

IFRS 16 - Impact on the Assets of the Major Airlines Operating in Brazil

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Abstract

The article aims to study the impacts that the adoption of IFRS 16 will have on the financial position, that is, what will be the impact on the total value of assets of airlines operating in the Brazilian market. It is evident that the new accounting of aircraft acquired through operating leases, an essential tool for any company in the sector, is fully in line with the essence of the operation. Therefore, the authors structured the methodology through a comparison of indicators between 3 companies in the Brazilian airline industry, together with data collection through accounting information obtained in explanatory notes on future payments of operating leases. The findings show that, with IFRS 16, there were significant changes in the indebtedness indicators of companies, due to the significant changes in the accounting of assets, affecting the capital structure and profitability of companies.

Keywords: IFRS 16, operational leasing, air sector, financial indicators

1. Introduction

1.1 Introduce the Problem

The Accounting science has always been vital for companies' financial health and accountability to its various users, having an important role to play. Brazil took a big step towards global convergence in accounting when it adopted the international accounting standards (IFRS) and other countries, which currently adopt the measures issued by the IASB (International Accounting Standards Board).

International accounting standards have brought greater subjectivity to accounting. They are not presented as a strict manual to be followed, but as guidelines to be applied, being the accountant responsible for their interpretation and application to the company's reality. Accounting, being a human science, demands responsibility from professionals in decision-making based on the primacy of essence over form.

During the initial adoption of IFRS, a classic example of the primacy of essence over the form emerged precisely in leasing operations. Despite the legal arrangement, where the lessor holds ownership of a specific asset, the control belongs to the lessee. Therefore, the accounting must reflect the economic essence of the fact and not just its legal form, which does not represent the facts reliably.

However, the International Accounting Standards - IAS 17 (to be replaced by IFRS 16) have determined the bifurcation of the accounting model for leasing operations. Therefore, the accountant must give an accounting treatment if:

- I. the operation is financial - a lease which transfers all the risks and rewards inherent in the ownership of an asset, and the property rights may or may not be randomly assigned (IAS 17) or

II. operating - a lease that is not a finance lease (IAS 17).

In the authors' view Segal and Naik (2019) although the difference in the classification of finance vs. operating leases was neither controversial nor ambiguous, the difference between accounting for operating vs. finance leases was significant and material.

The effect of this bifurcation in the accounting treatments for leases and financing impacts the decisions creditors make and the credit assessments they perform. In the authors' understanding De Villiers and Middelberg (2013) creditors' decisions are affected by the actual level of leverage; that is, debt to equity, rather than the way companies account for leases in their financial statements.

The IASB issued a new standard to replace IAS 17, where, in the lessee's position, the operating and financial leasing classification is abandoned, and in all cases, it should have a similar treatment to what is currently adopted for finance. However, in the lessor position, the accounting is still different depending on the type of leasing.

In essence, in both cases, the entity finances itself for the acquisition of an asset. The requirements of IFRS 16 are consistent with this purpose. In order to provide more transparent data to users of accounting information, lessees should be aware of all assets and liabilities arising from leasing operations in their balance sheets (provided for small value leases and short-term leases), thus eliminating off-balance financing (Tănase, Calotă, & Oncioiu, 2018).

Issued by the IASB in January 2016, IFRS 16 – Leases comes into effect from annual periods beginning in 2019. The main reason for issuing the standard was the non-transparent form of accounting for the operating leases by the lessee. As this type of operation was not accounted in the financial position, but only in income when the expenses were incurred, companies that used this form of financing had no precise information regarding the assets and the liabilities assumed. Another new feature of the new standard is the introduction of criteria based on control for assets (right of use) to distinguish a lease from a service contract (Magli, Nobolo, & Oglia, 2018).

In 2015, the annual lease value carried out in the 50 largest countries in the world in 2013 was detected at US\$ 883.96 billion. These numbers are indicators that unregistered leases can be of great importance (Öztürk & Serçemeli, 2016). According to a study prepared by the IASB (2018d), 92% of leases in Latin American companies were off-balance sheets (operating leasing). Historically, companies operating in the airline industry have massively used leasing operations to acquire aircraft, which Management Reports of any company can prove.

As operational leasing is the type of operation most used by airlines (Morales-Díaz & Zamora-Ramírez, 2018a), it is expected that the impact of implementing IFRS 16 is more significant in this sector in the Brazilian market. With the addition of assets and liabilities, the IFRS 16 will modify the financial position, leading to significant changes in several economic indicators that, if not analyzed and contextualized correctly, may distort the analysts' conclusions (indicators such as ROI, ROA, RSPL, ROE, and others). These changes influence the financial metrics and statistics that guide investor decisions, loan agreements, financial plans, budgets, and event management bonuses. For these reasons, all related parties should attempt to assess these impacts prior to implementing the new lease rule (Tóth, 2019).

After analyzing operating lease data of companies in the national airline industry and proposing a model to bring these future payments to present value, the authors of this study have formulated the following question: Will the initial impact that the adoption of IFRS 16 provides for the equity position (relative to total assets) of these companies be relevant? Thus, in this study, the hypothesis suggested in order to solve the research problem will be an affirmative proposition, that is, that the initial adoption of IFRS 16 will bring relevant impacts to the assets of airline companies, from the acknowledgment of the assets arising from the operating lease transactions in their balance sheets. The effect of the change to IFRS 16 on the financial ratios of companies involved in leasing activities must be investigated, as this may affect the companies' financial statements significantly more than initially expected (Villiers & Middelberg, 2013).

Thus, the objective of this work is to estimate the initial impact of adopting IFRS 16 on the total assets of the largest airlines operating in the Brazilian market. Furthermore, as a specific objective, this article proposes to carry out a relative analysis of the investments with the right to use the lease concerning the total assets, in addition to a comparison between the companies, thus being able to visualize which company operates, in a more significant proportion, the operating lease as the funding source.

This paper is organized into four sections. The first section of the article deals with the research context and the

theoretical framework. The second section presents the methodological procedures adopted and the analyzed sample. The third section reports the analysis of the results evidenced in the research. Finally, in the last section, final considerations and discussions are presented, as well as limitations and suggestions for future research.

1.2 Theoretical Background

1.2.1 Leasing Operations

Leasing is a usual way of obtaining financing, being inherent to the business and activities of several companies from the most varied sectors of the economy. Niyama and Silva (2008) define leasing operations as transactions agreed between the owner of an asset, defined as the lessor, who grants the use of that asset to another party, defined as the lessee, in exchange for a payment or series of payments, the right to use an asset for an agreed period.

According to the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB), leases are required to be classified as either finance leases or operating leases. The finance lease transfers substantially all the risks and rewards of ownership, and give rise to asset and liability recognition by the lessee and a receivable by the lessor.

The analysis must be based on the essence of the transaction and not merely its legal form. The authors Wolk, Tearney, and Dodd (2008) describe leasing precisely as one of the most striking topics around accounting theory in which the essence prevails over the legal form.

IAS 17 defines some characteristics that, in everyday situations, would be configured as a finance lease. They happen if:

- the lease transfers the asset ownership to the lessee at the end of the lease term;
- the lessee has the option to purchase the asset at a price that is expected to be sufficiently lower than the fair value at the date the option becomes exercisable so that, at the commencement of the lease, it is reasonably sure that the lessee will exercise the option;
- the lease term refers to most of the asset's economic life, even if ownership title is not transferred;
- at the beginning of the lease, the present value of the minimum lease payments amounts to, at least substantially, the entire fair value of the leased asset; and
- the leased assets are of a specialized nature such that only the lessee can use them without major modifications.

According to Bacen (Brazilian Central Bank) Resolution No. 2,465/98, operating leasing is defined as:

Art. 6 is considered operating lease the mode in which:

I - the considerations to be paid by the lessee include the cost of renting the asset, the price for making it available to the lessee, and the present value of payments may not exceed 90% (ninety percent) of the "cost of the good; "

II - the contractual term is less than 75% (seventy-five percent) of the useful economic life of the asset;

III - the price for exercising the purchase option is the market value of the leased asset;

IV - there is no provision for payment of guaranteed residual value.

The instructions and regulations on leases, which can be classified as operating leases rather than finance leases, present a great advantage because it creates opportunities for companies to have off-balance sheet financing (De Villiers & Middelberg, 2013). Despite having different legal forms and features, both, in essence, are configured as assets for the lessee.

According to Law no. 11.638/07 and subsequent updates, the rights that have as their object tangible assets intended for the maintenance of the company's activities must be registered in Fixed Assets; similarly, the rights arising from operations which transfer the benefits, risks, and control of these assets to the company.

According to NBC TG 27 (R4), these are the characteristics to account for a Fixed Asset:

- a) are held by an entity for use in the production or marketing of goods or services, for rental, or administrative purposes;
- b) are expected to be used for more than twelve months;
- c) there is an expectation of obtaining economic benefits as a result of its use; and

d) the cost of the asset can be reliably measured.

In other words, all characteristics are identified in both types of leasing.

1.3 Start of Leasing Operations

Since the Industrial Revolution, the use of machines in industries has increased. In the face of this context, leasing operations have consequently emerged. The wear and tear of production assets accelerated, requiring constant renewal of assets in a way that would not entail considerable financial outlays.

The emergence of leasing, however, effectively occurred in the United States of America, through the LEND AND LEASE ACT, on March 11, 1941, and with the experience of the North American Boothe Jr., in 1952, highlighting here two significant and fundamental moments for the leasing contract birth and its consequent recognition for contractual and legal purposes. (Moreira, 2014).

In Brazil, the leasing activity began in the 1960s, as noted by Ribeiro (2015). Thus, in the understanding of Iudícibus, Martins, Gelbecke, and Santos (2013) before the adoption of Law No.11,638/07, both leasing operations (finance and operating) were accounted for expenses when incurred, being the asset property critical for asset accounting. The difference from Law No.11,638/07 was that financial lease, based on the essence of the transaction, are now activated by the lessee. Thus, the responsibility of whoever will assume the risks and benefits inherent to the asset ownership will be analyzed (Iudícibus et al., 2013).

CVM (Comissão de Valores Mobiliários) Deliberation n° 645 of 2010 governs the accounting treatment for leasing operations in publicly traded Brazilian companies and approves technical pronouncement CPC 06 (R1), correlated to the international standard IAS 17.

In January 2016, the IASB issued IFRS 16, which will replace IAS 17 and will address the recognition, measurement, presentation, and disclosure of leasing transactions. There is no difference between IFRS 16 and IAS 17 in terms of the definition of the lease. IFRS 16 guides in the issue of how the changes shall be applied. Actually, the change develops on the concept of control. IFRS 16 covers the explanations related to whether the content of a contract including the lease gives the right of using the asset to the users during the period they use (Öztürk & Serçemeli, 2016). One of the most significant changes brought about by this new standard is that it will recognize the two types of leases mentioned above in the lessee's Balance Sheet.

1.3 Accounting in Accordance with IAS 17

According to the standard, IAS 17, lessees must classify their leases as operating (those in which there is no substantial transfer of risks and rewards inherent to the ownership of the asset) or finance (when it happen the transfer of risks and benefits).

For operating leases, no asset or liability is recognized in the lessee's balance sheet, being only recognized the expenses in the income statement in the period in which they are incurred. In accordance with IAS 17, operating transactions are presented only in the notes and not in the statement of financial position. That is, they are off-balance sheet items, which are not capitalized or presented as a liability (Tóth, 2019). For finance leases, assets and liabilities are recognized in the balance sheet at amounts equivalent to the present value of the minimum lease payments, discounted at the interest rate implicit in the contract (if applicable) or the lessee's incremental rate.

The conceptual framework defines an asset as a resource the entity controls due to past events, and future economic benefits are expected to flow to the entity. Within the standard, an item further reinforces that the primacy of essence over legal form must be used to identify an entity's asset.

Regardless of the leasing structured form, in both types (either finance or operating), it is possible to identify an asset for the lessee, considering that the leasing form has observed the three points to meet the definition of an asset.

The IAS 17 standard has been criticized by academics, professionals, and users, who argue that lessees are not recognizing all lease obligations and assets on their balance sheets, which leads to a lack of comparability (Morales-Díaz & Zamora-Ramírez, 2018b). Therefore, the current way of accounting for operating leases (expenses recognized only in the result) does not converge with the essence of the operation, which characterizes financing that is not reflected in the company's financial position (assets and liabilities) in other words, off-balance sheet financing.

1.3.1 IFRS 16 Standard Accounting

The 2008 global monetary crisis brought up a critical issue, making the IASB issues the IFRS 16 - Off-balance

Financing. During the crisis, many companies had had their balance sheets debt-free but went bankrupt due to substantial rental liabilities that were off their balance sheets. The IASB estimated that 3.3 trillion in debt with rents were off the balance sheet of companies worldwide, with 45% of this liability in Latin America (IBEF, 2016).

Given the situation presented, IFRS 16, in the view of the lessee, abandons the classification of leases as operating or finance. In all cases, they should have a treatment like what is currently adopted for finance leases. The standard does not require lessees to recognize the small value and short-term lease assets and liabilities (maturity up to 12 months). In summary, if a company classifies its leases as finance leases, it is considered that this will not cause significant changes in financial ratios. However, it is considered that the standard in question will have significant impacts on the financial indicators of companies that classify their leases as operating leases (Öztürk & Serçemeli, 2016).

Identifying a lease

A leasing operation is observed whenever a party transfers to a third party the right to control the use of an identified asset, for a period, in exchange for a financial consideration. This transfer is carried out when these three elements can be observed, cumulatively:

- If one can identify the asset: The lessee has control over a specific asset, and the lessor does not have a replacement right for his own benefit;
- If the lessee obtains the economic benefits from the use of the asset; and
- If the lessee can direct the use of the asset.

One of the purposes of IFRS 16 is to distinguish what is a lease and what is a service contract, this distinction is based on the customer's ability to control the asset being leased. A contract is, or contains, a lease if the contract provides a customer with the right to control the use of the identified asset for a period of time in exchange for consideration (Magli, Nobolo, & Ogliari, 2018).

An entity does not need to reassess the leases to identify whether they are or have lease components. Any scope previously classified as a lease may continue to be assessed in this way. It only requires the verification of compliance with these elements for the new contracts.

Separating Components of a Contract

A lease agreement can contain one or more lease components in addition to non-lease components. For Morales-Díaz and Zamora-Ramírez (2018b), the lease of the contract would be divided into two parts (each part could also be subdivided if there was more than one lease component or more than one non-lease component):

- 1) Lease Components: The capitalization model is applied to each lease component. The present value of this rent portion is recognized in the balance sheet as a lease asset (right of use) and a lease liability.
- 2) Non-leased components: these components are accounted for depending on the nature of the component. In many cases, these are services that are recognized as an expense on a straight-line basis over the service period.

In these cases, the accountant must segregate the values for each contract component (using judgment if these values are not readily available). The standard allows the entity to choose not to separate the non-lease components of a contract, accounting for them as a single lease item (implications: despite the ease that non-segregation promotes, anyone will recognize non-lease items in the balance sheet, which may affect indicators, such as the immobilization index, for example).

Lease term

The lease start date comprises the moment when the asset is ready for use, with an end date until the contractually defined non-cancellable period, in addition to the time in which the asset is still expected to be used if the contract has a renewal option. It may involve estimates if the company deems it necessary to consider an extended term concerning the contractually defined.

Initial measurement for lessees

The entity shall initially recognize as a liability the present value of future payments to be made during the lease term, discounted at the contract's implicit interest rate (if practicable) or the lessee's incremental rate (Morales-Díaz & Zamora-Ramírez, 2018b). Key points:

- Lease term: signed lease agreements do not have long terms and are renewable. The parties must estimate

the actual useful life of the asset for calculation at present value;

- Values: are adjusted annually by country inflation rates (IPCA, IGPM, IGPDI, for example). The parties must consider these adjustments to correct the value of the installments during the lease term;
- Identify: the discount rate to be used to calculate the present value of future payments.

These payments comprise fixed payments deducted from incentives received, variable amounts indexed to an index, the guaranteed residual value to be paid, the price of the call option if it believes the party will exercise it, and the payment of fines.

For Maali (2018), the initial recognition of the asset must be made at cost, comprising the value measured initially for the obligation arising from the lease, plus:

- payments made before the start date of the lease,
- costs directly attributable to the lease, and
- costs estimated during the termination of the lease (fees to return the asset to its initial condition, for example).

The standard identifies this asset as a right of use asset.

Subsequent measurement for lessees

The subsequent measurement will comprise the cost value of the right of use asset, less the amount of accumulated depreciation, impairment losses, and any adjustments due to remeasurements in the value of the lease obligation. Therefore, in subsequent periods, the asset with the right to use is accounted for in a similar way to an acquired asset, that is, depreciated over the contract period (Maali, 2018).

With the implementation of IFRS 16, the lease liability will be accounted for in a similar way to the financial liability. Therefore, the lease liability is accounted for using the effective interest rate method. Where lease payments are prorated between interest expense and a reduction of the lease obligation using the effective interest method (Maali, 2018; Magli, Nobolo, & Ogliari, 2018).

Accountants must calculate depreciation following IAS 16 - Property, plant, and equipment. In addition, when the requirements of IAS 39 - Financial Instruments - Recognition and Measurement indicate that it is necessary to recognize any loss due to the impairment of the asset, one must recognize the loss following IAS 36 - Impairment of Assets.

2. Method

To analyze impacts on the financial position of airline companies due to the adoption of IFRS 16 - Leases, in force for annual periods starting from 01.01.2019, the authors carried out a study of the consolidated financial statements of Gol Linhas Aéreas S.A. (Gol), Tam S.A. (Latam) and Azul S.A. (Azul).

Using the Explanatory Notes of the three leading airlines operating in Brazil, this paper aims to identify the initial impact on the financial position of these airlines. The author considered the new requirements about the accounting procedures to be carried out for operating leasing operations (identifying the future amounts to be paid and bringing them to present value through an appropriate discount rate).

The selection of companies in this study considered the three most active airlines in the Brazilian domestic market, according to a study prepared by Agência Nacional de Aviação Civil - ANAC (2017). Based on the study, the participation of Gol, Latam, and Azul in the domestic market is 38.0%, 31.7%, and 17.4%, respectively.

Data collection was carried out through the official website of each company, in the investor relations section. In addition, the author collected the consolidated financial statements disclosed by the companies for the base date of December 2017, and all were prepared following the international accounting standards (IFRS) following the Explanatory Notes for the presentation of the financial statements.

The future amounts payable for operating leases entered by the airlines can be identified through their explanatory notes. A discount rate was used to bring these future amounts payable to present value by calculating the net present value, thus simulating the initial impact on the total assets and liabilities of the companies. This discount rate reflects the average funding cost of the companies in the sector.

With the new requirements of IFRS 16, relevant changes are expected in the financial position of companies that finance themselves through operating leasing operations. The recognition of the right of use assets and associated liabilities will increase assets and liabilities in the entities' Balance Sheets, as shown in Table 1 below.

Table 1. Comparison of balance sheet items with ISA 17 and IFRS16

Recognition of items on the Balance Sheet	IAS 17	IFRS 16
Assets with a substantial transfer of risks and benefits	YES	YES
Linked liabilities	YES	YES
Assets without a substantial transfer of risks and benefits*	NO	YES
Linked liabilities*	NO	YES

Source: Prepared by the authors, 2020.

* Currently, it is only carried over in the result when the expense is incurred.

Sacarin (2017) identifies that the initial effect of applying IFRS 16 on the company's equity will be influenced by several factors such as the contract term, payment terms, the effective interest rate of the contract, the marginal debt rate, the leasing portfolio, the amortization of the right to use the asset, and others. In the Appendix, you can find Table 2 with an analysis of the effects of IFRS 16 on financial indicators that was prepared based on the article by Sacarin (2017).

Table 2. Impact of IFRS 16 on financial indicators

Indicator	Meaning	Relation	Consequence of applying IFRS 16	Explanation
Indebtedness	Long term liquidity	Liabilities / Equity	Increase	Increase due to adding of liabilities.
Current liquidity	Liquidity	Current assets / Current liabilities	Decrease	Current liabilities increase while current assets remain unchanged.
Asset Turnover	Profitability	Sales / Total Assets	Decrease	Decrease due to recognition of new assets.
Interest coverage	Long term liquidity	EBITDA / Interest expense	Subject to other factors	Both EBITDA and interest expense will increase. The increase will depend on the contractual features of the assumed leases. The expense for the amortization of the right-of-use assets will be less than the expense currently recognized by operating leasing transactions.
EBIT	Profitability	Earnings before interest and taxes	Increase	The indicator will no longer be affected by expenses currently recognized for operating leasing transactions.
EBITDA	Profitability	Earnings before interest, taxes, depreciation, and amortization.	Increase	Subject to leases' contractual characteristics and tax regulation.
Result for the period	Profitability	Revenue - Expenses	Subject to other factors	Subject to effects on income for the period.
Earnings per share	Profitability	Profit / Number of shares issued	Subject to other factors	Both EBIT and financial liabilities will increase. The evolution of the indicator depends on the leases' contractual characteristics.
Return on capital	Profitability	EBIT / (Liabilities + Equity)	Subject to other factors	Subject to the effect on income for the period (influenced by the characteristics of lease agreements).
Cash flow generated by operating activities	Profitability	Interest paid will not be on operating activities	Increase	Payment (principal and interest) is presented as a financing activity.
Cash flow generated by operating activities	Profitability	Interest paid will not be on operating activities	Increase	Interest paid will be lower than current amounts paid under operating leases.
Total cash flows	Profitability and liquidity	Difference between cash inflows and outflows generated by operating, financing, and investing activities.	Without changes	Payments made will be the same as the current ones.

Source: Adapted from Sacarin, 2017.

According to the authors Öztürk and Serçemeli (2016), IFRS 16 should have important effects on companies' financial ratios. This is because the accounting standard has impacts on the balance sheet, income statement and cash flows of companies with the effect of unrecorded leases of companies.

Financial indicators are relationships established between two quantities and allow analyzing the entity's situation under the premise that the observation of certain relationships is of greater significance than the assessment of all items contained in the statements. Financial ratio analysis is used by financial statement users to make certain assumptions about a company's performance and financial stability (Villiers & Middelberg, 2013; Öztürk & Serçemeli, 2016). In practice, this type of analysis is widespread among analysts as it allows for assessments of various aspects of the company under study without the need for further study.

3. Results

In the Results section, the authors have collected quantitative data referring to future operating leases to be paid to estimate the impact on the financial position of the companies studied. Authors have taken these data also from the consolidated financial statements published on a public website by the companies. The number of aircraft that each company owns, in addition to the structured form for acquiring these assets (operating or finance leasing), were crucial data to complement the analysis.

3.1 *Contracts for Acquiring Aircraft*

3.1.1 Gol

According to data taken from the 2017 Management Report, GOL is the largest airline in Brazil, carrying thirty-three million passengers on more than seven hundred daily flights to sixty-four destinations, fifty-three in Brazil and eleven in South America and the Caribbean with a fleet of 119 Boeing aircraft. GOLLOG is GOL Linhas Aéreas' cargo and parcel transport organization service with air and land fleets which serves more than 2,400 Brazilian municipalities and, through partners, 205 international destinations in ninety-five countries. GOL has a team of more than 14,000 aviation professionals and is an industry leader with a 17-year safety record. GOL's shares are traded on B3 (GOLL4) and NYSE (GOL). Of the total aircraft, eighty-eight were acquired through operating leases and 31 through finance leases. Therefore, 73.95% of the company's total fleet will be affected by the scope of IFRS 16, impacting the financial position.

3.1.2 Tam

According to data taken from the Notes to the 2017 Consolidated Financial Statements, TAM SA was incorporated on May 12, 1997, and is a subsidiary of LATAM Airlines Group SA, one of the largest airline groups in the world in terms of air network, offering cargo and passenger transport service to around 137 destinations in twenty-four countries, with a fleet of 315 aircraft. The LATAM Group has around 43,000 employees. LATAM shares are traded on the Santiago de Chile and New York stock exchanges. Of the total aircraft, 138 were acquired through operating leases and only eight through finance leases. In other words, 94.52% are not accounted for in the company's financial position, but as expenses, at the time they are incurred. Of the three companies analyzed, Latam has the largest fleet in gross and relative values, linked to operating leasing operations.

3.1.3 Azul

According to data from the Management Report and Explanatory Notes on the 2017 Consolidated Financial Statements, Azul was incorporated on January 3, 2008, with the corporate purpose, primarily, of direct participation in the capital of companies dedicated to the activity of transporting passengers and cargo. As of December 31, 2017, Azul had an operational fleet of 122 aircraft, consisting of 70 E-Jets, 33 ATRs, 12 A320neos, and seven A330s, with an average age of 5 or 6 years. In addition, the company's contractual fleet totaled 147 aircraft. In 2017, the company completed the initial public offering (IPO) simultaneously on the New York and São Paulo stock exchanges. Of Azul's total aircraft fleet, 120 were acquired through operating leases (representing 81.63% of the total) and twenty-seven through finance leases.

3.2 *Estimation of Operating Leasing Payment*

As required by IAS 17, the Explanatory Notes present estimated amounts to be paid for future operating leases. This information is beneficial because through the Net Present Value (NPV) formula, it is possible to calculate the present value of a series of future payments, discounted at a stipulated capital rate.

$$NPV = - \text{Investment} + \frac{FC_1}{(1+i)^1} + \frac{FC_2}{(1+i)^2} + \frac{FC_3}{(1+i)^3} + \dots + \frac{FC_n}{(1+i)^n}$$

Applying the Net Present Value (NPV) formula to the situation in focus, the future cash flows showed can be brought to present value, which at the initial moment can represent the liabilities and assets to be recognized when the initial adoption takes place.

The WACC (Weighted Average Cost of Capital) represents a measure of a company's financing. It is calculated considering the participation percentage of each funding source in the face of the company's total funding and their respective costs. The discount rate used in this study is 8.6%, which represents the average funding cost (WACC) in 2017 in the sector of "Transport Services" as provided in Assaf Institute (2018), being 8.8% of the WACC average of all sectors. Table 3 presents the lease agreements.

Table 3. Values of lease contracts (amounts in thousands of R\$)

<i>Gol</i>	Parent-Company and Consolidated	
	2017	2016
2017	-	857.747
2018	858.508	839.353
2019	928.226	889.940
2020	888.944	873.692
2021	746.595	745.719
2022	630.477	646.388
2023 onwards	1.251.964	1.393.896
Total minimum lease payments	5.304.714	6.246.725

Source: Prepared by the authors, 2020.

Through its Explanatory Note 26 – Commitments, Gol informs the amounts of future payments of non-cancellable operating lease contracts. Through this information, one can calculate the present value of the obligation (and consequently of the asset at initial recognition). Table 4 shows the calculations and projections for the NPV.

Table 4. Calculation and projections of Gol's NPV (values in thousands of R\$)

<i>Gol</i>	Future Value	Present Value
2018	858.508	790.523
2019	928.226	787.035
2020	888.944	694.041
2021	746.595	536.742
2022	630.477	417.369
After 2022 *	1.251.964	763.155
Total	5.304.714	3.988.865

Source: Prepared by the authors, 2020.

* Considering there is no date on which the payments occur, the authors have assumed 2023 as the date of full payment of the amount.

When bringing it to present value, it appears that the off-balance financing values for the acquisition of aircraft have a significant representation concerning the Gol's total assets and liabilities.

Through its Explanatory Note 5 – Financial instruments and risk management, Tam describes, among other information, significant contractual obligations and financial commitments that may impact the company's liquidity.

Table 5. Contractual obligations and financial commitments (amounts in thousands of R\$)

<i>Tam</i>	Consolidated - December 31, 2017				Total contractual cash flow	Book Value
	Less than 1 year	Between 1 and 2 years	Between 2 and 5 years	More than 5 years		
Non-derivative financial liabilities						
Finance leases	199.292	193.470	835.781	-	1.228.543	1.190.626
Operating leases	1.063.527	704.294	1.080.769	1.017.595	3.866.185	-
Suppliers	3.972.169	-	-	-	3.972.169	3.972.169

Source: Prepared by the authors, 2020.

There is information regarding the commitments entered into under operating leases, making it possible to calculate the present value of the obligation and the asset at initial recognition. Table 6 shows the NPV values of Tam.

Table 6. Calculation and projections of Tam's NPV (values in thousands of R\$)

<u>Tam</u>	<u>Future Value</u>	<u>Present Value</u>
2018	1.063.527	979.307
2019	704.294	597.165
2020 – 2022*	1.080.769	776.432
2020	360.256	278.951
2021	360.256	258.995
2022	360.256	238.486
After 2022**	1.017.595	620.292
Total	3.866.185	2.973.196

Source: Prepared by the authors, 2018.

* As the Note covers the period between 2-5 years, the value is distributed equally between the years value.

** Considering there is no date on which the payments occur, the authors have assumed 2023 as the date of full payment of the amount.

The operating leases that Tam holds, calculated at present value, lead to changes in the financial position that are inferior to the other companies studied in this article. However, the value represents on average 23.19% of the asset's value and 24.50% of liabilities.

Table 7. Obligations of commercial lease agreements (amounts in thousands of R\$)

<u>Azul</u>	<u>Consolidated in December 31</u>	
	<u>2017</u>	<u>2016</u>
Up to one year	1.256.660	1.139.347
More than a year, up to five years	4.577.550	4.235.115
More than five years	2.560.290	2.646.863
Total	8.394.500	8.021.325

Source: Prepared by the authors, 2020.

Through its Explanatory Note 27 – Commitments, Azul informs its obligations arising from the execution of non-cancellable operating lease agreements. Thus, Table 8 presents Azul's NPV.

Table 8. Calculation and projections of Azul's NPV (values in thousands of R\$)

<u>Azul</u>	<u>Future Value</u>	<u>Present Value</u>
2018	1.256.660	1.157.145
2019 – 2022*	4.577.550	3.444.090
2019	1.144.388	970.317
2020	1.144.388	893.478
2021	1.144.387	822.723
2022	1.144.387	757.572
After 2022**	2.560.290	1.560.667
Total	8.394.500	6.161.902

Source: Prepared by the authors, 2020.

* As the Note covers the period between 2-5 years, the value is distributed equally between the years value.

** Considering there is no date on which the payments occur, the authors have assumed 2023 as the date of full payment of the amount.

According to the Explanatory Note, Azul, among the three companies analyzed, is the company with the highest amounts payable for operating leases. Bringing these payments to present value will impact 59.73% on the company's total assets; that is, IFRS 16 will entail significant changes in the company's financial position.

3.3 Analysis of the Initial Impact on Total Assets

As summarized in Table 9, the impact that IFRS 16 will have on companies' total assets in the airline industry is genuinely relevant. It was expected that the new standard would have significant effects on the equity position of these companies since the airline industry is one of the sectors that most use leasing operations as a way of financing. With technology in constant evolution and improvement, companies need to renew their air fleet to meet the demands of comfort and safety that their customers demand. Airlines companies carry out this renewal through leasing operations, the vast majority classified as operating leases under IAS 17 (accounting that will change as IFRS 16 becomes effective).

Table 9. Total assets and initial impact values (values in thousands of R\$)

	Gol	Latam	Azul
Total Assets – Dec.31, 2017	7.603.648	12.821.445	10.316.616
Initial Impact IFRS 16	3.988.865	2.973.196	6.161.902
% of impact in relation to total assets	52,46%	23,19%	59,73%

Source: Prepared by the authors, 2020.

3.4 Analysis of Impact on Equity Indicators

For this analysis, and since the ones in charge have not re-presented the companies' financial statements, the authors considered only the increase in assets and liabilities in the amounts described in the "Analysis of the Initial Impact on Total Assets." The remaining equity components, as well as the income accounts, were kept unchanged.

Table 10. Gol structural indicators

Indicator	Relation	Relation IAS 17	Indicator IAS 17	Relation IFRS 9	Indicator IFRS 9
Indebtedness	Liabilities / Equity	<u>10.196.842</u> (2.593.194)	(393,22%)	<u>17.800.490</u> (2.593.194)	(686,43%)
Current liquidity*	Current assets / Current liabilities	<u>1.547.522</u> 5.389.242	28,71%	<u>1.547.522</u> 6.203.216	24,95%
Asset turnover	Sales / Total Assets	<u>9.554.634</u> 7.603.648	125,66%	<u>9.554.634</u> 11.592.513	82,42%
Return on capital	EBIT / (Liabilities + Equity)	<u>(402.397)</u> 7.603.648	(5,29%)	<u>(402.397)</u> 11.592.513	(3,47%)

Source: Prepared by the authors, 2020.

* For liabilities, term segregation was considered according to the proportion of operating leases in 2017 (short and long term). Assets, as they are fixed assets, were considered the total balance in the long term.

In Table 10, in all indicators analyzed (indebtedness, current liquidity, asset turnover, and return on capital), there is a deterioration in the company's performance, as already predicted by Sacarin (2017). An extensive deterioration in the debt ratio can be observed, with an increase of 75%.

Table 11. Tam structural indicators

Indicator	Relation	Relation IAS 17	Indicator IAS 17	Relation IFRS 9	Indicator IFRS 9
Indebtedness	Liabilities / Equity	<u>12.136.834</u> 601.611	2.017,39%	<u>15.110.030</u> 601.611	2.511,59%
Current liquidity*	Current assets / Current liabilities	<u>7.947.461</u> 8.839.311	89,91%	<u>7.947.461</u> 9.258.459	85,84%
Asset turnover	Sales / Total Assets	<u>15.329.954</u> 12.821.445	119,56%	<u>15.329.954</u> 15.794.641	97,06%
Return on capital	EBIT / (Liabilities + Equity)	<u>837.877</u> 12.821.445	6,53%	<u>837.877</u> 15.794.641	5,30%

Source: Prepared by the authors, 2020.

* For liabilities, term segregation was considered according to the proportion of finance leases in 2017 (short and long term). Assets, as they are fixed assets, were considered the total balance in the long term.

As shown in Table 11, the equity indicators analyzed presented worse results with the data adjusted to reflect the simulation of the impacts of IFRS 16. The company already has a policy of using third-party capital (indebtedness) that is highly leveraged. With IFRS 16, the level of indebtedness is even more significant, increasing 24.50%.

Table 12. Azul structural indicators

Indicator	Relation	Relation IAS 17	Indicator IAS 17	Relation IFRS 9	Indicator IFRS 9
Indebtedness	Liabilities / Equity	<u>7.483.006</u>	264,08%	<u>13.644.908</u>	483,24%
		2.833.610		2.833.610	
Current liquidity*	Current assets / Current liabilities	<u>3.304.341</u>	99,10%	<u>3.304.341</u>	76,18%
		3.334.357		4.337.657	
Asset turnover	Sales / Total Assets	<u>7.789.497</u>	75,50%	<u>7.789.497</u>	47,27%
		10.316.616		16.478.518	
Return on capital	EBIT / (Liabilities + Equity)	<u>597.844</u>	5,79%	<u>597.844</u>	3,63%
		10.316.616		16.478.518	

Source: Prepared by the authors, 2020.

* For liabilities, term segregation was considered according to the proportion of Loans and financing in 2017 (short and long term). Assets, as they are fixed assets, were considered the total balance in the long term.

Table 12 shows that the most significant percentage increase occurs in the company's indebtedness indicator. By recording the obligations assumed for payment of operating leases in the equity position, the liability significantly increases. In line with the other companies analyzed, Azul's indebtedness was 83% higher when compared to the equity situation recorded following the requirements of IAS 17.

4. Discussion

After presenting the results, this article sought to measure the initial impact of adopting IFRS 16 on the total value of assets of the three most active airlines in the Brazilian market (Gol, Latam, and Azul). After considering the aspects of the literature review and the data analysis performed, it can be concluded that the IFRS16 standard significantly affected the financial ratios of the main airlines in Brazil.

Airlines fall within the context of use operating leasing as a form of financing. Of the total aircraft acquired by the companies studied in this article, 83.98% were via operating leasing, which suggests that IFRS 16 will entail significant changes in the financial position of these companies.

According to the projections, the 3 companies had big increases in indebtedness, the companies Gol and Azul almost doubled the value of the indebtedness index, as they had an increase of 75% and 83% respectively. In addition to presenting small drops in current liquidity and asset turnover, as a result of an increase in assets and liabilities.

Using the appropriate discount rate (WACC), the authors have brought these future payments to present value, which would represent, in a simple-minded way, the initial impact companies would recognize in their assets and liabilities. The total assets of the three companies in the present study would increase by 42.69%, which is an incredibly substantial number. Of the three companies, Azul is the one that would have the most significant impact after the adoption of IFRS 16.

As the airline industry is the sector that will most feel the impact after adopting IFRS 16, it is fair to assume that companies are already preparing for change. In their financial statements (base date of Dec. 31, 2017), all of them have already warned about the impact that IFRS 16 may introduce.

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