

FINANCING MODELS OF THE AIRLINES FLEET AS A FACTOR AFFECTING THE INCOME STATEMENT

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***Abstract:** The article presents financing models of the airlines fleet. The major attention has been devoted to types of lease forms. The advantages and disadvantages of both operational and financial lease were presented. The functioning of the passenger air transport market was also described in the aspect of enterprises providing aircrafts lease services for airlines. The financial statements of selected airlines were analyzed, taking into account: net profit, operating profit, EBITDA value and other positions of the profit and loss account as well as the balance sheet in order to show the potential dependencies of a given source of fleet financing on the shape of financial data. Some selected financial indicators were also depicted to prove their interdependence with lease form. The source data was the financial statements of PLL LOT, Lufthansa Group and Emirates Group during the period of 2018. The article also indicates potential benefits that result from a lease agreement.*

***Key words:** income statement, operating and finance lease, financing models, airlines, fleet*

***JEL codes:** D25, M41, R41*

1. Introduction

The economic activity of air carriers as part of transporting passengers, luggage, goods and mail may be determined, among other things, by the number of aircrafts in the fleet of a given airline. However, the number of aircrafts owned by airlines may depend on the economic and financial situation of the airline. In order to implement a specific business model, airlines can purchase a new or used aircraft for cash as well as have the option of purchasing a new and used machine with foreign capital with lease agreement (Dai et al. 2016). One of the important factors that determine the method of financing an airline's fleet is the economic and financial situation of the carrier. Every process of expanding or replacing the fleet is a complex course of action, requiring airlines to carefully analyze the market and the ability to handle financial

liabilities. It can be assumed that the purchase of an aircraft for cash can be afforded by those lines which are profitable, have the ability to settle their own and foreign liabilities and also show a high level of own assets and an appropriate level of equity (Zuidberg, 2014). Carriers who do not want to engage their own financial means decide on external financing, and external capital seems to be the right solution.

Over the years, a market has emerged defining companies providing aircrafts financing services and airlines representing the other side of the exchange (www5). A characteristic feature of the market is trade in high-capital goods in the form of aircrafts. Well-known international companies offering aircrafts leasing include: AerCap, Air Lease Corporation, Avolon, Gecas-GE Capital Aviation Services, Chapman Freeborn, SMBC Aviation Capital. The financing of aircrafts on the Polish market is offered, among other things, by such financial institutions as: SG Equipment Leasing Polska Sp. z o.o., mLeasing Sp z o.o., Europejski Fundusz Leasingowy S.A.

2. Methodology and Data

The source data was used by the financial statements of PLL LOT, Emirates Group and the Lufthansa Group of 2018. By the means of economic analysis and technical and economic analysis, the number of aircrafts financed through lease was analyzed, selected profitability ratios and types of profits were also referred to the scale of operations of the selected air carriers. A case study was also used regarding the financing of the aircrafts fleet by these carriers. The article also refers to International Financing Reporting Standards, IFRS in relation to lease and data published by the Polish Leasing Association.

3. Aircraft fleet financing models based on foreign financing

A popular financial solution that allows airlines to finance the purchase of aircrafts can be a financial solution in the form of lease. In Polish law, the definition of a lease contract is described in the Civil Code. Lease can be defined as a contract concluded in writing under rigor of nullity between the lessor, financing entity and the lessee, under which the lessor transfers the lessee the right to use a specific good for a specified period in exchange for specific fees in the form of lease installments. One of the basic lease description is based, among other things, on the criterion of ownership of the leased good, the method of booking in the accounting books and relates to finance lease and operating lease.

Tab.1 Comparison of finance and operating lease

| Attribute | Finance lease | Operating lease |
|--|--|--|
| Nature of financing | Capital, investment | Service |
| Owner of the leased asset | Lessee | Lessor |
| Depreciation of asset of the lease | Lessee | Lessor |
| Tax deductible expense | The lessee includes in the costs the interest part of lease installments and depreciation | The lessee includes the costs of net installments and an initial payment |
| VAT tax | Pre-paid with the first installment payment | Added to lease installments |
| Duration of the contract | Above 12 months | More than 40% of item depreciation time |
| Purchase of the leased item | As a result of repayment of the last installment, the asset of the lease becomes the property of the lessee | Depends on the depreciation rate and redemption period |
| Potential impact on profitability ratios Return on equity ROE Return on sells ROS Return on asset ROA ▲ - positive ▼ - negative | Return on equity ROE ▼/▲ Return on sells ROS ▼/▲ Return on asset ROA ▼/▲ Long-term liabilities ▼ | ROE ▲/▼ ROS ▲/▼ ROA ▲/▼ Long-term liabilities ▲ |
| Potential impact on financial data due to IFRS guidelines of lease from 01.01.2019 ▲ - increase ▼ - decrease | Total sheet balance ▲ Long-term liabilities ▲ Capital ratios ▼ | |
| The number of aircraft financed by lease by the institutions of the Polish Lease Association in Poland | 2018 r. 92 aircrafts 2017 r. 85 aircrafts 2016 r. 92 aircrafts 2015 r. 55 aircrafts 2014 r. 47 aircrafts | |
| The net value of air transport equipment financed by lease by the institutions of the Polish Lease Association in Poland | 2018 r. 552,60 m PLN 2017 r. 327,62 m PLN 2016 r. 573,98 m PLN 2015 r. 260,27 m PLN 2014 r. 141,81 m PLN | |

Source: own elaboration based on (www4)

From January 1, 2019, companies reporting and preparing financial statements in accordance with IAS, International Accounting Standards\ IFRS standards are required to include all lease contracts in their balance sheets. The new standard unified the nature of many types of lease to one, which in practice means that a given enterprise must show all assets used and liabilities to pay rents in the financial data. The new leasing accounting standard also applies to airlines due to the legal form of the carrier itself and the preparation of financial statements according to IAS.

Airlines decide to use external financing when purchasing a new fleet for two main reasons. First, air carriers strive for efficient fleet management of their aircrafts. To do so, they should maintain their economic and financial standing in a proper condition, and thus show, among other things, an appropriate level of profitability, so that they can become an attractive subject of investment, achieve a certain rate of return for their investors, skillfully manage their assets in a way that will allow to achieve a competitive advantage on the passengers air transport market (Hu, Zang, 2015). Purchasing aircrafts using lease as a form of foreign capital appears to be more economically profitable for an airline that wants to purchase several aircrafts to expand its operations.

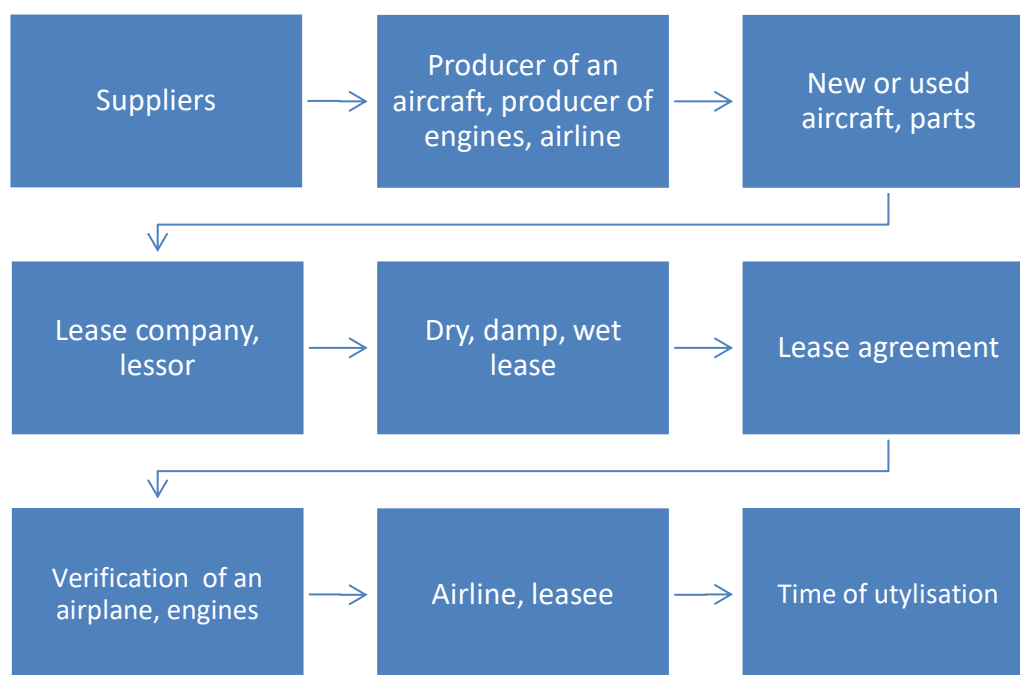
The purchase of a new fleet of aircrafts can significantly burden the carrier financially and with improper management of the company may lead to problems with financial liquidity, which may pose potential threats to the airline's air operations. Secondly, obtaining external financing may serve the airline's development by expanding the network of connections by adding new aircrafts to the carrier's fleet and offering quality passengers service during flights (www6). Within the financing models for the purchase of both new and used aircrafts in civil air transport by airlines, three basic models can be identified: dry lease, damp lease and wet lease. The first model, dry lease, assumes that the entity, which is the lessee, represented by a given airline is responsible for the registration of the aircraft and for obtaining the AOC-Air Operator Certificate, an air carrier's certificate confirming the obtaining of an air carrier's license to use the aircraft. Dry lease is a lease agreement under which an airline can purchase an aircraft from a lessor in the form of a finance or operating lease. In this model, the airline uses its own cabin crew: pilots and cabin crew. Usually, a dry lease agreement lasts from two to several years, then depending on whether it is an operational or financial lease, the airline returns the aircraft to the lessor or buys an aircraft that becomes part of the company's assets. A dry lease agreement may be concluded between the main airline and the regional carrier, where the main carrier provides the aircraft, while the regional carrier is responsible for cabin

crew, maintaining the aircraft in the condition of being able to perform air operations. An example of a dry lease agreement under the main carrier's cooperation with a regional carrier may be the cooperation of large enterprises that offer air freight such as FedEx Express, DHL with local air carriers under the so-called feeder operations, consisting in the operation of complementary air transport, in which a large enterprise cooperates with a smaller entity, and the economic effect of cooperation is more favorable for both sides than would result from the fact that air operations were performed by only one entity. In practice, feeder operations concern the transport of a particular good by major air carriers on intercontinental airways, while the service of a local or selected area will be performed by a regional operators.

The second model for aircrafts acquisition by airlines is damp lease. This model assumes that the lessor provides the aircraft for a given airline without cabin crew, the lessor's duty is also to deliver the aircraft with pilots and to maintain the aircraft of airworthiness for air operations. The lessee is also obliged to provide cabin crew training for the selected airplane model. The damp lease model is particularly common in Great Britain.

The third model for the purchase of an aircraft by an airline is a wet lease. The model assumes that the lessor should provide the lessee with an aircraft, complete cabin crew: pilots and cabin staff, ensure aircraft maintenance and uphold the machine in a condition for air operations and insurance. On the other hand, the lessee's obligations include the coverage of airport charges, applicable taxes and other required charges, settlement of fuel charges. Usually, the duration of the wet lease contract is up to 24 months. The main conditions that determine the use of this type of contract are: increasing the number of connections at the peak of the season on the selected route, opening a new connection along with verification of business potential, the need to replace part of the carrier's fleet as a result of the market regulator's decision on grounding a given type of aircraft due to specific aviation event, the need to perform a type d aircraft survey, the occurrence of an undesirable aviation event that may reduce the number of rotations on a selected route.

Fig. 1 Diagram of directional relations in the leasing contract



Source: own elaboration

The role of the wet lease agreement is also of great importance for carriers who are banned from flying to selected countries or areas. The use of a wet lease agreement also applies when respecting international policy. Egyptian airlines EgyptAir cannot fly to Israel under the name of their airlines for political reasons, therefore flights to Tel-Aviv are made from Cairo by Air Sinai, which has signed a wet lease agreement with the management of EgyptAir.

The wet lease agreement is also referred to as ACMI-Aircraft, Crew, Maintenance, Insurance. The described model of financing the fleet of aircraft is also widespread among small and medium carriers, who do not have enough of their own assets to be able to respond to the demand of seasonal air operations.

4. LOT, Lufthansa Group and Emirates Group's model of fleet financing

According to data published by AerCap, 45% of passenger aircrafts in the world are financed by the means of a given type of lease. Over the past twenty years, the fleet of passenger aircrafts financed by operating lease has increased fourfold. Companies providing passenger aircrafts lease services are large financial institutions operating as public companies, characterized by revenues of several billion, high level of own assets, high profitability as well as high equity.

The development of a given airline can be determined by many factors (Jenatabadi, Ismail, 2014). One of them is the good economic and financial situation of the carrier, thanks to which the airline can implement its development strategy based on increasing or modernizing the fleet of aircrafts. The economic and financial situation of the Polish national carrier over the past two decades has been quite turbulent, but for several years it can be seen that the company is trying to be rented, and the restructuring process may be described as satisfactory taking into account published financial data. As of December 31, 2018, (www2) PLL LOT were in possession of 72 aircrafts, of which 3 Embraer 145 aircrafts were owned by the company, 16 aircrafts under a finance lease agreement, and 53 aircrafts under an operating lease agreement. The value of assets classified as fixed assets in relation to aircrafts financed with finance lease amounted to PLN 2.42 billions and the value of aircrafts and engines financed with operating lease amounted to PLN 4.87 m and PLN 25.26 m, respectively. In the case of operating lease, the lessee signs a separate agreement between the aircraft lessor and the engine supplier. It is worth noting that the value of purchased engines can be one-third of the price of the aircraft itself. LOT Polish Airlines generated operating EBITDA of PLN 366.90 m and net profit of PLN 45.11 m. It can be said that Polish national carrier is constantly working to be a profitable airline. The value of long-term liabilities booked as other financial liabilities, which refer to the value of liabilities due to finance lease of aircrafts, amounted to PLN 1.71 billion. Long-term receivables are mainly deposits that secure payments of aircrafts and engines lease contracts in the amount of PLN 163.68 m.

For aircrafts and engines in operating lease, PLL LOT creates accruals (disclosed in the balance sheet as provisions for liabilities) for significant costs of periodic inspections (higher rank) of aircrafts, periodic repairs of aircrafts engines, periodic repairs of aircraft chassis and significant costs related to the return of aircrafts. The value of reserves for airplanes and engines was amounted of PLN 239.22 m.

The formula of the wet lease agreement was used by PLL LOT in the event of grounding and the need to inspect the engines of the Boeing 787 Dreamliner fleet. The purchase of a new fleet took place on the basis of a dry lease agreement, whereas as a result of the so-called childhood diseases in the case of the use of American manufacturer aircrafts. LOT Polish Airlines management decided to purchase two wide-body Airbus A340-300 aircrafts in the formula of wet lease model. A similar situation applies to the Boeing 737-8 Max. Medium-haul aircrafts were purchased by the national carrier. As a result of two planes crashes in which the aircraft was used, market regulators decided to temporarily ground the Boeing 737-8 Max

aircrafts. The Polish national carrier was forced to obtain aircrafts from the secondary market in the wet lease and dry lease formulas again.

Fig. 2 PLL LOT fleet of finance lease in 2018

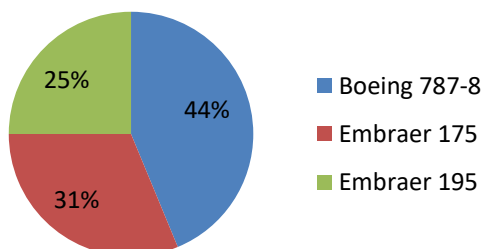
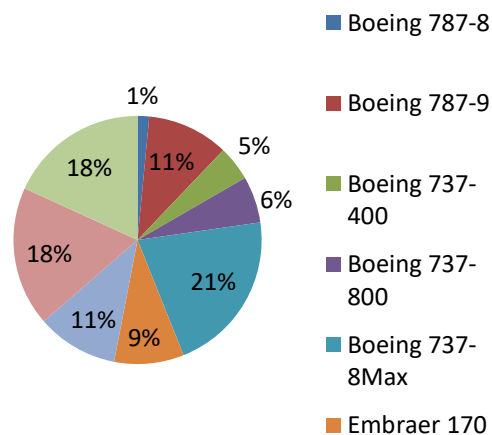


Fig. 3 PLL LOT fleet of operating lease in 2018



Source: own elaboration based on (www2)

As a part of PLL LOT's development strategy, the company focuses on modernizing and optimizing the fleet of aircrafts, understood as adapting the suitable number of aircrafts to expansion on Far East routes, maintaining or increasing the frequency of air operations to North America, and maintaining a leadership position in Central and Eastern Europe as well as attempting regaining the leading line in terms of the number of passengers transported in Poland, where the low-cost Irish carrier Ryanair has been at the forefront for two years.

A significant activity that is expected to happen, among other things, maintaining the company's profitability is the acquisition of 13 new aircrafts in the form of operating lease, which the national carrier will finance through the purchase of 9 Boeings 737 Max 8 and 4 Boeings 787-9 Dreamliner. As part of expanding the connection network, PLL LOT also wants to service new connections to Miami, Delhi and Sri Lanka.

Lease agreements, which allow financing high-capital assets that are necessary for the company to ensure operational continuity, seem to be an important financing model for the national carrier. PLL LOT also used the wet lease model during the cabin crew strike (www7) in the fourth quarter of 2018. In order to ensure operational continuity and having in mind the need to provide a passenger transport service, PLL LOT acquired several aircrafts in the ACMI formula from carriers such as BlueAir, Carpatair, GetJet, Fly VLM, SmartLynx and Travel

Service (www9). It can be assumed that the costs of wet lease as a result of the cabin crew strike ranged from a few to several PLN millions. The wet lease model is also used when replacing grounded Boeing 737-8 Max aircrafts and for temporarily decommissioning a given number of Boeing 787 Dreamliner aircrafts for the purpose of inspecting, repairing or replacing Rolls-Royce engines that have revealed defects that may affect the level of safety of flight operations.

Fig. 3 PLL LOT fleet of operating lease in 2019

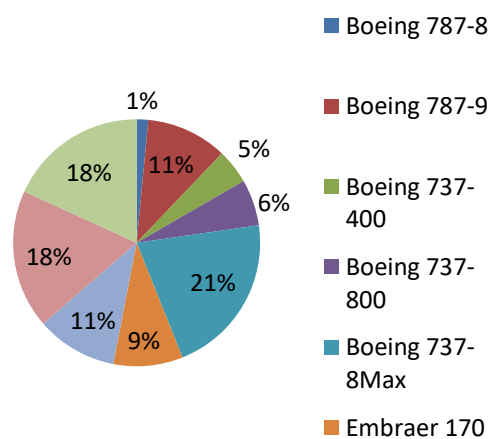
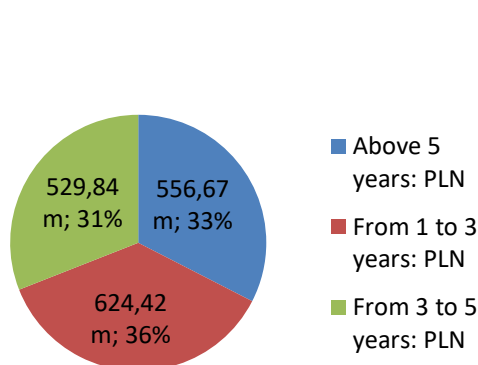


Fig. 4 Time structure of finance lease liabilities of PLL LOT



Source: own elaboration based on (www2)

In order to confirm the position that external financing in the form of lease is a common practice used by airlines all over the world, there is opportunity to point the carriers operating in the Gulf area - Emirates airlines. The carrier from the United Arab Emirates is a much larger carrier than LOT Polish Airlines in terms of the size of the aircrafts fleet and their types, it also differs in the aspect of the business model, connection network and economic and financial situation. In the financial statements for 03.2019 (www1), Emirates had 270 aircrafts in its fleet, of which 122 aircrafts were included in the balance sheet, while 148 aircrafts were off-balance sheet pointed by the carrier. The value of assets in relation to the value of aircrafts, engines and spare parts amounted to USD 20.41 billions. The Arab carrier is the largest operator in terms of its fleet of Airbus A380 and Boeing 777 aircraft, it has 109 superjumbo planes and 149 aircrafts of the American manufacturer. Emirates also benefits from a hybrid investment structure in financing part of the aircrafts fleet, under which the airlines financed the purchase of 6 Boeing 777-300 ER aircrafts based on Japanese Operational Leasing with the option to buy JOLCO

(www8), which allowed the airline to obtain financing in the amount of USD 1 billion. Since 2014, the Arab carrier has raised USD 7.6 billions from the Japanese structured financing market. JOLCO seems to be an attractive solution in terms of financing the fleet of aircrafts, because it provides airlines with the desired level of financing at an attractive rate of return, and allows investors to make depreciation charges that can offset taxable profits. In the case of structured financing, tax benefits seem to be of key importance to investors than profits from call options, the time horizon of which usually lasts 10 years from the leasing period, and the airline allows for the re-acquisition of the aircraft.

An example of another airline that uses foreign financing as a source of obtaining high-capital fixed assets in the form of planes is the German Lufthansa Group. The group includes the following airlines: Lufthansa German Airlines together with regional airlines, Swiss together with Edelweiss, Austrian Airlines, Eurowings together with Brussels Airlines and Germanwings and Lufthansa Cargo. The group's fleet consists of 763 aircrafts, of which 67 aircrafts are financed by finance lease and 48 aircrafts by operating lease (www3). The value of the aircrafts included in the group is EUR 16.77 billions. A significant part of the fleet is owned by the group, which may mean that for some of the planes the lease contracts have ended and that the planes were bought for cash.

4. Conclusions

Financing the fleet of aircrafts by leasing is a common practice used by air carriers around the world. This is demonstrated, among other things, by the market of aircrafts financing by high-capital lessor companies offering a diversified portfolio of narrow-body and wide-body aircrafts. Lease as a form of financing allows the airline to preserve and expand its operating activities by purchasing aircrafts. The number of owned aircrafts in a given carrier's fleet may affect the competitive advantage gained through the prism of developing the network of connections, opening new air connections (Chen et al. 2018). A lease agreement can also be an effective financial tool (Aleksandrova et al. 2016) for the need to replace grounded aircrafts quickly as a result of a particular aviation event and the decisions of market regulators.

Lease can be described as an effective form of financing aircrafts, as the value of the aircrafts, as an asset is very high. Catalog prices for new medium- and long-haul aircraft may range from USD 60-400 m. Financing such high-value assets with a loan or special-purpose loan could be an inappropriate financial solution due to the need for an offer to the financing institution an appropriate level of safety, which could be difficult for the airline to acquire if

several aircrafts were sought. In the case of lease, the collateral for the lessor is the subject of the lease and other types of collateral described in the contract. The economic and financial situation of airlines, which make their development dependent on the quality and quantity of their fleet of aircrafts, remains an important issue. In reference to the new lease accounting standard, from January 2019, airlines are required to recognize all lease contracts in the balance sheet. This may lead to an increase in the level of liabilities, which may affect the creditworthiness of carriers and their ratings. It can be assumed that financing of aircraft in the form of lease will be the basic model for purchasing aircraft for a long time (Bourjade et al. 2017), since the market offering aircraft financing has not developed more universal or more optimal financing of aircrafts purchases.

A good practice dedicated to airlines could be the creation of an internal special-purpose reserve fund that would be recapitalized with a certain percentage of the generated airline profit. The earmarked fund would be used for the development purposes of the carrier.

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