group AG	Switzerland	Financial Institution	\$ 31.594.241.232,80
13	KBC Groep NV	Belgium	Bank	\$ 30.463.071.243,59
14	Deutsche Boerse AG	Germany	Financial Institution	\$ 30.278.299.531,61
15	Banco Bilbao Vizcaya Argentaria SA	Spain	Bank	\$ 30.003.032.294,28
16	Dnb ASA	Norway	Bank	\$ 28.557.065.882,38
17	Partners Group Holding AG	Switzerland	Financial Institution	\$ 27.992.360.882,45
18	Natwest Group PLC	United Kingdom	Bank	\$ 26.474.138.643,63
19	UniCredit SpA	Italy	Bank	\$ 24.732.277.878,81
20	Skandinaviska Enskilda Banken AB	Sweden	Bank	\$ 24.005.541.709,63
21	Deutsche Bank AG	Germany	Bank	\$ 23.348.801.759,31
22	EQT AB	Sweden	Financial Institution	\$ 21.039.193.639,34
23	Swedbank AB	Sweden	Bank	\$ 21.038.483.601,39
24	Legal & General Group PLC	United Kingdom	Financial Institution	\$ 20.871.785.643,82
25	Svenska Handelsbanken AB	Sweden	Bank	\$ 20.542.797.752,94
26	Standard Chartered PLC	United Kingdom	Bank	\$ 19.854.444.798,55
27	Societe Generale SA	France	Bank	\$ 17.652.183.831,76
28	Amundi SA	France	Financial Institution	\$ 16.557.436.302,28
29	Caixabank SA	Spain	Bank	\$ 15.956.569.273,60
30	Danske Bank A/S	Denmark	Bank	\$ 14.540.101.416,65
31	3i Group PLC	United Kingdom	Financial Institution	\$ 13.971.892.043,53
32	Julius Baer Gruppe AG	Switzerland	Bank	\$ 12.798.235.364,72
33	Erste Group Bank AG	Austria	Bank	\$ 12.569.343.065,69
34	Schroders PLC	United Kingdom	Financial Institution	\$ 11.155.767.488,95
35	OTP Bank Nyrt	Hungary	Bank	\$ 11.039.493.195,75
36	Natixis SA	France	Financial Institution	\$ 10.073.622.509,89
37	FinecoBank Banca Fineco SpA	Italy	Bank	\$ 9.442.080.387,42
38	Powszechna Kasa Oszczednosci Bank Polski SA	Poland	Bank	\$ 9.288.896.001,71
39	Hargreaves Lansdown PLC	United Kingdom	Financial Institution	\$ 9.211.054.462,22
40	Mediobanca Banca di Credito Finanziario SpA	Italy	Bank	\$ 8.319.857.141,08
41	Standard Life Aberdeen PLC	United Kingdom	Financial Institution	\$ 8.146.854.553,41
42	DWS Group GmbH & Co KgaA	Germany	Financial Institution	\$ 8.092.492.435,25
43	Commerzbank AG	Germany	Bank	\$ 7.911.539.108,25
44	St. James's Place PLC	United Kingdom	Financial Institution	\$ 7.478.689.557,62
45	Banca Mediolanum SpA	Italy	Bank	\$ 6.891.628.802,78
46	Intermediate Capital Group PLC	United Kingdom	Financial Institution	\$ 6.824.864.974,08
47	M&G PLC	United Kingdom	Financial Institution	\$ 6.816.365.282,49
48	Raiffeisen Bank International AG	Austria	Bank	\$ 6.471.802.381,83
49	Bank VTB PAO	Russia	Bank	\$ 6.323.890.911,08
50	TCS Group Holding PLC	Russia	Financial Institution	\$ 6.028.991.133,00
51	Bankia SA	Spain	Bank	\$ 5.568.476.107,65
52	ING Bank Slaski SA	Poland	Bank	\$ 5.538.385.212,45
53	ABN Amro Bank NV	Netherlands	Bank	\$ 5.391.417.068,44
54	Komerční Banka as	Czech Republic	Bank	\$ 5.008.821.863,12
55	Santander Bank Polska SA	Poland	Bank	\$ 4.960.778.626,34
56	Eurazeo SE	France	Financial Institution	\$ 4.939.997.928,15
57	AIB Group plc	Ireland	Financial Institution	\$ 4.840.309.868,87
58	Bankinter SA	Spain	Bank	\$ 4.661.135.742,35
59	Vontobel Holding AG	Switzerland	Bank	\$ 4.538.098.843,61
60	Bank Polska Kasa Opieki SA	Poland	Bank	\$ 4.248.134.662,48

61	Ashmore Group PLC	United Kingdom	Financial Institution	\$	4.112.350.611,41
62	BAWAG Group AG	Austria	Bank	\$	4.101.149.066,67
63	IG Group Holdings PLC	United Kingdom	Financial Institution	\$	3.966.452.030,91
64	Banca Generali SpA	Italy	Bank	\$	3.922.929.966,10
65	Tikehau Capital SCA	France	Financial Institution	\$	3.903.173.256,62
66	Oberbank AG	Austria	Bank	\$	3.825.356.285,22
67	Bank of Ireland Group PLC	Ireland	Bank	\$	3.614.116.899,23
68	VZ Holding AG	Switzerland	Financial Institution	\$	3.471.365.638,77
69	Avanza Bank Holding AB	Sweden	Financial Institution	\$	3.420.947.008,21
70	Storebrand ASA	Norway	Financial Institution	\$	3.400.564.987,58
71	Banco BPM SpA	Italy	Bank	\$	3.391.768.638,41
72	Intrum AB	Sweden	Financial Institution	\$	3.331.966.959,79
73	Quilter PLC	United Kingdom	Financial Institution	\$	3.331.945.017,61
74	Azimet Holding SpA	Italy	Financial Institution	\$	3.099.493.384,77
75	Nordnet AB (publ)	Sweden	Financial Institution	\$	3.076.039.701,42
76	Banca Transilvania SA	Romania	Bank	\$	3.062.255.430,65
77	HSBC Trinkaus & Burkhardt AG	Germany	Financial Institution	\$	2.877.210.303,38
78	Banco de Sabadell SA	Spain	Financial Institution	\$	2.844.320.348,64
79	Ninety One PLC	United Kingdom	Financial Institution	\$	2.757.088.810,96
80	Jyske Bank A/S	Denmark	Bank	\$	2.751.114.050,52
81	Close Brothers Group PLC	United Kingdom	Financial Institution	\$	2.731.561.037,12
82	Virgin Money UK PLC	United Kingdom	Bank	\$	2.689.894.303,42
83	Sparebank 1 SR Bank ASA	Norway	Bank	\$	2.675.496.783,30
84	Moskovskiy Kreditnyi Bank PAO	Russia	Bank	\$	2.655.823.679,07
85	Corporacion Financiera Alba SA	Spain	Financial Institution	\$	2.655.203.404,74
86	Investec PLC	United Kingdom	Bank	\$	2.633.936.573,56
87	Zagrebacka Banka dd	Croatia	Bank	\$	2.625.720.449,06
88	FFP SA	France	Financial Institution	\$	2.592.461.230,06
89	Bper Banca SpA	Italy	Bank	\$	2.561.307.002,12
90	Ringkjoebing Landbobank A/S	Denmark	Bank	\$	2.526.446.229,47
91	Rothschild & Co SCA	France	Financial Institution	\$	2.482.121.630,09
92	OneSavings Bank PLC	United Kingdom	Financial Institution	\$	2.400.819.158,95
93	Privredna Banka Zagreb dd	Croatia	Bank	\$	2.391.075.724,92
94	Man Group PLC	United Kingdom	Financial Institution	\$	2.368.507.314,59
95	Nationwide Building Society	United Kingdom	Financial Institution	\$	2.306.027.539,97
96	Burford Capital Ltd	UK/USA	Financial Institution	\$	2.287.834.116,62
97	AJ Bell PLC	United Kingdom	Financial Institution	\$	2.257.013.235,21
98	BRD Groupe Societe Generale SA	Romania	Bank	\$	2.253.780.190,11
99	Banco Comercial Portugues SA	Portugal	Bank	\$	2.199.234.848,81
100	Grenke AG	Germany	Financial Institution	\$	2.175.593.515,40
101	Eurobank Ergasias Services and Holdings SA	Greece	Financial Institution	\$	2.119.659.932,34
102	BNP Paribas Bank Polska SA	Poland	Bank	\$	2.005.378.575,66
103	EFG International AG	Switzerland	Financial Institution	\$	1.956.873.022,69
104	mBank SA	Poland	Bank	\$	1.907.467.059,51
105	Credito Emiliano SpA	Italy	Bank	\$	1.900.670.527,91
106	Jupiter Fund Management PLC	United Kingdom	Financial Institution	\$	1.873.254.763,63
107	Liechtensteinische Landesbank AG	Liechtenstein	Bank	\$	1.862.246.696,04
108	Prominvestbank PAT	Ukraine	Bank	\$	1.820.180.864,17
109	flatexDEGIRO AG	Deutschland	Financial Institution	\$	1.676.405.164,89
110	TP ICAP PLC	United Kingdom	Financial Institution	\$	1.656.761.060,41
111	Anima Holding SpA	Italy	Financial Institution	\$	1.653.904.577,61
112	Banca Monte dei Paschi di Siena SpA	Italy	Bank	\$	1.626.700.689,98
113	National Bank of Greece SA	Greece	Bank	\$	1.590.960.572,04
114	Moneta Money Bank as	Czech Republic	Bank	\$	1.584.423.874,88
115	CMC Markets PLC	UK	Financial Institution	\$	1.578.361.395,62
116	Rosbank PAO	Russia	Bank	\$	1.574.818.541,23
117	Gimv Investeringsmaatschappij Voor Vlanderen NV	Belgium	Financial Institution	\$	1.545.153.221,19
118	Norwegian Finans Holding ASA	Norway	Bank	\$	1.495.649.896,24
119	Aareal Bank AG	Germany	Financial Institution	\$	1.460.175.200,22
120	Sparebank 1 SMN	Norway	Financial Institution	\$	1.457.362.700,64

121	Swissquote Group Holding SA	Switzerland	Bank	\$ 1.450.098.901,98
122	Flow Traders NV	Netherlands	Financial Institution	\$ 1.449.397.156,38
123	Paragon Banking Group PLC	United Kingdom	Financial Institution	\$ 1.439.195.488,09
124	Ratos AB	Sweden	Financial Institution	\$ 1.422.140.840,80
125	Tamburi Investment Partners SpA	Italy	Financial Institution	\$ 1.409.399.778,20
126	Unicaja Banco SA	Spain	Bank	\$ 1.383.168.874,89
127	Tatra Banka as	Slovakia	Bank	\$ 1.372.023.540,06
128	Deutsche Pfandbriefbank AG	Germany	Bank	\$ 1.327.679.489,46
129	NIBC Holding NV	Netherlands	Bank	\$ 1.308.221.465,96
130	Gruppo MutuiOnline SpA	Italy	Financial Institution	\$ 1.307.686.820,89
131	Alpha Bank SA	Greece	Bank	\$ 1.296.500.040,03
132	Banca Popolare di Sondrio SepA	Italy	Bank	\$ 1.272.011.262,42
133	Sydbank A/S	Denmark	Financial Institution	\$ 1.271.940.481,88
134	IP Group PLC	United Kingdom	Financial Institution	\$ 1.244.352.736,93
135	Spar Nord Bank A/S	Denmark	Bank	\$ 1.242.052.732,66
136	Bank Handlowy w Warszawie SA	Poland	Bank	\$ 1.230.237.625,03
137	Banca Carige SpA Cassa di Risparmio di Genova e Imperia	Italy	Bank	\$ 1.226.627.286,52
138	Sparebank 1 Ostlandet	Norway	Bank	\$ 1.215.634.220,62
139	Draper Esprit PLC	United Kingdom	Financial Institution	\$ 1.188.582.708,85
140	Arion banki hf	Iceland	Bank	\$ 1.161.241.660,49
141	Rathbone Brothers PLC	United Kingdom	Financial Institution	\$ 1.157.070.134,33
142	Sanne Group PLC	United Kingdom	Financial Institution	\$ 1.142.944.584,35
143	Brewin Dolphin Holdings PLC	United Kingdom	Financial Institution	\$ 1.129.944.559,59
144	Liontrust Asset Management PLC	United Kingdom	Financial Institution	\$ 1.127.399.119,51
145	Nova Ljubljanska Banka dd Ljubljana	Slovenia	Bank	\$ 1.048.342.903,43
146	Resurs Holding AB (publ)	Sweden	Financial Institution	\$ 1.036.830.448,69
147	Impax Asset Management Group PLC	United Kingdom	Financial Institution	\$ 1.027.672.209,34
148	Van Lanschot Kempen NV	Netherlands	Financial Institution	\$ 1.012.873.749,02
149	Liberbank SA	Spain	Financial Institution	\$ 1.005.812.681,17
150	Provident Financial PLC	United Kingdom	Financial Institution	\$ 983.666.028,84
151	Law Debenture Corporation PLC	United Kingdom	Financial Institution	\$ 974.446.297,06
152	Banca Farnafactoring SpA	Italy	Bank	\$ 967.692.482,39
153	Banca Piccolo Credito Valtellinese SpA	Italy	Bank	\$ 946.526.340,26
154	Bank Millennium SA	Poland	Bank	\$ 938.368.849,40
155	Jtc PLC	Jersey (UK)	Financial Institution	\$ 926.200.863,92
156	Compagnie Financiere Tradition SA	Switzerland	Financial Institution	\$ 905.527.511,01
157	doValue SpA	Italy	Financial Institution	\$ 871.157.183,96
158	Altamir SCA	France	Financial Institution	\$ 868.120.996,70
159	AB Ukrhazbank PAT	Ukraine	Bank	\$ 862.125.358,18
160	Sparebank 1 Nord-Norge	Norway	Bank	\$ 858.719.140,11
161	Raiffeisen Bank Aval' AT	Ukraine	Bank	\$ 854.429.956,00
162	Sparebanken Vest	Norway	Bank	\$ 825.191.181,95
163	Aktia Bank Abp	Finland	Bank	\$ 811.387.143,22
164	Bank of Georgia Group PLC	Georgia	Bank	\$ 805.119.585,54
165	Polar Capital Holdings PLC	United Kingdom	Financial Institution	\$ 794.781.611,80
166	Merian Chrysalis Investment Co Ltd	United Kingdom	Financial Institution	\$ 771.094.416,84
167	VP Bank AG	Liechtenstein	Bank	\$ 759.161.894,27
168	Vseobecna Uverova Banka as	Slovakia	Bank	\$ 753.027.971,69
169	illimity Bank SpA	Italy	Bank	\$ 721.969.854,53
170	Caisse regionale de Credit Agricole Mutuel de Paris et d Ile de France	France	Bank	\$ 713.421.804,73
171	eQ Oyj	Finland	Bank	\$ 711.212.771,46
172	MBB SE	Germany	Financial Institution	\$ 704.890.042,65
173	Kruk SA	Poland	Financial Institution	\$ 694.281.952,79
174	Aurelius Equity Opportunities SE & Co KGaA	Germany	Financial Institution	\$ 683.305.064,22
175	MLP SE	Germany	Financial Institution	\$ 678.483.868,99
176	Alpha FX Group PLC	United Kingdom	Financial Institution	\$ 648.424.896,56
177	Bank of Valletta PLC	Malta	Bank	\$ 646.851.184,27
178	Alior Bank SA	Poland	Bank	\$ 608.353.530,92
179	Deutsche Beteiligungs AG	Germany	Financial Institution	\$ 602.704.055,97
180	Publity AG	Germany	Financial Institution	\$ 599.529.064,41

181	Banca IFIS SpA	Italy	Bank	\$	594.290.250,07
182	Piraeus Bank SA	Greece	Bank	\$	571.170.286,71
183	Galimmo SCA	France	Financial Institution	\$	568.450.168,10
184	Tinc Comm VA	Belgium	Financial Institution	\$	559.819.657,09
185	LHV Group AS	Estonia	Financial Institution	\$	557.610.730,68
186	Alantra Partners SA	Spain	Financial Institution	\$	539.621.718,30
187	Mortgage Advice Bureau (Holdings) PLC	United Kingdom	Financial Institution	\$	534.454.450,55
188	X Trade Brokers Dom Maklerski SA	Poland	Financial Institution	\$	529.135.907,68
189	ABC Arbitrage SA	France	Financial Institution	\$	514.044.641,66
190	Komercijalna Banka ad Beograd	Serbia	Bank	\$	511.910.186,69
191	Viel et Compagnie SA	France	Financial Institution	\$	481.925.389,19
192	Gielda Papierow Wartosciowych w Warszawie SA	Poland	Financial Institution	\$	479.155.423,97
193	Collector AB	Sweden	Bank	\$	471.714.224,59
194	Numis Corporation PLC	United Kingdom	Financial Institution	\$	466.820.451,06
195	Arrow Global Group PLC	United Kingdom	Financial Institution	\$	445.510.820,03
196	Bellevue Group AG	Switzerland	Financial Institution	\$	432.900.548,02
197	ProCredit Holding AG & Co KGaA	Germany	Bank	\$	423.614.299,67
198	Treasure ASA	Norway	Financial Institution	\$	418.046.918,85
199	Caisse Regionale de Credit Agricole Mutuel Brie Picardie	France	Bank	\$	412.971.697,09
200	CapMan Oyj	Finland	Financial Institution	\$	407.300.921,68
201	Vestjysk Bank A/S	Denmark	Financial Institution	\$	405.130.007,85
202	Sparebank 1 Ringerike Hadeland	Norway	Bank	\$	404.040.088,67
203	Caisse Reg Credit Agric Mut Nord France	France	Bank	\$	400.703.077,34
204	Banco di Desio e della Brianza SpA	Italy	Bank	\$	397.038.442,09
205	Stopanska Banka AD Skopje	Macedonia	Bank	\$	396.094.521,00
206	Union Financiere de France Banque SA	France	Bank	\$	389.823.162,70
207	Brockhaus Capital Management AG	Germany	Financial Institution	\$	387.299.671,68
208	Hoist Finance AB (publ)	Sweden	Bank	\$	383.428.280,82
209	Sixt Leasing SE	Germany	Financial Institution	\$	380.595.758,38
210	Alandsbanken Abp	Finland	Bank	\$	373.655.502,03
211	Brooks Macdonald Group PLC	United Kingdom	Financial Institution	\$	361.990.737,38
212	HSBC Bank Malta PLC	Malta	Bank	\$	351.970.409,54
213	GAM Holding AG	Switzerland	Financial Institution	\$	351.723.636,56
214	IDI SCA	France	Financial Institution	\$	351.293.781,59
215	DeA Capital SpA	Italy	Financial Institution	\$	346.109.528,52
216	Sparebank 1 Ostfold Akershus	Norway	Bank	\$	342.079.443,26
217	Bank Sankt-Peterburg PAO	Russia	Bank	\$	341.916.573,03
218	Bank of Cyprus Holdings PLC	Cyprus	Financial Institution	\$	334.881.177,23
219	Sparebanken More	Norway	Bank	\$	331.821.668,65
220	XPS Pensions Group PLC	United Kingdom	Financial Institution	\$	331.415.809,88
221	Siauliu Bankas AB	Lithuania	Bank	\$	323.471.290,74
222	Bank UralSib PAO	Russia	Bank	\$	323.095.625,70
223	Pareto Bank ASA	Norway	Bank	\$	321.463.792,79
224	Oma Saastopankki Oyj	Finland	Bank	\$	320.181.138,40
225	Renta 4 Banco SA	Spain	Financial Institution	\$	318.316.264,94
226	B2holding ASA	Norway	Financial Institution	\$	317.031.720,76
227	Permanent TSB Group Holdings PLC	Ireland	Financial Institution	\$	312.434.906,17
228	OVH Holding AG	Germany	Financial Institution	\$	310.039.523,29
229	Hellenic Bank PCL	Cyprus	Bank	\$	309.817.844,34
230	NLB Banka AD Skopje	Macedonia	Bank	\$	309.128.097,97
231	Komercijalna Banka AD Skopje	Macedonia	Bank	\$	308.756.899,55
232	ASA International Group PLC	Netherlands	Financial Institution	\$	301.176.659,14
233	ABG Sundal Collier Holding ASA	Norway	Bank	\$	298.014.773,35
234	Brait SE	Luxembourg	Financial Institution	\$	296.751.161,00
235	City of London Investment Group PLC	United Kingdom	Financial Institution	\$	295.791.066,41
236	Premier Miton Group PLC	United Kingdom	Financial Institution	\$	294.216.451,62
237	International Personal Finance PLC	United Kingdom	Financial Institution	\$	286.872.829,24
238	Sparebank 1 BV	Norway	Bank	\$	282.606.800,39
239	Mattioli Woods PLC	United Kingdom	Financial Institution	\$	276.926.940,55
240	Metro Bank PLC	United Kingdom	Bank	\$	275.074.108,26

Appendix B – 65 Observations excluded for CET1 missing data

Number	Company	Country	Type	Market Cap
1	Deutsche Boerse AG	Germany	Financial Institution	\$ 30.278.299.531,61
2	Partners Group Holding AG	Switzerland	Financial Institution	\$ 27.992.360.882,45
3	EQT AB	Sweden	Financial Institution	\$ 21.039.193.639,34
4	Legal & General Group PLC	United Kingdom	Financial Institution	\$ 20.871.785.643,82
5	Hargreaves Lansdown PLC	United Kingdom	Financial Institution	\$ 9.211.054.462,22
6	M&G PLC	United Kingdom	Financial Institution	\$ 6.816.365.282,49
7	Eurazeo SE	France	Financial Institution	\$ 4.939.997.928,15
8	Ashmore Group PLC	United Kingdom	Financial Institution	\$ 4.112.350.611,41
9	Tikehau Capital SCA	France	Financial Institution	\$ 3.903.173.256,62
10	Intrum AB	Sweden	Financial Institution	\$ 3.331.966.959,79
11	Azimut Holding SpA	Italy	Financial Institution	\$ 3.099.493.384,77
12	Ninety One PLC	United Kingdom	Financial Institution	\$ 2.757.088.810,96
13	Corporacion Financiera Alba SA	Spain	Financial Institution	\$ 2.655.203.404,74
14	FFP SA	France	Financial Institution	\$ 2.592.461.230,06
15	Burford Capital Ltd	UK/USA	Financial Institution	\$ 2.287.834.116,62
16	Grenke AG	Germany	Financial Institution	\$ 2.175.593.515,40
17	Jupiter Fund Management PLC	United Kingdom	Financial Institution	\$ 1.873.254.763,63
18	flatexDEGIRO AG	Deutschland	Financial Institution	\$ 1.676.405.164,89
19	Anima Holding SpA	Italy	Financial Institution	\$ 1.653.904.577,61
20	Gimv Investeringsmaatschappij Voor Vlanderen NV	Belgium	Financial Institution	\$ 1.545.153.221,19
21	Flow Traders NV	Netherlands	Financial Institution	\$ 1.449.397.156,38
22	Ratos AB	Sweden	Financial Institution	\$ 1.422.140.840,80
23	Tamburi Investment Partners SpA	Italy	Financial Institution	\$ 1.409.399.778,20
24	Gruppo MutuiOnline SpA	Italy	Financial Institution	\$ 1.307.686.820,89
25	IP Group PLC	United Kingdom	Financial Institution	\$ 1.244.352.736,93
26	Draper Esprit PLC	United Kingdom	Financial Institution	\$ 1.188.382.708,85
27	Sanne Group PLC	United Kingdom	Financial Institution	\$ 1.142.944.584,35
28	Liontrust Asset Management PLC	United Kingdom	Financial Institution	\$ 1.127.399.119,51
29	Impax Asset Management Group PLC	United Kingdom	Financial Institution	\$ 1.027.672.209,34
30	Law Debenture Corporation PLC	United Kingdom	Financial Institution	\$ 974.446.297,06
31	Jtc PLC	Jersey (UK)	Financial Institution	\$ 926.200.863,92
32	Altamir SCA	France	Financial Institution	\$ 868.120.996,70
33	Polar Capital Holdings PLC	United Kingdom	Financial Institution	\$ 794.781.611,80
34	MBB SE	Germany	Financial Institution	\$ 704.890.042,65
35	Kruk SA	Poland	Financial Institution	\$ 694.281.952,79
36	Aurelius Equity Opportunities SE & Co KGaA	Germany	Financial Institution	\$ 683.305.064,22
37	Alpha FX Group PLC	United Kingdom	Financial Institution	\$ 648.424.896,56
38	Deutsche Beteiligungs AG	Germany	Financial Institution	\$ 602.704.055,97
39	Publity AG	Germany	Financial Institution	\$ 599.529.064,41
40	Galimmo SCA	France	Financial Institution	\$ 568.450.168,10
41	Tinc Comm VA	Belgium	Financial Institution	\$ 559.819.657,09
42	Mortgage Advice Bureau (Holdings) PLC	United Kingdom	Financial Institution	\$ 534.454.450,55
43	ABC Arbitrage SA	France	Financial Institution	\$ 514.044.641,66
44	Viel et Compagnie SA	France	Financial Institution	\$ 481.925.389,19
45	Gielda Papierow Wartosciowych w Warszawie SA	Poland	Financial Institution	\$ 479.155.423,97
46	Numis Corporation PLC	United Kingdom	Financial Institution	\$ 466.820.451,06
47	Arrow Global Group PLC	United Kingdom	Financial Institution	\$ 445.510.820,03
48	Treasure ASA	Norway	Financial Institution	\$ 418.046.918,85
49	CapMan Oyj	Finland	Financial Institution	\$ 407.300.921,68
50	Brockhaus Capital Management AG	Germany	Financial Institution	\$ 387.299.671,68
51	Sixt Leasing SE	Germany	Financial Institution	\$ 380.595.758,38
52	Brooks Macdonald Group PLC	United Kingdom	Financial Institution	\$ 361.990.737,38
53	GAM Holding AG	Switzerland	Financial Institution	\$ 351.723.636,56
54	IDI SCA	France	Financial Institution	\$ 351.293.781,59
55	DeA Capital SpA	Italy	Financial Institution	\$ 346.109.528,52
56	XPS Pensions Group PLC	United Kingdom	Financial Institution	\$ 331.415.809,88
57	Bank UralSib PAO	Russia	Bank	\$ 323.095.625,70
58	B2holding ASA	Norway	Financial Institution	\$ 317.031.720,76
59	OVH Holding AG	Germany	Financial Institution	\$ 310.039.523,29
60	ASA International Group PLC	Netherlands	Financial Institution	\$ 301.176.659,14
61	ABG Sundal Collier Holding ASA	Norway	Bank	\$ 298.014.773,35
62	Brait SE	Luxembourg	Financial Institution	\$ 296.751.161,00
63	City of London Investment Group PLC	United Kingdom	Financial Institution	\$ 295.791.066,41
64	Premier Miton Group PLC	United Kingdom	Financial Institution	\$ 294.216.451,62
65	International Personal Finance PLC	United Kingdom	Financial Institution	\$ 286.872.829,24

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Summary

Leasing is a contract that is used nowadays in practically every economic sector due to the versatility and advantages that derive from the use of it for the most varied purposes. Leasing normally provides for two parties involved, the lessee and the lessor: the lessee undertakes to grant the rights of use of an asset to the lessor for a specific period while the lessor, in exchange, will pay the fees provided for in the contract. The dissemination of this contract over the years has led the IASB to revise the accounting principles used, to ensure greater transparency and greater clarity at the time of accounting for the lease. Following a long process of proposals, criticisms and drafts, the new IFRS 16 was introduced, published in 2016 but entered into force only from 1st January 2019, an accounting standard that replaced the previous IAS 17. The need to a change comes from the problems arising from the previous distinction, in accounting, between operating leasing and financial leasing and from the relating off-balance sheet presence of operating leases.

What is “leasing” and how is born.

The term "leasing" is used more and more frequently in recent years to express the existence of a contract - typically between two or three parties - in which a subject, called "lessor" undertakes to lend, as the term expresses, the rights of use of an asset owned by him to another person, called "lessee", who in exchange will pay, over time, the costs relating to the rental for a certain period of time that can reach a maximum of 99 years. The leasing contract provides for a fixed deadline, at the end of which the person who received the asset can decide whether to redeem it, paying the amortized value, or to return it.

Leasing is particularly useful for companies that decide to maintain financial flexibility but above all accounting flexibility, as it would avoid a fixed cost to be amortized over time such as the purchase of a property, for example, in favor of the rent provided for in the contract that is configured therefore as a variable cost far less expensive.

This type of contract, although it has established itself in recent decades, can be considered ancient. The origin of this contract can be dated back to ancient Egypt and in Hammurabi code, while the first activity based on leasing is instead traced by some archaeologists to the Justinian Age.

The first appearance of the "lease agreement" took place in 1952 in San Francisco and starting from that moment the leasing contract seen an exponential growth, going from a volume of 1 billion in early 60s to a volume of 110 billion in the end of 80s.

Although innovative, the leasing contract in its early forms was uncertain from a legal, fiscal and economic point of view, and for this reason regulatory intervention was necessary when the importance of this novelty was realized. This obstacle has been overcome in 1965 with the "Leasing and Selling Law of 1965", which gave way to a worldwide expansion at a wild rate.

Different types of leasing

Among the most common types of leasing we find financial lease, operating lease, leveraged and non-leveraged leases, conveyance type lease, sale and leaseback, full and non-pay-out lease. For the sake of simplicity, in the analysis of this report we will present the first two types mentioned above:

- ◆ *Financial Lease.* Financial leasing is defined in the Statement of Standard Accounting Practice 21 (SSAP 21) as a lease that transfers virtually all the risks and rewards of ownership of the asset to the lessee. This implies that this form of leasing is the one that comes closest to the actual purchase of the asset by the lessee. The lessee in exchange will periodically pay rental fees in exchange of rights of use, and the amounts paid to the grantor are typically of three types: maxi-rent, periodic rent and redemption price. Financial leasing also provides for a clause of "redemption option" exercisable by the contracting party. The lessor, through the income from the fees, will recover the initial investment within the established time and will be able to make a profit from the sale of the asset upon expiry of the contract.
- ◆ *Operating Lease.* Operating leasing, unlike financial leasing, does not see a real transfer of the risks and rewards of ownership to the lessee. The duration of the contract is generally shorter than that of the economic life of the asset in question, as the person who decides to grant the asset in the form of an operating lease expects to resell the asset after the contractual expiry for a certain value called "residual value", which will in any case be significant. Also, for the operating lease, the contract provides for rents that are paid by the lessee to the lessor for the agreed period, which also include the maintenance costs of the asset, which are in fact borne by the lessor. The fees are of a lower amount since there is no redemption option or duration restrictions in the contract. Unlike financial leasing, the total amount of these amounts paid will not cover the entire value of the investment made by the lessor. Furthermore, the main advantage of operating leases lies in the possibility of deducting the entire fee paid from a tax point of view.

Leasing Industry

The leasing contract is used in the most varied economic sectors thanks to its simple adaptability to goods of all kinds. But which assets are the subject of leasing contracts nowadays?

Very often we can find large construction companies, which, thanks to their earnings over time, have had the opportunity to buy all the equipment and machinery to carry out the construction works, and which perhaps have unused equipment that they grant in leasing to other companies. The latter, which can also be smaller company belonging to same sector, do not have the economic availability to access plants and machinery through direct purchase, and for this reason they can opt for leasing to get hold of equipment that would otherwise have been inaccessible.

The affirmation of leasing, however, does not only concern industries that operate with very expensive assets such as machinery and buildings or with low "repeat purchases". The automotive sector is the main example of this, as cars are necessities, and deserves a particular analysis.

The traditional idea of acquiring a car outright from a dealership has now given way to the more modern leasing or long-term rental solution. Companies instead of selling cars through classic financing or direct purchases, have proposed long-term rental formulas with leasing contracts where the customer is simply required to pay a fee including all expenses related to ordinary and extraordinary maintenance. In addition to this, the customer did not have to worry about paying the insurance premium and car ownership taxes.

Therefore, as we have seen, leasing can have all kinds of facets as regards contractual agreements, but above all it can concern goods of all kinds, and that's the reason why this type of contract represents the primary choice by many consumers and by numerous companies.

Introduction to International Accounting Standards

The introduction of international accounting standards arose from the need, in the early 70s, to have a general guideline followed by all companies in all countries so that it was possible to compare companies that had followed different accounting rules up to that time. In fact, each country internally proposes guidelines to companies to follow in the preparation of the financial statements and other related documents, guidelines that could in fact concern one country and not the other.

Therefore, in response to the need to standardize the accounting standards of all countries, the International Accounting Standard Committee (IASC) was founded in 1973. Today it is called the International Accounting Standard Board (IASB), which from its foundation in 1973 until 2001 published a total of 41 IAS, each concerning a specific indication on the accounting of an economic

operation. The IAS principles do not necessarily have to be followed by companies in the preparation of financial statements: for this reason, companies usually prepare their financial statements according to both national and international accounting standards.

Since 2001, the IAS standards have been reviewed and replaced by International Financial Reporting Standards (IFRS), also published and disseminated by the IASB. The IFRS simply replace in a modern and updated revision key some accounting principles that over time may have had some inconsistencies within them, proposing themselves as more understandable and easier to adopt to further favor the "accounting harmonization" process which represents the main purpose of the IASB.

Despite the numerous initiatives undertaken by the IASB and the European Commission (EC), the adaptation process was long and not simple, so much so that in June 2000 the European Commission put forward the proposal, then accepted, to make adherence to the IAS standards mandatory by 2005 at least for all listed companies in Europe, with the aim of creating greater efficiency, transparency and accountability in the financial markets.

Transition from IAS 17 to IFRS 16

The very first guideline for the accounting of leases in chronological order is IAS 17, introduced by the IASC first under the name of "Accounting for Leases" in 1982 with effect from 1st January 1984, then under the name of "Leases" in 1997 with effect from 1st January 1999. According to IAS 17, it was first necessary to divide the leasing into financial or operating (the differences were reported in the previous chapter).

Starting from the years following the introduction of IAS 17, gaps in IAS 17 began to be glimpsed, as very often companies tended not to account for operating leasing transactions in the income statement, altering the image that the budget provided externally.

The transition process, towards a definitive accounting standard, begun with a cooperation project between the IASB and the FASB (Financial Accounting Standard Board), the US correspondence of the IASB, cooperation defined by the "Memorandum of Understanding" agreement in 2006, to encourage an improvement in accounting representation. The turning point, however, came in 2009 with the publication of the initial Discussion Paper called "Leases: Preliminary Views". This document presented the will, on the part of both the IASB and the FASB, to reach a common standard that would definitively be based on the removal of the distinction, in the accounting field, between operating leasing and financial leasing, thus assuming registration in the state balance sheet of all assets and liabilities deriving from leasing contracts. Following the initial Discussion Paper, two "Exposure Draft" (ED) are presented within a few years.

The first published ED (ED/2010/9) provided - on the lessee side - a single model based on the right-of-use model, recording in the financial statements an intangible asset and a liability that corresponded to the amounts to be paid. On the other hand, two different models were envisaged for the lessor based on the transferability or otherwise of the most significant part of the risks and benefits associated with ownership of the asset. These models proposed by ED/2010/9 were deemed excessively complex to apply, according to some national accounting bodies. This led to a further revision of IAS 17, carried out in July 2011 by the IASB and FASB, which led to the publication of a "Revised Exposure Draft", ED/2013/6.

The latter had the aim of removing, through changes and revisions, the criticisms received in the consultation for ED/2010/9. The result led to some changes, specifically about the removal of the distinction between financial and operating leasing, the change in the accounting guidelines for the lessee (who had to insert, for all types of leasing except those with a duration of less than 12 months, the "right to use" as an intangible asset and the expenses related to leasing in the liabilities) and finally the maintenance of the guidelines provided by the previous IAS 17 for accounting by the lessor.

The model presented by the 2nd Exposure Draft (ED/2013/6 of 16 May 2013) is the one that gave life to the new IFRS16, introduced in 2016 by the IASB effective from 1st January 2019.

International Accounting Standard 17 (IAS 17)

IAS 17 was officially introduced in December 1997, and today represents the first international accounting standard issued to align the accounting of leasing. IAS 17 describes leasing as "an agreement whereby the lessor conveys to the lessee in return for a payment or series of payments the right to use an asset for an agreed period". As reported in the previous paragraphs, the main feature of IAS 17 lies in the clear distinction that is made for leasing, dividing it into two different types.

- ◆ *Financial leases.* About financial leasing, the guidelines expect for the initial recognition that lessee should recognize finance lease both as asset and liability in their financial statements while the lessor must record the amount owed by the lessee as a "receivable" in the balance sheet, for an amount corresponding to the net investment in the lease.
- ◆ *Operating Lease.* Regarding operating leasing, on the lessee side, IAS 17 provides that "the amount of operating lease payments recognized as an expense in the financial statement over the lease term on a straight-line basis, unless another basis, is more representative of the timing of the user's benefit". On the lessor side, however, at the beginning of the lease term, the assets underlying the operating lease must be reported in the balance sheet following the nature of

the asset and must be depreciated in accordance with IAS 16 and IAS 38, while the rentals received over the lease term are treated as income and recognized over the lease term on a straight-line basis, unless another basis is more representative of the timing of the asset's benefit.

International Financial Reporting Standard 16

The IASB adopted IFRS 16 "Leasing" in January 2016, which replaced the old accounting standard IAS 17 and became mandatory for financial years beginning on or after 1st January 2019. This move was pushed by many problems occurred from the IAS 17, but mainly for the so-called "off-balance sheet" leases problem. This practice was used by many companies to hide a portion of liabilities (the ones that are related to leasing in this case) to show up a garbled vision of their financial health. According to an SEC (Security Exchange Commission) estimate from 2005, US public businesses had around \$1.25 trillion in off-balance sheet leases.

The new IFRS 16 eliminates the former distinction between operating and financial leasing. Regardless of the contractual structure of the leasing arrangement, the right of use (ROU) the asset and the corresponding obligation assumed will always appear in the financial statements (leaving optional the reporting of leases with a length of less than 12 months). The ROU must be represented as an asset in the balance sheet at the start of the lease, while the associated debt, the lease liability (calculated as the present value of future lease payments that were not made at the opening date), must be recorded as a liability.

With the new accounting standard, the lessee is required to recognize: lease assets and lease liabilities in the balance sheet, the depreciation of leased assets and interest on lease liabilities in the income statement. On the lessor side, there are no changes introduced by IFRS 16, but the indications provided by the previous IAS 17 continue to be valid. Accounting for the lessor has been judged and considered, by various analysts and investors during the presentations of the two Exposure Drafts, as excessively burdensome in relation to the benefits it would have brought. This implies that the distinction between financial and operating leasing continues to be present on the side of the lessor, but it is necessary that the latter provide additional information on the components of rental income that are found in the reference period.

Benefits and costs of IFRS 16 introduction

The introduction of IFRS 16 was not immediate, as illustrated in the previous paragraphs, and has left some analysts perplexed about the usefulness of removing the well-known distinction between

operating leases and financial leases. However, it should be emphasized that the benefits resulting from this accounting innovation are many. Companies that apply IFRS 16: are far easier to compare with each other in terms of performance; have the financial statements significantly improved in terms of faithful representation as it provides more and more precise information; are more orderly internally and more aware of their financial allocation among the various activities.

On the other hand, there are many costs to face, also depending by the size of the company and the terms and conditions established during the signing of the leasing contract. The costs, also identified by IASB, are mainly three: costs associated with the reconfiguration of systems and processes; costs relating to the determination of the discount rate; training and communication costs.

Effects of transition

The effects of the transition from IAS 17 to IFRS 16 are mainly found on the three balance sheet areas:

- ◆ *Balance Sheet.* Regarding the balance sheet, the greatest impact is recorded in companies that previously held off-balance sheet leasing contracts of significant amounts. For these companies, the transition involves an overall increase in assets and liabilities in the balance sheet, due to the requirement of the new accounting standard to report all types of leasing. Also, the company's equity, following this change, will be modified as the book value of the leased assets will suffer a faster reduction than the amount of the lease liability. Therefore, assuming all other factors as constant, the company's shareholders' equity will be of a lower amount than in the previous case with the application of IAS 17.
- ◆ *Income Statement.* Unlike the balance sheet, the income statement should not undergo significant changes, since already from the previous application of IAS 17, companies were required to record a classification of costs in the income statement for both financial and operating leases. By applying IFRS 16, however, it is noted that the total expenditure relating to each individual reference period is different from the expenditure recognized in the application of IAS 17 for a single off-balance sheet lease. On the other hand, with the transition to IFRS 16, due to the separation of costs, the costs relating to leasing are no longer constant and equal but depend on the duration of the contract, the timing of payments and the rent charged in the leasing.
- ◆ *Statement of Cash Flow.* According to the IASB, the application of the new IFRS 16 has no effect on the total cash flow of a company but changes the presentation of cash flows

associated with previous off-balance sheet leases. Compared to the previous IAS 17, the effects concern an increase in liquidity following the operating activity and a corresponding decrease in liquidity following the financial activity.

Empirical studies on operating leases' capitalization

During these decades, starting from 60s, many studies were conducted with empirical analysis to study the impact of capitalization of operating leases. The most important analyses will be described below.

The first contribution in chronological order comes from Nelson (1963) over half a century ago, who began conducting an empirical analysis on 11 US companies with the aim of drawing evidence of the effects of accounting for operating leases on financial ratios. Nelson's goal was to see if accounting for operating leases was useful in improving the reliability of the financial statements. To achieve this, it has drawn up a pre-accounting ranking of the leasing based on 15 financial statements calculated for each company. A ranking was then drawn up again, based on the same ratios used previously, this time post-accounting. The result showed that in 56% of the observations, the ranking moved by two or more positions. Specifically, the ratio most affected by the accounting was Debt/Equity.

In line with Nelson, the analysis is resumed by Imhoff et al. (1991) to analyze additional US companies with the constructive capitalization method they devised. This method, later used in many areas, provides for the application of numerous assumptions so that the minimum lease payments, the residual life of the asset, the tax rate and the discount rate can be determined (Giner et al. 2019).

To estimate the debt, the program of future cash outflows to be disclosed for the remaining non-cancellable operating leases was used. Subsequently, these flows were discounted with an estimate of the company's incremental financing rates and an estimate of the residual life of the leased asset. The present value of all non-cancellable obligations was instead used to estimate the off-balance sheet debt for the operating lease. The model then estimated the off-balance sheet assets, analyzing the relationship between assets and debt. This model is applied by Imhoff et al. (1991) to a sample made up of 14 companies belonging to 7 different sectors. Each sector had two observations, representing high and low level of operating lease utilization. The result obtained shows that among the relationships analyzed, the most influenced were ROA, with an average significant decrease of 34% for the high level of use of operating leases and 10% for the low level, and D/E, with average significant increase of 191% for the high level of operating lease usage and 47% for the low one. The

conclusion reached, however, saw the effect of accounting significant and considerable but also unpredictable.

The same method was used by Goodacre (2003). The analysis was conducted in the years 1994-1999 on a sample of 106 companies in the UK area operating in the retail sector, to analyze the impact of leasing capitalization but also to analyze the trend of use the leasing instrument in this sector. The performance indicators studied were nine: operating margin, asset turnover, income gearing, three measures for return on capital and three measures for capital gearing. The result highlighted that operating margin, the three gearing measures and the ROE reported a significant increase, while ROA, ROCE, asset turnover and interest coverage reported a significant decrease. These variations in the indicators analyzed demonstrate once again how much unaccounted operating leases do not provide a true picture of the company's financial situation and how much this alteration affects the decision-making processes and the company's performance.

Duke et al. (2009) took up the constructive capitalization model of Imhoff et al. to conduct an analysis slightly different from those presented up to that moment. The research started from the selection of the sample from the list of companies of the Standard & Poor 500 index of 2003, to arrive at the evidence that the companies, through the omission of leasing liabilities in the balance sheet, were falsifying data due to increase in their performance indices. The sample was divided into subgroups of positive and negative income, arriving at two evidences: companies on average had omitted about 582 millions of liabilities (with a relative incidence of 11% on total liabilities) and about 450 million of assets (with a relative incidence of 4% on total assets). This had a negative impact on the Debt/Equity, Debt/Total Equity and current ratio performance indicators, as well as having reduced retained earnings and net profit over time.

Cornaggia et al. (2013) have changed their perspective of analysis to trace a trend in the use of off-balance sheet operating leases. The sample initially chosen contained the companies registered in the CRSP-Compustat database with data in the period 1980-2007. The result of the analysis brought to light the tendency by US companies to use operating leasing as a form of off-balance sheet financing, significantly altering the accounting situation. Specifically, the leases recorded in the financial statements over the years have halved and, on the other hand, the average financing of off-balance sheet leases has increased by more than 700% in proportion to the debt in the analyzed period. This underlines how traditional measures such as leveraged β , Z Score and conventional leverage, favor the omission of leasing from the balance sheet so that the performance of companies is overestimated.

In summary, the studies presented in this paragraph were conducted in different periods, in different geographical areas and in different sectors, but all came to roughly the same conclusions: the accounting of operating leases has a non-negligible impact on the main performance metrics, practically worsening the leverage ratio, ROA, D/E and other indices and measures useful for evaluating the company and his financial health. Furthermore, these metrics are of vital importance for external parties, who risk finding themselves making choices in distorted accounting situations.

Empirical studies on expected impacts of IFRS 16's introduction

This paragraph will present the two studies conducted by the IASB and EBA to analyze the financial and banking sector, neglected until that moment in the past empirical analyses.

In 2016, the IASB selected a sample consisting of 20 banks into a research analysis aimed at seeing how the application of the new IFRS 16 impacted the Total Capital Ratio (TCR). This ratio is fundamental in the banking sector as it represents one of the financial solidity indices of banks, being calculated as the ratio between Total Capital/Risk Weighted Assets (RWA). The result highlighted an increase in RWAs deriving from the recording of ROUs in the financial statements, which led to a decrease in Tier1 Capital and a consequent change in TCR. However, the decrease recorded was less than 0.5% of the assets reported for all banks belonging to the sample and less than 0.2% for the assets reported for about half of the observations. Therefore, according to the IASB, the new IFRS 16, unlike what is found in other sectors, should not have a significant impact on banking sector.

The other study was conducted by the European Banking Authority (EBA), which selected a sample of 69 banks belonging to the EEA (European Economic Area). The analysis sought to obtain evidence on the changes in three main indicators: Total Capital, CET Capital and Leverage ratio. The useful data was mainly taken from the financial statements made available by the banks and from the documents relating to Pillar III (which will be discussed in more detail in the following chapter). The result obtained by the EBA was in line with that of the IASB, concluding that, although there may be an impact on the selected indicators, this was of limited relevance and largely dependent on the incidence of the ROU activities compared to the total activities of the bank.

Analysis - Sample description and data collection

To come to evidence on the impact of the new IFRS 16 on the banking sector, a sample composed by top 300 banks and institutions (in order of market capitalization) was selected from the list provided by Thomson Reuters Eykon. From the initial sample, it was necessary to make some changes due to

the problems encountered: 32 observations were removed because they did not prepare their financial statements following IAS and IFRS; 28 were not considered for problems such as repetition of data, impossibility to find the financial statements and impossibility to find items relating to lease contracts. Net of the exclusions that were made, the sample analyzed consists of 240 observations (124 banks and 116 financial institutions). Various documents were downloaded for data collection, including financial report for 2018 and 2019 (2019 and 2020 for banks and institutions which presented a different end in the fiscal year) and Pillar III disclosure (for information regarding CET1). It's important to underline that the data regarding CET1 have been obtained for only 175 observations out of 240.

Subsequently, having collected all the data subject to analysis, the impact of the adoption of the new accounting standard on profitability and performance ratios was estimated, comparing the value of these before and after implementation. Following the adoption of IFRS 16, the ROU was typically included in the PPE, while the Lease Liabilities in the Other Liabilities category. The value of the ROU was then added to that of the PPE, and the value of the Lease Liabilities to that of the Other Liabilities, to arrive at the "reformulated" data to calculate the value of the coefficients after the adoption of IFRS 16.

Analysis - Variable Selection and Methodology

For the analysis of the effect of the IFRS 16 adoption, three main gearing measures were selected as they are the most impacted in other sectors as well. Along with the three selected gearing measures, two measures have been added that are equally important in providing a broader picture of the effects in the banking sector. The relationships analyzed are therefore:

Debt to Equity (D/E): (Total Debt/Total Equity); Debt to Asset (D/A): (Total Debt/Total Assets); Assets to Equity (A/E): (Total Assets/Total Shareholders' Equity); Return on Equity (ROE): (Net Income/Total Shareholders' Equity); Common Equity Tier 1 (CET1): (Common Equity Tier 1 Capital/Risk Weighted Assets).

Analysis - Hypothesis development and testing

To get a result, the data of the 240 observations were collected and inserted into an Excel document, to quickly calculate all the balance sheet ratios selected at the time before IFRS 16 adoption. Subsequently, t-tests were performed on paired samples using the STATA software.

The t-test statistical method of analysis is particularly useful for checking whether the mean value of a distribution varies significantly from a value set as a reference. So, as in our case, it is useful for analyzing a data in two different contexts.

The starting hypothesis chosen was standardized for all five reports selected for the analysis and consists in assuming as null the effect of accounting for operating leases on the selected ratios.

The first hypothesis developed is the so-called "null hypothesis", at the basis of a paired t-test, which in our case consists in assuming as equal the average of the distribution ratios in the two moments considered (before and after the adoption of IFRS16).

$$\blacklozenge \quad H_0: \mu_1 = \mu_2$$

Where μ_1 represents the mean of our distribution ratios before the adoption of IFRS 16 and μ_2 the mean of our distribution ratios after the adoption of IFRS 16.

Assuming that the averages are the same in the two moments considered, the null test corresponds to the starting hypothesis, the one that states that IFRS 16 has a zero impact on the sample analyzed for the selected data. The alternative hypothesis, on the other hand, is chosen during the analysis and corresponds to the hypothesis that refutes the initial null H_0 . In this case, the alternative hypothesis is the one which states that the impact of IFRS 16 is present and can be found on the analyzed performance measures of the banking sector.

$$\blacklozenge \quad H_1: \mu_1 \neq \mu_2$$

After testing the hypotheses, we proceeded with the calculation of the t-test statistic using the formula below:

$$t = \bar{x}_{diff} / (s_{diff} / \sqrt{n})$$

Where x_{diff} represents the difference of the sample means; s_{diff} the difference in the standard deviations of the sample and n the sample size expressed as the number of observations.

A p-value was established for the analysis, a fundamental criterion for data acceptance. This value in fact describes the probability that during the analysis the data obtained are purely random. The p-value is usually included in an interval between 0 and 1, and in this case, we have selected a significance level $\alpha = 0.05$. This means that:

- ♦ If $p < \alpha$, then this means that it is statistically significant as there is a probability of less than 5% that the null hypothesis is correct. In that case H_0 should be rejected and H_1 should be accepted.
- ♦ If $p > \alpha$, then this means that it is not statistically significant and therefore there is strong evidence of the occurrence of H_0 .

Paired t-test							
Paired t test : DEbefore DEafter							
	obs	Mean1	Mean2	dif	St_Err	t_value	p_value
DEbefore - DEafter	240	10.912	10.976	-.063	.009	-6.95	0
Paired t test : DAbefore DAfter							
	obs	Mean1	Mean2	dif	St_Err	t_value	p_value
DAbefore - DAfter	240	.747	.753	-.006	.001	-5.9	0
Paired t test : AEbefore AEafter							
	obs	Mean1	Mean2	dif	St_Err	t_value	p_value
AEbefore - AEafter	240	11.912	11.976	-.063	.009	-6.95	0
Paired t test : ROEbefore ROEafter							
	obs	Mean1	Mean2	dif	St_Err	t_value	p_value
ROEbefore - ROEafter	240	.225	.226	0	0	-3.35	.001
Paired t test : CET1before CET1after							
	obs	Mean1	Mean2	dif	St_Err	t_value	p_value
CET1before - CET1after	175	.179	.17	.01	.004	2.3	.022

The result obtained sees the $p < \alpha$ for $\alpha = 0.05$ for all the selected ratios. This implies that the null hypothesis H_0 must be rejected in favor of the alternative hypothesis H_1 . Specifically, we can see how four out of five ratios (D/E, D/A, A/E and ROE) have a p-value equal to or close to 0, and consequently 0% chance of providing random data as a result, while for CET1 has a p-value of 0.022, and therefore a possibility of less than 2.2% which is also irrelevant as it is lower than the selected α value.

Analysis - Findings and discussion

Thanks to the data obtained from the statistical analysis, it can be stated with extreme certainty that the result is not due to chance as all p values are close to 0. Said that, we can support the result obtained, which states that the averages of the ratios are different in the two moments analyzed, before

and after the adoption of IFRS 16. To provide a simplified picture of the variations in the average of the ratios, it will be possible to see the percentage variation of increase and decrease into this table:

Change ($\Delta\%$) in Mean			
Ratio	Mean1	Mean2	$\Delta\%$
D/E	10.912	10.976	0,59%
D/A	0,747	0,753	0,80%
A/E	11.912	11.976	0,54%
ROE	0,225	0,226	0,44%
CET1	0,179	0,17	-5,03%

The data obtained allow us to make further important considerations. In line with the studies carried out in the other sectors, the accounting of operating leases with IFRS 16 will increase the D/E, D/A, A/E and ROE. The CET1 Ratio is the one that reported the most significant change with a decrease of 5.03%. This implies that IFRS16 has undoubtedly set off an alarm bell within banks and financial institutions that may have found themselves revising their choices regarding capital reserves.

Conclusions

The results of the analysis allowed us to arrive at some evidence commented on in the last paragraphs of the report. We can conclude by stating that the accounting of operating leases, entered into force with IFRS 16, has an accounting impact on the banking sector, albeit of a decidedly lesser extent than the sectors analyzed by the literature starting from since 1963 with Nelson. The reason for this reduced impact can be found in the primary activity of the banking sector, whose core business model does not require the procurement of many leased assets such as property, plant and machinery. Banking is mainly carried out using other technological tools that can be leased but which in any case cannot have a significant impact on the balance sheet of a bank, consisting of billions of euros of other assets. Although small in scope, the impact is still present, which is why it is worthy of study and analysis and should not be neglected, especially for issues relating to capital reserves, as seen in the average change in the ratio regarding the CET1 ratio. The neglect of this impact on the part of the institutions could lead to making choices of allocation and use of capital that are not perfectly calibrated. Lastly, leaving out the numerical impact of the transition, the introduction of IFRS 16 has satisfied the objective set by the IASB, obtaining a better quality in the accounting representation and greater transparency and comparability.