

**MASTERS IN  
FINANCE**

**MASTERS FINAL WORK  
PROJECT**

**EQUITY RESEARCH:  
DEUTSCHE LUFTHANSA AG**

**TIMUR ISMAGILOV**

**OCTOBER 2024**

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**SUPERVISOR:  
ANTÓNIO MANUEL FIRMINO CALAPEZ CORREIA**

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## Abstract

Lufthansa is one of the leading European Airlines. The company is involved in business activities such as air passenger transportation, air cargo transportation, Maintenance, Repair and Overhaul and other additional activities like IT services, flight personnel training, travel agencies and others.

This report issues a **HOLD** recommendation with a 2025YE price target of **€8.3/Sh.**, using a DCF model, with an upside potential of **23.2% in 15 months**, corresponding to an **annualized return of 18.1%**, against the closing price of €6.71/Share, as of October 1, 2024, with a **high risk**.

The upside potential of the company is mainly explained by the expected increase in demand for air travel and MRO market in the next years. Lufthansa, in turn, has all the tools and potential to grow along with the market.

The main valuation model to sustain the investment was the Free Cash Flows to the Firm model, using WACC as the discount rate. Additional absolute valuations models were computed, including FCFE, APV and Residual Income as well as several Multiples Based Valuations, to stress the Price Target determined.

Deutsche Lufthansa AG operates in a volatile market that is strongly dependent on external macroeconomic factors. The investment main risks are the fuel prices fluctuations, inflation and economic crisis. The company value is highly sensitive to these factors.

Keywords: Equity Research; Valuation; Deutsche Lufthansa AG

## Resumo

A Lufthansa é uma das principais companhias aéreas da Europa. O grupo está envolvido em várias atividades comerciais como transporte aéreo de passageiros, transporte aéreo de carga, serviços de manutenção, reparo e revisão e também outras atividades nos setores de serviços de IT, formação de tripulantes e técnicos, agências de viagens e entre outras.

Este relatório emite uma recomendação **HOLD** com um preço-alvo para final de 2025 de 8.3€/ação, utilizando o modelo DCF, com um potencial de valorização de **23.2% em 15 meses**, correspondendo a **18.1% de valorização anual** face ao preço de fecho de 6.71€/ação à data de 1º de Outubro de 2024, com **alto risco** de investimento.

O potencial de valorização da empresa é explicado principalmente pela expectativa do mercado no aumento da procura de viagens aéreas e crescimento do mercado de MRO nos próximos anos. A Lufthansa, por sua vez, tem todas as ferramentas e o potencial para crescer junto com o mercado.

O principal modelo de avaliação utilizado para sustentar a recomendação de investimento foi o Free Cash Flows to the Firm, utilizando o WACC como taxa de desconto. Foram utilizados outros métodos de avaliação como o FCFE, APV e Residual Income, assim como os Múltiplos de empresas pares.

A Deutsche Lufthansa AG opera num mercado volátil que tem muita dependência de fatores macroeconómicos externos. Os principais riscos associados ao investimento são a flutuação dos preços dos combustíveis, a inflação, e a crise global. O valor da empresa é então altamente sensível a estes fatores.

## **Acknowledgements**

This project marks the end of a challenging and memorable journey. I would like to express my deepest appreciation to everyone who supported me on this adventure.

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# Glossary

<b>APV</b>	Adjusted Present Value
<b>ASK</b>	Available Seat Kilometres
<b>ATK</b>	Available Tonne-Kilometres
<b>BLF</b>	Breakeven Load Factor
<b>Bn</b>	Billion(s)
<b>CAGR</b>	Compound Annual Growth Rate
<b>Capex</b>	Capital expenditures
<b>CAPM</b>	Capital Asset Pricing Model
<b>CEO</b>	Chief Executive Officer
<b>CF</b>	Cash Flow
<b>CPI</b>	Consumer Price Index
<b>DCF</b>	Discounted Cash Flow
<b>DPS</b>	Dividends Per Share
<b>E</b>	Expected
<b>EBIT</b>	Earnings Before Interest and Taxes
<b>EBITDA</b>	Earnings Before Interest, Taxes, Depreciation and Amortization
<b>EIA</b>	U.S. Energy Information Administration
<b>EPS</b>	Earnings per Share
<b>ERP</b>	Equity Risk Premium
<b>ESG</b>	Environmental, Social and Governance
<b>EU</b>	European Union
<b>EV</b>	Enterprise Value
<b>EVP</b>	Employer Value Proposition
<b>FCFE</b>	Free Cash Flow to Equity
<b>FCFF</b>	Free Cash Flow to the Firm
<b>FSC</b>	Full-Service Carrier
<b>FY</b>	Fiscal Year
<b>GDP</b>	Gross Domestic Product
<b>IATA</b>	International Air Transport Association
<b>IMF</b>	International Monetary Fund
<b>JADC</b>	Japan Aircraft Development Corporation
<b>LCC</b>	Low-Cost Carrier
<b>LHA.DE</b>	Deutsche Lufthansa AG
<b>m</b>	Million (s)
<b>MBV</b>	Multiples Based Valuation
<b>MRO</b>	Maintenance, Repair and Overhaul
<b>OPEX</b>	Operating Expenses
<b>RFR</b>	Risk free rate
<b>RI</b>	Residual Income
<b>ROA</b>	Return on Assets
<b>ROE</b>	Return on Equity
<b>RPK</b>	Revenue Passenger Kilometres
<b>RPK</b>	Revenue Tonne-Kilometres
<b>RRPK</b>	Revenue per RPK or Passenger Yield
<b>RRTK</b>	Revenue per RTK or Cargo Yield
<b>SAF</b>	Sustainable Aviation Fuel
<b>SBTi</b>	Science Based Target initiative
<b>SDG</b>	Sustainable Development Goals
<b>TTM</b>	Trailing Twelve Months
<b>WACC</b>	Weighted Average Cost of Capital
<b>YE</b>	Year-End
<b>YoY</b>	Year-over-Year

# 1. Research Snapshot

## Investment Recommendation

Lufthansa AG has a **HOLD** recommendation, with a 2025YE PT of **€8.3 /Sh.**, using a DCF model, representing an **annualized upside potential of 18.1%**, against the closing price of **€6.71/Share**, as of October 1<sup>st</sup>, 2024, with a **high risk**. The recommendation is sustained in **i)** expected growth in operating metrics (RPK, yields and fleet modernization); **ii)** Market share and Brand strength of the Company; **iii)** Positive tendency of macroeconomic factors and **iv)** evolution of Jet Fuel Prices

## Airlines industry recovery

**Positive prospects for the recovery** and growth of airlines after the Covid crisis are predicted by global organizations, which can make **Deutsche Lufthansa** an **attractive investment opportunity** for the investors.

Rising global demand for air travel, whether for leisure or business purposes, is expected to lead to industry's growth in the near future.

## The Company

**Deutsche Lufthansa AG** is one of the leading European airlines that operates in business segments of Passenger Air Transport, Air Cargo Freight, Maintenance, repair and overhaul (MRO) and other businesses and group functions.

With a fleet of 721 aircraft, Lufthansa serves over 200 destinations worldwide and it's one of the founding members of **Star Alliance**. With its European network airlines and hubs in Munich, Frankfurt, Zurich, Vienna and Düsseldorf, Lufthansa guarantees a significant market presence across Europe.

The company focuses in providing high-quality service, offering a modern fleet and a plurality of loyalty programs and incentives.

## Risks

The **fuel price volatility** and **economic crisis** in the regions Deutsche Lufthansa operate are the most significant risks associated with investing in a company which is fully dependent on economic state and oil commodity price. However, there is a **positive prediction** for the tendency of these factors in the next years. Most of the airlines are focusing on **fleet renewal**, because it allows them to enhance **fuel efficiency** and also to walk towards meeting carbon emissions goals. The **airlines rush to renew their fleets** is putting the few existent aircraft manufacturers under high pressure, which can also be a risk factor in case there are big delays in aircraft deliveries.

**Table 1 – Investment Recommendation**

REDUCE	HOLD	BUY
≤10%	<b>18.1%</b>	>20%
Risk Level: <b>High</b>		

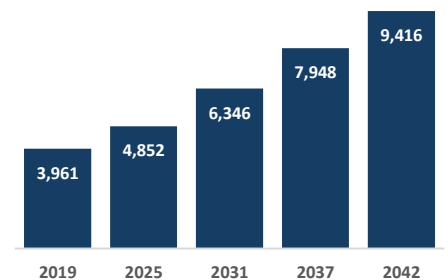
**Source:** Author Analysis

**Table 2 – Deutsche Lufthansa highlights**

	2023	2025F	2029F
Revenues (€m)	35,442	37,536	42,342
EBITDA (€m)	4,698	3,768	3,721
EBITDA Mg. (%)	13.3%	10.0%	8.8%
EBIT (€m)	2,456	1,514	1,387
EBIT Mg. (%)	6.9%	4.0%	3.3%
Net Income (€m)	1,937	880	693
Net Income Mg. (%)	5.5%	2.3%	1.6%
EPS	1.62	0.74	0.58
CAPEX (€m)	3,609	3,078	2,191
Flights (thous.)	936	1,034	1,200
Passengers (thous.)	122,535	132,025	153,265
Fleet (number)	721	728	761

**Source:** Company Data & Author analysis

**Figure 1 – Projected number of trips (Millions)**



**Source:** IATA & Author analysis

**Table 3 – Investment Recommendation**

Investment Recommendation	
<b>Price Target</b>	<b>8.26 €</b>
<b>Upside Potential</b>	<b>23.2%</b>
Closing Price (Oct. 1st, 2024)	6.71 €
Shares Outstanding (m)	1,197
Market Cap (€m)	8,029
<b>Industry</b>	<b>Airlines</b>

**Source:** Yahoo Finance & Author analysis

## 2. Business Description

**Deutsche Lufthansa AG** (“Lufthansa” or “Company”) it’s a German worldwide operating aviation company founded on 6 January of 1953 in Berlin and with current main headquarters in Cologne – Germany. It was privatized in 1997 by German government and became a founding member of the Star Alliance that has allowed Lufthansa to collaborate with other major airlines and pursue global expansion. Over the years, Lufthansa have acquired various subsidiaries in airline segment as **SWISS Airlines** in 2005, **Austrian Airlines** in 2009, **Eurowings** in 2015 and **Brussels Airlines** in 2016.

As of beginning of 2024, it was the 4th largest public airline company by revenue in the world and the second-largest airline in Europe with a fleet totalizing around 721 aircraft from which only 78 (11% from total) are leased, with worldwide destinations. In total, the entire group employs 96 thousand people and transported a total of 122,535 thousand passengers in 2023.

In terms of key performance indicators of **2023**, Deutsche Lufthansa AG achieved a consolidated **revenue of 35,442 million euros (€m)** and **EBIT of €2,456m** which corresponds to **6.9% of EBIT margin** (Figure 2).

The group focuses on the airline industry however it owns over 300 subsidiaries and in addition to passenger transport, it is also engaged in air freight (Lufthansa Cargo), owns a company that deals with Maintenance, Repair, and Overhaul (Lufthansa Technik) and has additional businesses that include many other functions such as payment solutions, IT services and flight training. In 2023, the **LSG Group**, which is an organization that provides in-flight services such as retail and food production in the catering segment, was sold in October 2023 to focus more on their main segments, according to management.

### Business segments

#### Airline industry

Network airlines of the Lufthansa Group are focused on premium quality experience and service, offering a wide range of connections to the entire world apart from Eurowings that is a low-cost airline and is focused on point-to-point traffic.

**Traffic revenues** of the network airlines totalized **€28,337m** (including internal revenue), with an adjusted EBIT of **€2,033m** in 2023. The company allocated **€3,095m of capital expenditure** to the segment in the same year (Table 4).

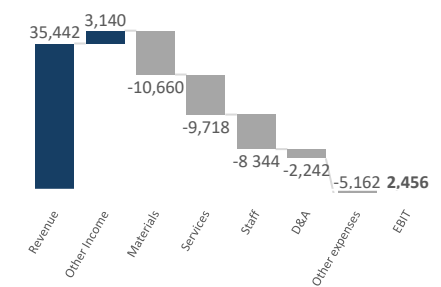
The Operational Expenses structure of the airline sector is presented in **Figure 6**. As highlighted, the greatest amount from total cost is allocated to the Fuel (27.2%), Staff (19.6%) and Fees (15.1%), which is characteristic in this industry, and which are the vulnerability points of the company. In addition to this cost structure, it is important to note that due to huge operating costs, the margins in this industry are expectedly low and a slight deviation in costs, especially with fuel (highly volatile), can strongly affect the performance of the entire group.

Regarding regional aspects, traffic revenues per region are shown in **Figure 5** which reveals the overall dominance of Europe and North America in the contribution to total revenue.

#### Lufthansa German Airlines

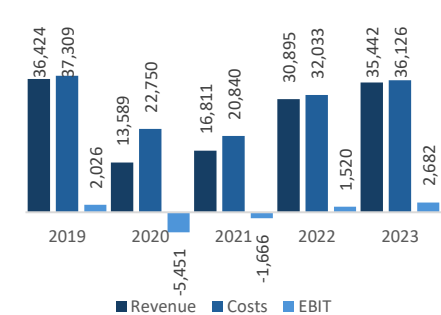
Lufthansa is the biggest airline of the group. It contributed with **traffic revenues of €15,011m** in 2023 and adjusted **EBIT of € 854m** (5.7% EBIT margin). Its headquarters is in Cologne, Germany and it has hubs in Frankfurt and Munich. The fleet of Lufthansa German Airlines totalizes 381 aircraft with routes to 211 international destinations over 74 countries.

**Figure 2 – FY2023 Consolidated P/L (€m)**



**Source:** Company Data & Author analysis

**Figure 3 – Financial Highlights (€m)**



**Note:** Costs include cost of materials and services, Staff costs, D&A + impairments and other operating expenses

**Source:** Company Data & Author analysis

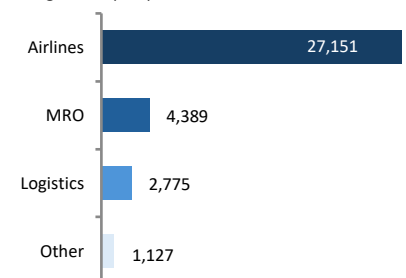
**Table 4 – FY2023 P/L highlights of the network airlines**

P/L (network airlines)	in €m
Revenue	28,337
Other operating income	1,306
<b>Total Income</b>	<b>29,643</b>
OPEX	27,730
<b>EBITDA</b>	<b>3,758</b>
<b>Adjusted EBIT</b>	<b>2,033</b>
Segment CAPEX	3,095

**Note:** Revenue includes inter-segment sales

**Source:** Company Data & Author analysis

**Figure 4 – FY2023 Consolidated Revenue by Segment (€m)**



**Source:** Company Data & Author analysis

### Swiss International Airlines

The second largest airline of the group is Swiss International Air Lines which was founded in 2002 in Switzerland and acquired by Lufthansa in 2005. It is currently based in Basel, Switzerland and has hubs in Zurich and Geneva. The company provides high cost and premium experience to its customers and offers routes to 100 destinations in 50 countries with a total fleet of 109 aircraft.

**FY2023 revenue** of SWISS totalized **€5,820m** with an adjusted **EBIT of €809m** that corresponds to 13.9% EBIT margin which is the highest among the network airlines of Lufthansa Group.

### Austrian Airlines

With headquarters in Schwechat, and hubs in Vienna and Kraków, Austrian Airlines provides 118 international destinations in 47 countries with its 66 aircraft fleet.

It was originally founded in 1957 in Austria and acquired later by Lufthansa in 2009. FY2023 total revenue of Austrian Airlines was **€2,268m** and the adjusted **EBIT was €127m** (5.6% EBIT margin).

### Brussels Airlines

Brussels Airlines is the flag carrier of Belgium founded in 2006 and acquired by Lufthansa in 2016. It is based in Machelen, Belgium with a hub in Brussels Airport. The company operates with 91 international destinations in 42 countries and its fleet consists of 44 aircraft. It achieved **revenues of €1,466m** in FY 2023 with an adjusted **EBIT of €-53m** (-3.6% EBIT margin).

### Eurowings

Eurowings is the low-cost airline company of the group that focuses on point-to-point traffic to 210 international destinations in 40 countries and has hubs in German cities as Düsseldorf, Cologne, Hamburg, Munich, Stuttgart, Hannover and Nuremberg. The headquarter of Eurowings is in Düsseldorf, Germany. The company was founded in 1993 and acquired in 2015. The focus of the company is Europe and North Africa. Eurowings consists of two different flights operations. While Eurowings Germany offers flights from Germany to European countries, Eurowings Europe operates from its international bases in Palma de Mallorca, Salzburg, Prague, Stockholm and Pristina.

In 2023 its **revenues totalized €2,586m** and the adjusted **EBIT was €-205m** (-7.9% EBIT margin).

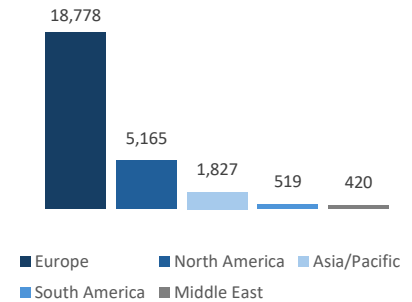
### Logistics industry – Lufthansa Cargo

Lufthansa Cargo is the air freight company of the Lufthansa group whose operations revolve around airport-to-airport transportation of cargo which may be general cargo, special cargo (as fragile materials, live animals, perishables, dangerous goods, and others), and express freight. It is one of the largest aviation logistics companies in the world whose **revenues** in FY2023 totalized **€3,090m** and **EBIT of €219m**. The company has also a 50% stake in the cargo airline AeroLogic (another 50% belongs to DHL Express) and owns Jettainer group specialized in freight container management and time:matters group which is dedicated to particularly urgent shipments.

The infrastructure of the Lufthansa group facilitates the operational aspects of the company as it specializes in handling various types of goods that are transported by Cargo segment (primarily the temperature-controlled goods) and are located in the Frankfurt Airport (Animal Lounge + Lufthansa Cargo Pharma Hub).

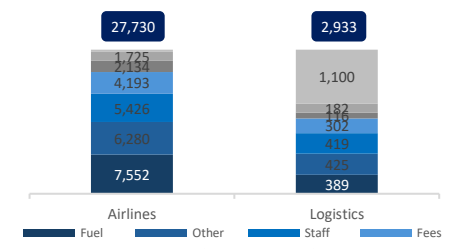
The fleet of Lufthansa Cargo is constituted of a total of 17 (11 their own + 6 leased from AeroLogic) Boeing 777F cargo aircraft and 4 Airbus A321Fs. The belly capacities of its passenger airlines aircraft are also used for freight transportation.

**Figure 5 – FY2023 Traffic Revenue of airlines by region of operation (€m)**



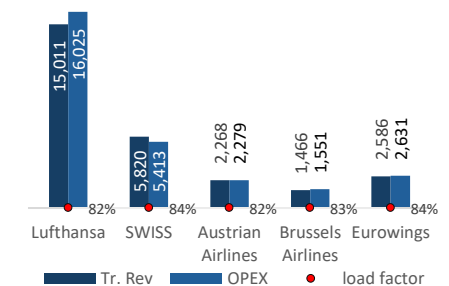
**Source:** Company Data & Author analysis  
**Note:** The revenue is allocated according to the original location of sale

**Figure 6 – Airlines and Logistics FY2023 OpEx structure (€m), respectively.**



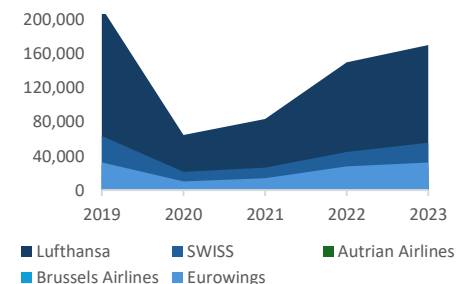
**Source:** Company Data & Author analysis

**Figure 7 – FY2023 traffic revenue, Opex and load factor per airline (€m)**



**Source:** Company Data & Author analysis

**Figure 8 – FY2023 ASK by airline.**



**Source:** Company Data & Author analysis

The operating performance of the company is very strong along the years, and despite the coronavirus pandemic, the freight market demand remained high in these years and the revenues of the logistic segments show a consistent growth through last years as it's shown in **Figure 10**. Capital expenditures in Cargo segment was **€191m** for that year.

### Maintenance, Repair and Operations – Lufthansa Technik AG

Lufthansa Technik, as a subsidiary of Lufthansa, is one of the leading MRO providers for the airlines industry.

Operating as an independent business unit in Lufthansa group, the company offers a wide range of services such as maintenance, repair and overhaul that cover everything related to aircraft maintenance from routine tasks to complex repairs and overhauls.

Constantly seeking innovation, the company is actively running research and development activities focusing on solutions to improve aircraft performance. Lufthansa Technik also offers technical and cabin services that consist in providing engineering and technical solutions that pass by development of modifications or upgrades and installations of many cabin facilities.

The company is a great asset to the group, it allows them to cut lots of costs in other segments of Lufthansa. The intersegment revenue from the companies of the group in FY2023 was €2,158m (which is around one third of Lufthansa Technik revenues) while total **revenues** totaled **€6,547m** and **EBIT of €628m**, i.e., a 9.6% EBIT margin (Figure 11).

As the world is recovering from the covid pandemic, the volumes of activity are recovering in the aviation industry and because of that, there is high demand for maintenance in the market. According to the management board, their main focuses are on recruiting new qualified professionals, digital transformation, and development of sustainable technologies to improve fuel efficiency and achieve sustainability targets. Capital expenditure for the segment was €137m for 2023.

### Catering

The catering segment of Lufthansa group was represented by LSG Group until October 2023 and included two brands: **LSG Sky Chefs** which is a global food specialist in retail and delivery market and **Retail inMotion**, which specializes in in-flight sales. The whole catering segment has been discontinued and transferred to AURELIUS Group

Regarding financial performance, FY2023 **revenue** was **€1,954m** with an adjusted **EBIT of €53m** (2.7% EBIT margin). Capital expenditure for the segment was €35m in 2023.

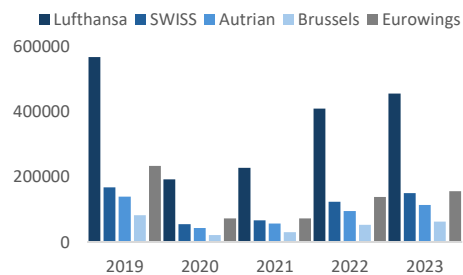
### Additional Businesses and Group Functions

Among other businesses of Lufthansa group there is Lufthansa AirPlus Servicekarten GmbH which is a business travel corporate payment and data management solutions provider that operates in 55 countries.

In FY2023 total income was €3,245m (including internal revenue) and adjusted EBIT loss of €-252m (Figure 12)

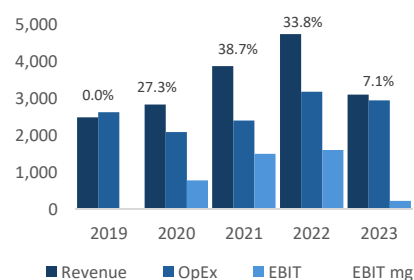
Another significant company in that segment is the **Lufthansa Aviation Training**, which is a flight training company that provides professional training for the aircraft crew. Capital expenditure for the segment was €30m for that year.

**Figure 9 – Number of flights by airline**



Source: Company Data & Author analysis

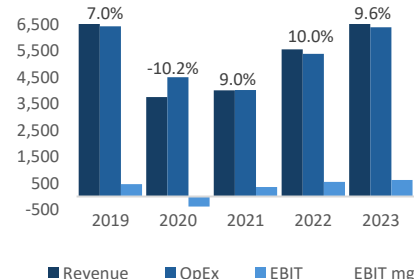
**Figure 10 – Lufthansa Cargo financial data (€m) and EBIT margin in %.**



Source: Company Data & Author analysis

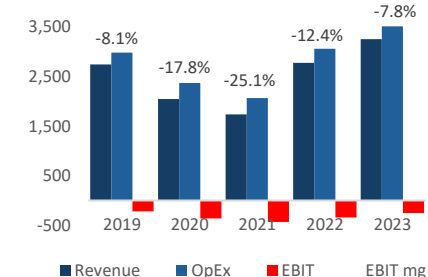
Note: adjusted EBIT

**Figure 11 – Lufthansa Technik financial data (€m) and EBIT margin in %.**



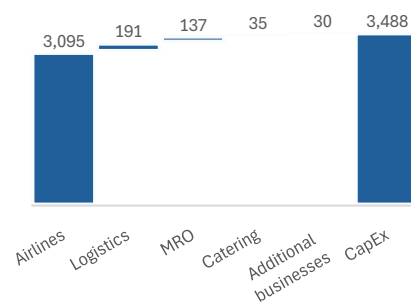
Source: Company Data & Author analysis

**Figure 12 – Additional Businesses financial data (€m) and EBIT margin in %.**



Source: Company Data & Author analysis

**Figure 13 – FY2023 Capex by segment(€m)**



Source: Company Data & Author analysis

## Key Profitability Drivers

There are a plenty of factors in the aviation industry that affect airlines' profitability such as:

**Economic Factors:** the evolution of economic indicators such as inflation, exchange rates, GDP growth and others influence two aspects of the airline industry: i) the operating costs and ii) demand for travel. The global crises have an impact on these economic indicators and consequently the airlines. The recent example is the Covid crisis which affected all airlines in the world, including Lufthansa, who saw 95% of its flights being cancelled by the end of 2019. As it's possible to observe in **Table 14**, the overall load factor significantly decreased in 2020 and 2021, and it only recovered to pre-pandemia level in 2023.

**Regulations:** Compliance with all the regulations in the airline industry is strictly controlled by competent authorities and failure to comply with any requirement may result in costly fines or disruptions.

**Fuel Costs** are among the largest costs of the airlines. In Lufthansa it represents **39%** of total costs of **Materials and Services** and **22%** of total operating expenses in 2023. Considering that fact, it is possible to understand that the variation in jet fuel prices is going to affect the profitability of the company in a good or bad way. In order to reduce the risks associated with price fluctuations, fuel hedging strategies are adopted by the companies.

**Operating efficiency:** Other relevant items are the fees paid by the airline (**46% of total services costs**) to guarantee their slots, parking, maintenance, and other fees that the company is paying for operating or being on the ground. The total cost of purchased services (**Figure 15**) in 2023 weighed **27% of total group costs**. These costs include expenses such as fees and charges, external MRO services, charter, flight irregularities and other services. With this huge amount of expenditures that are directly related to the company's activities (besides fuel), it is very important to make sure that all processes are configured for the greatest efficiency to avoid additional expenses. Staff costs constitute a big slice of operating costs and represent 23% of total OPEX of Lufthansa (2023) and effective management of the labor force is crucial.

**Load-factor:** high load factor is the indicator of efficient management of the flights that optimize revenues. If the average load factor is high, it means that the company is managing well to balance the existing **demand** with flights scheduling, ticket pricing and routes efficiency. Any airline's goal is to achieve the highest load factor and move it away as far as possible from the break-even load factor. The Lufthansa Group has an average load factor of **83% as of 2023** while the industry **average BLF is 77%**.

## Company Strategies

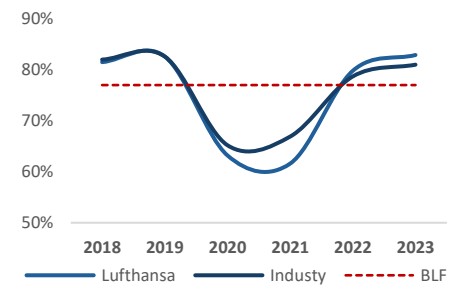
**Fleet Modernization:** one of the priorities of the company is to modernize and standardize its fleet as fast as possible. With around €20bn in order commitments, it is visible how thoroughly the company approaches this matter. Despite high capital expenditures in the next 5 years, one of the benefits that Lufthansa will get is a modern and fuel-efficient fleet which will require significantly less expenditure in the future. The big advantage of having a new and standardized fleet is the improved operational and cost efficiency.

**Customer Experience:** The company is known for offering excellent customer experience. One of their focuses is to conquer the customer loyalty and make their travels easier. Digitalization initiatives seek to enhance the digital experience through improvement of booking platforms, development of mobile apps and others. The loyalty program **Miles&More** is one of their main customers retention strategies that aims to enhance lifetime customer value and also cross-sell services.

Revenue diversification:

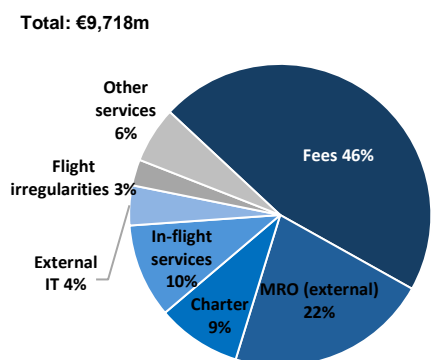
Logistics, MRO and additional businesses as aviation training, IT systems and others are key components of Lufthansa's diversification strategy.

**Figure 14 – Load factors and industry average BLF.**



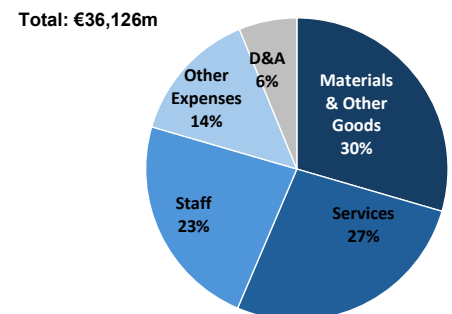
**Source:** Company Data, IATA & Author analysis

**Figure 15 – Lufthansa FY2023 costs of purchased services (% from total).**



**Source:** Company data & Author Analysis

**Figure 16 – Lufthansa FY2023 costs.**



**Source:** Company data & Author Analysis

**Table 5 – Lufthansa Group shares info highlights**

Shares Outstanding		
1,196.6M		
Top Shareholders	Stake [€, M]	%
1 - Kuehne	179,44	15%
2 - BlackRock	39,18	3%
3 - DWS	17,86	1%
4 - The Vanguard	17,66	1%
5 - Amundi	17,66	1%
<b>Total</b>	<b>271,82</b>	<b>23%</b>
<b>Exchange</b>	<b>Xetra</b>	

**Source:** Refinitiv Eikon



## Ownership Structure

The Company has 1,196.6 Million common shares outstanding, and each one represents one vote. 84.94% are in Free Float and 15.06% in Strategic Ownership. Around 54% of shares are held by institutional investors and 46% by private individuals. Among the shareholders, around 73% are from Germany, 10.4% from USA, and 4.3% from Ireland. Regarding the top shareholders, Kuehne (Klaus Michael) holds **15%** of Lufthansa shares, followed by BlackRock with **3.27%** and DWS Investment GmbH with **1.49%**. In general, the top 20 shareholders hold around one third of total shares outstanding.

**Dividend policy:** Lufthansa's target is to distribute 20% to 40% of net profit. As is possible to see in **Figure 17**, 21% of net profit was distributed in 2023 with a **DPS of €0.30**. There were no dividends distributed in the period from 2019 to 2022 because of financial losses and uncertainty caused by the Covid pandemic.

## 3. Management and ESG

### Environmental, Social, and Governance (ESG)

The concept of sustainability is firmly established within the Company. Since 2002, the Company has been applying the principles of the UN Global Compact for sustainable and responsible corporate governance. The group also supports the SDGs of the Agenda 2030 adopted in 2015 by the UN member states.

#### ESG Committee

Withing the group, the highest monitoring unit in sustainable management is the **Supervisory Board**. On January 1st, 2022, **the ESG Committee** was established by the Supervisory Board as an advisory unit for the Executive Board, for Supervisory Board, and for its committees on ESG issues, essential to economic development of the group.

The Corporate Responsibility department, which is primarily responsible for ESG strategy, reporting and for ratings in cooperation with other departments, reports directly to the Executive Board member in charge of the Lufthansa Group's Brand & Sustainability function. In addition, all larger subsidiaries have their own environmental departments, an environmental officer, or environmental coordinators.

The ESG strategy is reviewed and discussed annually. In 2022, the focus of Lufthansa was on the carbon transition pathway and measures of SAF strategy and other efficiency measures.

#### External Ratings

The ESG factor has become important for companies including Lufthansa. ESG criteria may be used by investors when evaluating a company to assess the ethical and sustainability components of the company's operations.

Regarding ESG metrics, Deutsche Lufthansa has some positive metrics, but it is behind its peers and has **an overall** score of **B+**, **controversies** score of **D-**, and **ESG combined** score of **C** (**Figure 18 and 19**).

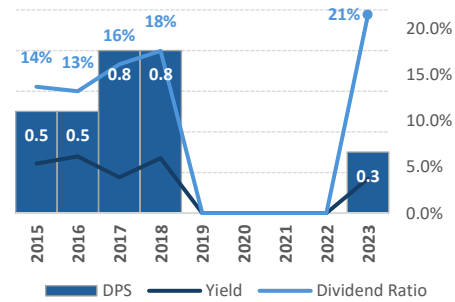
#### Environmental

In 2022, Lufthansa's **Environmental Pillar** score was **B+**.

The company is showing a strong concern with the climate protection and taking action to reduce the impact through investing in technological progress and replacing old aircraft with new ones which are more sustainable and efficient, improving the infrastructure, reducing the noise pollution, and increasing waste management.

Relatively to environmental aspect, there is an increasing pressure on the airlines to improve fuel efficiency and reduce Ambiental impact from their activities and Lufthansa have been working to improve the fuel efficiency and eventually to explore less harmful alternative fuels.

**Figure 17 – Lufthansa dividends payout YoY**



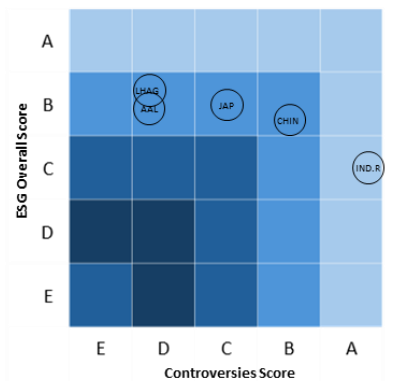
**Source:** Company Data & Author analysis

**Figure 18 – 2022 ESG grades of Lufthansa**

ESG Score	Combined	Environment
<b>B+</b> (72,5)	<b>C</b> (38,9)	<b>B+</b> (68,9)
Social	Controversies	Governance
<b>A</b> (87,7)	<b>D-</b> (5,2)	<b>B-</b> (54,16)

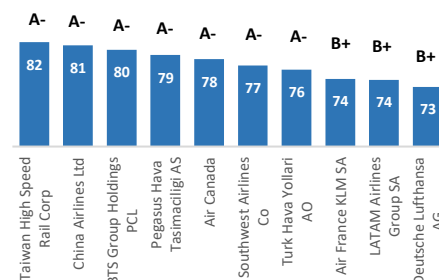
**Source:** Refinitiv Eikon & Author analysis

**Figure 19 – 2022 ESG Scores among peers**



**Source:** Refinitiv Eikon & Author analysis

**Figure 20 – ESG Top 10 scores in Transport industry**



**Source:** Refinitiv Eikon & Author analysis

**IATA's four-pillar strategy for climate protection:** In 2007, IATA split its carbon emission-reduction actions into four fields of action: 1) Technological progress, 2) Improved Infrastructure, 3) Operational measures and 4) Economic Instrument and these actions are also integrated into Lufthansa's conceptual approach and activities.

**Carbon Footprint:** Lufthansa Group has set an ambitious goal of cutting carbon emissions in half by 2030 (it would imply emission reductions at **8.3% CAGR YoY**) and to achieve carbon neutrality by 2050 following a defined CO2 reduction path defined by SBTi. To achieve that goal, considerable amount of capital expenditures is being invested in fields such as the development of the SAF and new generation aircraft that are going to not only help to reduce the fuel consumption but also the noise pollution during the landings and take off's – another important topic, highly valued for ESG scoring.

In addition to these measures, the group aims to reduce the number of short-haul flights by implementing new transport alternatives as rail and bus services with connections to its hubs and enhancing its operational efficiency through smart route planning technologies.

**Waste management:** another goal of the Lufthansa Group that seeks to eliminate waste on board by removing items with single-use food packages by 2025.

**Social**

The **Social Pillar** Score of the Company is very positive, with an **A grade in 2022**, it is **one of the highest** grades among the peers.

Regarding social responsibility, the company promotes equal opportunity for disadvantaged people through supporting education and training programs.

**Attractiveness as an employer:** Lufthansa seeks to be an attractive employer and retain talent, however their own research on "**Engagement Index**" on its employees shows that in recent years this indicator has been low. In the scale from 1 (Best) to 5 (Worst) the value is settled in **2.4 for 2022** (Figure 23). The company itself explains this situation as a consequence of cost-cutting measures during the pandemic and the excessive workload caused by a huge rise in demand in the 2022 for which the company was not prepared.

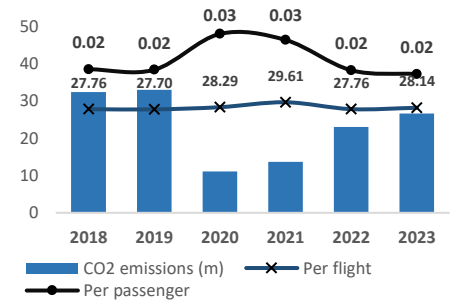
**Lufthansa Group EVP:** Seeking to return to the top-tier of attractive employers, the Employer Value Proposition was developed after series of analyses of the particularly important factors that are crucial to the employees when choosing a company to work and four topics were identified for its positioning as an employer: increased work flexibility, good relationships, diversity, and development opportunities.

**Customer satisfaction:** According to the company, **by the year 2025**, around **€2.5bn** will be invested to improve the **service quality** for the customer. This amount will include investment to improve the passengers' comfort during the flight by upgrading the cabin in all flight classes, to provide new digital solutions and enhance the food and beverage experience on board.

**Departures punctuality:** Another point of improvement on the part of the company is the punctuality of departures that are not the best by the date, standing at around 60% due to the huge increase in passenger numbers from 2021 to 2022 that the company couldn't timely handle. To solve this problem, it is planned to improve the flight planning, invest in IT-supported systems and the recruitment of new staff.

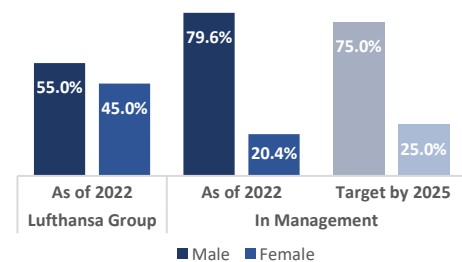
The **controversies score** had a significant decrease in 2022 compared to previous year (from B- to D-) and main explanation can be presented with situation that occurred in 2022 and in which Lufthansa Group was involved. The main events were the several strikes by pilots and ground staff that affected many passengers and a conflict with Ryanair regarding EU's airport slot rules.

**Figure 21 – Co2 emissions YoY - Lufthansa**



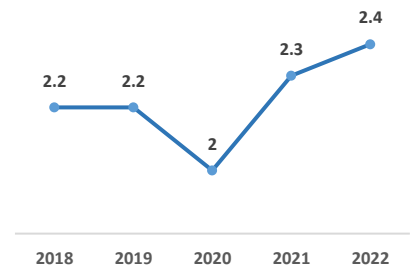
**Source:** Lufthansa Sustainability Report & Author analysis

**Figure 22 – Lufthansa Group gender distribution from last survey**



**Source:** Lufthansa Sustainability Report & Author analysis

**Figure 23 – Lufthansa employee's Engagement Index (last survey)**



**Source:** Lufthansa Sustainability Report & Author analysis

## Management and corporate governance

Deutsche Lufthansa has one of the lowest **governance scores** when compared to its peers with a **B-** in 2022 with a slight improvement from the previous year's score of C+.

Lufthansa has a two-tier governance structure that includes the Supervisory Board (Aufsichtsrat) and the Management Board (Vorstand). The members of the Supervisory Board are elected by the shareholders, and they oversee the Management Board.

The governance structure of the company is based on the German Companies ACT and the German Corporate Governance Code. Within this governance structure an **Executive Board** is responsible for **daily management of** the company in such areas as operations, finance, and customer service and a **Supervisory Board** is responsible for overseeing and advising the Executive Board.

Supervisory Board is composed by 21 members whose chairman is Karl-Ludwig. Carsten Spohr is both Chairman of the Executive Board and CEO of Deutsche Lufthansa Group since May 2014. The supervisory board of Lufthansa is constituted by shareholder representatives and employee representatives that are elected by the employees.

In financial year of 2023, the Supervisory Board formed five committees: **Steering committee**: that prepares the board meetings and decisions and oversees executive remuneration, **Audit** committee that monitors the internal control systems, accounting and compliance, **Nomination** committee that provides recommendations for candidate elections to the supervisory board, **Arbitration** committee that handles disputes as per the Co-Determination Act and **ESG** committee that is focused on ESG issues (**Table 7**).

The shareholders of the company also have an important weight in decision-making processes as they have voting rights and can participate in annual general meetings that are decisive for the direction of the company.

In **Appendix 23** it's possible to see in detail the Executive Board and Supervisory Board members and their functions.

**Table 6 – Executive Board of Deutsche Lufthansa AG**

Deutsche Lufthansa AG	
Name	Role
Executive Board	
Carsten Spohr	Chairman of the Exec. Board
Christina Foerster	Brand & Sustainability
Harry Hohmeister	Global Markets & Network
Detlef Kayser	Fleet & Technology
Michael Niggemann	HR & Infrastructure
Remco Steenberg	Chief Financial Officer

*Source: Company data & Author analysis*

**Table 7 – Supervisory Board Committees as of 2023**

Supervisory Board Committees	
Member Name	
Steering Committee	
Karl-Ludwig Kley	
Christine Behle	
Thomas Enders	
Christian Hirsch	
Audit Committee	
Harald Krüger	
Arne Christian Karstens	
Michael Kerkloh	
Carsten Knobel	
Holger Benjamin Koch	
Klaus Winkler	
Nomination Committee	
Karl-Ludwig Kley	
Thomas Enders	
Harald Krüger	
Arbitration Committee	
Karl-Ludwig Kley	
Christine Behle,	
Thomas Enders	
Christian Hirsch	
ESG Committee	
Erich Clementi	
Sara Grubisic	
Marvin Reschinsky	
Angela Titzrath	

*Source: Company data & Author analysis*

# 4. Industry Overview and Competitive Positioning

## Economic Outlook

### World Population and Unemployment

Some of the economic and demographic indicators can provide a clearer understanding of the state of the economy and, subsequently, prospects for the aviation industry.

According to IMF data, **Figure 24**, projections for the 2024-2028 period indicate a low unemployment rate, coupled with a world population growth at **0.93% CAGR** in the same period, reaching a population of **8.20Bn people by 2028**.

An increase in the world population guarantees an increase in the stream of passengers travelling every year.

### GDP growth and Inflation

The wealthiness of the population determines the propensity to spend in leisure including travelling (holiday purposes or business travels or others) or to save.

GDP is expected to grow in all regions of the world during the projected period 2024-2028. According to IMF data, the World GDP will grow at an average rate of **3.1%**, totaling world global **GDP of \$133,678Bn** by 2028 (Figure 25).

**Figure 26** shows the GDP growth rates throughout the world regions YoY. The downturn in 2020 caused by COVID-19 interrupted a series of years of stable economic growth for all countries which could stabilize and return to previous levels only in 2024. However, a stable GDP growth is expected for all regions during the projected period.

The annual inflation rate had its spike in 2022 (**Appendix 22**) as a consequence of pandemic and later a war in Europe, reaching **7.3%** in advanced economies and **9.8%** in developing economies. The forecasted CPIs from IMF indicate a smooth recovery of the annual inflation rate in both types of economies, dropping to the level of **2.0%** and **5.0%** in advanced and developing economies, respectively.

### Oil Price

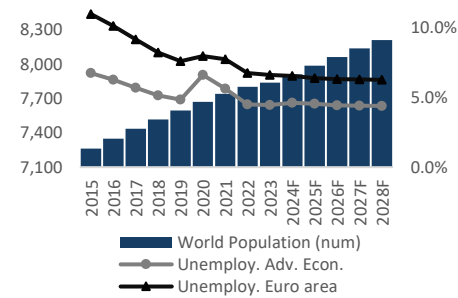
Looking at historical behavior of the spot crude oil prices and future forecasts of the three major brands on **Figure 27**, it's hard not to notice the peak decline of the prices in 2020. This happened because the market was flooded with oil at the moment when the demand was low (because of pandemic, the world economy has faded into the background) that resulted in a bigger gap between demand and supply causing the price crash. In 2022, there was a steep increase in the Oil Price, reaching an **average value of \$96.36 per barrel**, caused by many reasons among the most impactful factors such as: **1) The war in Europe, 2) Low global crude oil inventories and 3) High inflation and petroleum price.**

However, despite all global instability factors, IMF projections seem to be optimistic regarding future oil prices, with a price per barrel declining to an average of **\$67.48 per barrel by 2028** assuming global economic recovery.

## Industry Overview

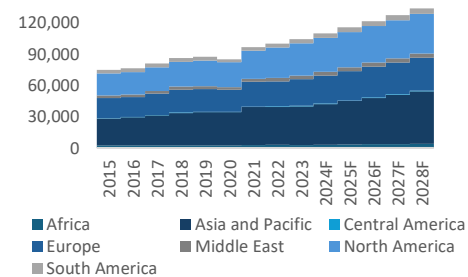
The airlines industry is cyclical as well as the world economy and its overall activity is bound to the state of the economy of a specific geographic region or of the world. Given the fact that most airlines operate in all regions of the planet, any economic downturns will impact them.

**Figure 24 – World population (bn) growth and unemployment rate YoY, real and forecasted**



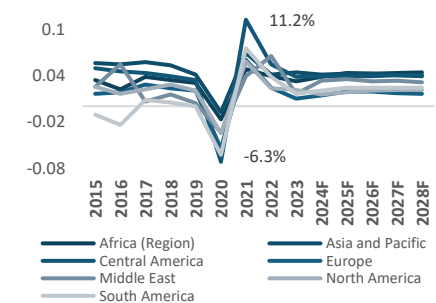
**Source: IMF & Author analysis**

**Figure 25 – GDP (\$bn) by region YoY, real and forecasted**



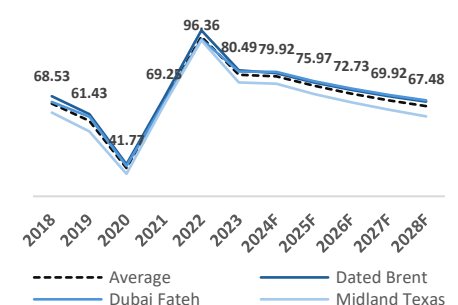
**Source: IMF & Author analysis**

**Figure 26 – GDP growth rate by region YoY, real and forecasted**



**Source: IMF & Author analysis**

**Figure 27 – Average Crude Oil spot prices YoY, real and forecasted (\$ per barrel)**



**Source: IMF & Author analysis**

The impact of COVID-19 led to the sharp decrease in the aviation activity as a consequence of lockdown measures adopted around the world. The industry activity is now smoothly recovering from unprecedented financial losses that it suffered in that period. The trials of the pandemia have brought some changes, including strong digital transformation (digital health passports, contactless check-in procedures, online bookings and among others), industry consolidation and mergers, and changes in travel behavior, characterized by reduction in business travels.

### Airline Industry Structure

The airline industry is a complex ecosystem composed of various elements that are strongly interdependent and crucial for industry activity. The key elements of the industry are: i) the Airlines; ii) Airports and Authorities; iii) Aircraft Manufacturers; iv) Maintenance and service providers; v) Global Distribution Systems; vi) Ground handling services.

Airline Industry covers Air Transportation Services of **Passengers** and **Cargo**. The market size of each service is displayed in **Figure 28**.

**Airlines:** the industry is dominated by a few major firms and can be characterized as **Oligopoly** due to its market structure. It is a market with a lot of competition in terms of pricing and service, with **high entry barriers** and the actions of each company often have significant repercussions across the industry. Such conditions force companies to be constantly attentive to the current situation and react quickly to all changes and take actions so as not to be left behind in the race. Considering these facts, comes the conclusion that the industry is in the **mature stage** of its lifecycle, characterized by intense competition and the strong need for constant innovation. Within the market, the leading global company is Delta Air Airlines that serves 353 destinations, with FY2023 revenues totaling **€52.6bn**, which is **6.8%** of the market. Lufthansa has a **market share of 4.5%** standing in 4<sup>th</sup> place at the global level (**Figure 29**). In FY2023, the air transport market size was **€779bn**.

Some of the airlines focus only on Passenger transportation whilst others have a mix of both Passenger and Cargo Transportation. Within the passenger transportation services, there are two distinctive types of air fares: the Full-Service Carriers (FSC) and the Low-Cost Carriers (LCC) being that some airlines work as network and some are focused on point-to-point traffic.

**Seasonality:** Considering that business travelers represent around 12% of all travelers, leisure travel constitutes the largest portion of all flights, and the airline industry experiences seasonality peaks with increased activity in the summer season.

**Aircraft Manufacturers:** The market for aircraft manufacturing is dominated by two major companies: Airbus and Boeing, and both of them are facing a huge number of orders (with industry recovery, the airlines are actively placing orders for new fuel efficient and sustainable aircraft) to fill and having difficulties with aircraft deliveries caused by supply chain issues.

Therefore, unfilled orders are growing YoY. Total unfilled orders totalize 6,177 aircraft from Boeing and 8,598 aircraft from Airbus as of 2023 (Figure 31).

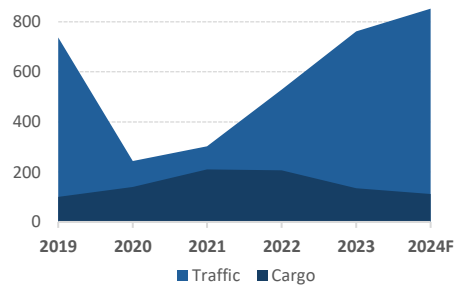
**Airports and city pairs:** Another important aspect to take into consideration, when analyzing the industry, is the availability of airports, routes, and connections.

There is an increase in connectivity between the cities and world trade volumes, driven by growing demand. According to IATA, their international **connectivity index**<sup>1</sup> has recovered to pre-pandemic levels to 89,5% and to 97,5% for domestic connectivity in 2024.

The aviation industry looks to be more optimistic regarding the perspective of the industry growth as is demonstrated in **Figure 30** and **Figure 32**. It is expected that RPK will grow in the next years along with the aircraft departures all over the world. Global demand for air travel remained strong in 2023 with the industry volumes close to 2019 levels. A strong increase in RPK was observed in 2022 compared to 2021 (+64.9%) and from 2022 to 2023 (+38.4%)

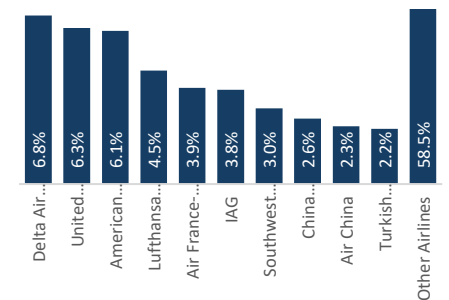
<sup>1</sup> IATA's connectivity index measures scheduled passenger capacity weighted by the economic scale of destinations served.

**Figure 28:** Global Traffic and Cargo revenues, in \$bn



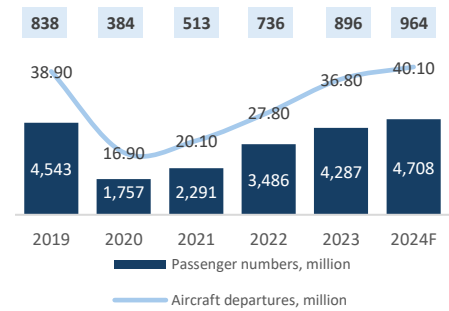
Source: IATA & Author Analysis

**Figure 29:** FY2023 Market Share of top competitors of the industry



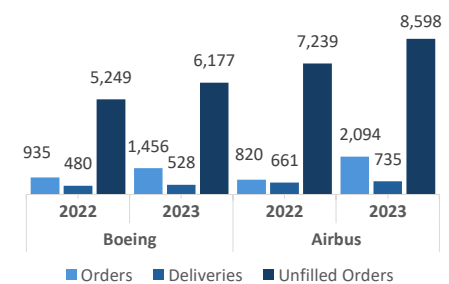
Source: Refinitiv Eikon & Author Analysis

**Figure 30:** Industry stats and Global Air Traffic revenues in \$bn



Note: Global Air Traffic revenues in boxes (\$bn)

**Figure 31:** Commercial aircraft Orders & Deliveries by manufacturer



Source: Airbus and Boeing reports & Author analysis

across all regions. However, a lower rate is expected from 2023 to 2024 (+9.8%). The passenger load factor is also having steady improvement since its low point in 2020, converging to pre-pandemic levels by the end of 2022. In the first 3 quarters of 2023, the **global** load factor was 82.3%.

## Competitive Positioning

Deutsche Lufthansa competes directly with other major European airlines, such as IAG, Air France, British Airlines and others. The company has several competitive advantages that contribute to its success as one of the leading European airlines.

### Strategic Alliances and Network

**Star Alliance:** Lufthansa is one of the five founding members of the world's largest global airline alliance, established in 1997. Nowadays it is made up of 26 airlines, offering benefits to its members in the form of a share of airport lounges, coordination of schedules and transfers, and extensive network (passengers are able to book flights through the combined network of Star Alliance members). By that way, Lufthansa enhances its operations and customer service by sharing resources and by collaborating with other airlines. There is a significant contribution of the Star Alliance to the Lufthansa's recognition in the global market.

**Global reach:** Lufthansa has an extensive international network that covers over 200 worldwide destinations. Its hubs in Frankfurt and Munich are critical intercontinental connections, which allow the company to get a significant advantage in connecting Europe with the rest of the world.

### Brand strength

**High-Quality Service and Premium Positioning:** Lufthansa is well known for its service level and customer experience. The company differentiates itself by offering a range of cabins at Business and First Class, aimed at premium quality.

### Strategic business segments

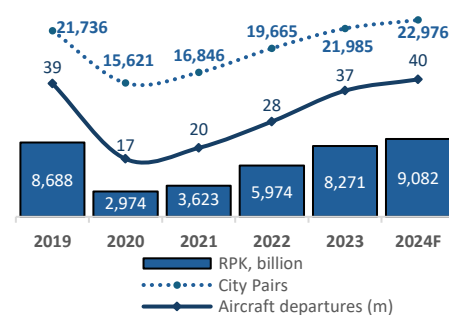
The company has a diversified business model. It has benefits from various synergies across the group's companies that operate across different segments in areas such as passenger air transport, air freight, MRO and others.

**LCC:** with the rise of low-cost carriers, the group is investing in its own LCC, **Eurowings**, to maintain its market share.

### Multi-Hub Strategy

Lufthansa's main operations are centered on its hubs in Frankfurt and Munich, but it also benefits from its network airlines hubs in Vienna and Zurich. These hubs allow the company to provide extensive connections across Europe and Worldwide, enhancing operational efficiency.

**Figure 32:** Global traffic tendency real and forecast YoY



Source: IATA Sustainability and Economics

## Porter's 5 Forces - Airlines

### Threat of new entrants | (2 - Low)

- **High barriers to entry:** large amounts of capital are required to be invested in assets to start providing passenger transportation services by air. Airplanes are the central asset of any airline and are expensive and also have a high maintenance cost.
- **High operational costs:** Beyond purchasing the aircraft, the company should guarantee high amounts of capital for the operational expenses such as maintenance, fueling, catering services, fees, and others.
- **Regulations:** the airlines industry is strongly regulated in all the countries, and it takes a lot of effort on the part of the company to comply with all safety standards.
- **Economies of scale and brand image:** Even having fulfilled all the conditions above, the company may be faced with the fact that the existing airlines have established a brand image and new entrants in the industry can face mistrust on the part of travelers. Furthermore, there are price wars between the big airlines that are able to offer lower prices as they benefit from economies of scale. For the new airline it must be difficult or almost impossible to compete through pricing.

### Bargaining power of buyers | (Medium-High - 4)

- **Wide supply:** With a wide choice between the airlines, the customers tend to choose the best price-to-quality options, forcing the airlines to compete with each other through pricing.
- **Booking platforms:** The online booking platforms allow the passengers to compare the ticket prices easily in one place and because of that, each airline should compete for the customer's attention through differentiation.

Despite that, there are special cases in some regions of the world where the routes are limited or where the market is occupied by specific airline (for example the local ones), and the customer might not have so many options and have to settle for what is being offered at the specific moment.

### Bargaining power of suppliers | (Medium-High - 4)

- **Aircraft suppliers:** Boeing and Airbus dominate the market, there is more demand for aircraft that supply, so the aircraft suppliers have high bargaining power. Also, for the existent aircraft, the airline is dependent on the arrangement of parts for the planes.
- **Fuel Suppliers:** as the fuel cost is a significant part of the OPEX, the fluctuations in the oil price are going to affect the profitability of the company, however, hedging is a popular strategy among airlines used to reduce the risk associated with the fluctuations.

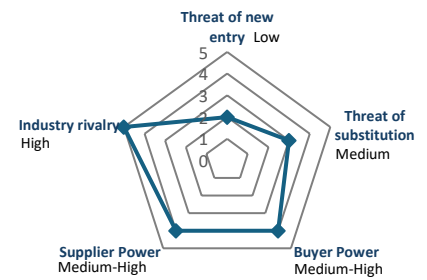
### Threat of substitute products | (Medium - 3)

- **Alternative modes of transport:** The air is the fastest way of transport, and until someone invents a faster way to travel by ground or sea, air travel will have no competitors. However, when it comes to short haul flights, there may be some threat, for example by high-speed trains that in some cases may offer a faster trip, especially if we consider the check-in procedures and waiting times at conventional airports.
- **Digitalization and virtualization:** technological advancements in the last decades are affecting the travelling behavior of the people. With the evolution of communication technologies and strong digitalization, there is less necessity of travel to participate in certain meetings or conferences, as many of these are done online nowadays.

### Rivalry among existing competitors | (High - 5)

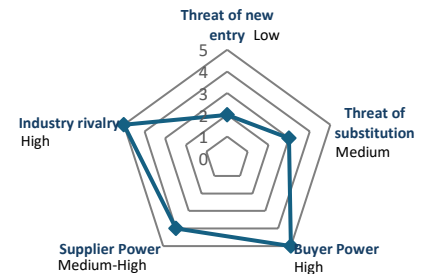
- **Price Wars:** As mentioned before, the airlines compete with the ticket price, especially the **low-cost airlines** whose focus is on low ticket prices, forcing the industry to lower their yields in order to maintain their market share.
- **Overcapacity and competition for the slots:** as the infrastructure is limited, the airlines compete for prime airport slots and routes. One of the strategies to perform

Figure 33: Airlines industry Porter 5 Forces



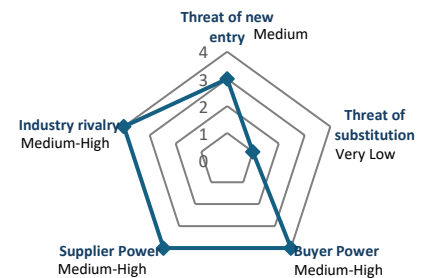
Source: Author Analysis

Figure 34: Air freight industry Porter 5 Forces



Source: Author Analysis

Figure 35: Aviation MRO industry Porter 5 Forces



Source: Author Analysis

better is to make strategic alliances with other airlines (example: Star Alliance, Oneworld and others)

There are high barriers to exit conditioned by long-term debts & leasing agreements to fulfill.

## SWOT Analysis

Strengths	Weaknesses
<p><b>Extensive network of airlines</b> - big variety of destinations and flexibility through its network airlines.</p> <p><b>Strong brand</b> - Lufthansa, SWISS, Austrian and Brussels Airlines have a strong recognition especially in European markets.</p> <p><b>Market share</b> - the second biggest airline in Europe, one of the biggest worldwide.</p> <p><b>Star alliance member</b> - alliance that connects more than 20 airlines and adds great value to its members.</p>	<p><b>Low margins</b> - high operating expenses absorb a huge slice of the revenues. Return on equity is reduced.</p> <p><b>Strikes</b> - constant labor disputes cause disruptions in daily operations.</p> <p><b>Complex corporate structure</b> - despite the fact that the company is already dealing with this issue, it's still on the table.</p>
Opportunities	Threats
<p><b>Emerging markets</b> - optimistic forecasts for the development of Asian and African Markets.</p> <p><b>Sustainability initiatives</b> - SAF fuel production &amp; aircraft conversions are contemplated in the company's strategy. This kind of initiative has a positive impact on the image of the company and its ESG scoring.</p> <p><b>Technological advancements</b> - the subsidiary Lufthansa Technik allows the company to perform research and development in aviation area.</p>	<p><b>Intense competition</b> - serious threat coming from emerging low-cost carriers.</p> <p><b>Environmental laws</b> - new laws make it more difficult for airlines to operate and may require significant financial costs to comply with regulations.</p> <p><b>Geopolitical environment</b> - emerging local conflicts may suspend several routes.</p> <p><b>Fuel Prices are volatile</b> - In addition to the costs being high, the price of fuel is highly volatile and has a big weight in total Operational Expenses.</p>



# 5. Investment Summary

According to **base case** results, the investment recommendation is to **HOLD**, with a 2025YE **Price Target of 8.26€/ Sh.**, corresponding to an upside potential of **23.2%** in 15 months which corresponds to an annualized return of **18.13%** against closing price of **6.71€/ Sh.** (as of 01 October 2024).

The investment recommendation is given taking into account the **High** level of risk of the investment in Deutsche Lufthansa AG.

### Scenario analysis

Two alternative scenarios were considered besides the base case. The first alternative scenario considered an Upside scenario which is characterized by more favorable indicators of **passenger yields, long-term growth rate** and **Jet Fuel Prices** and a Downside scenario with worse indicators. By that way, **Upside** and **Downside** scenarios yield **13.90€/ Sh.** and **2.78€/ Sh.** (Table 57), respectively. Please refer to **Appendix 14** for scenarios details.

### Valuation methods

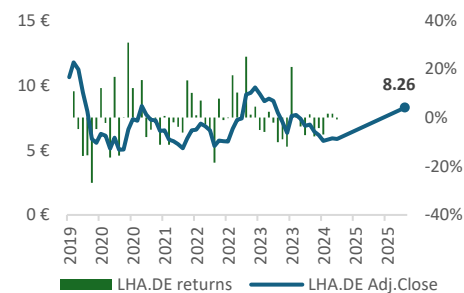
Several models were computed to determine Lufthansa Price Target. A DCF was chosen as the primary model, particularly FCFF (WACC). FCFE, APV and Residual Income were also computed. Additionally, Multiples Based Valuations were also computed to stress the Price Target determined. **Price Targets** resulting from these valuation methods are presented in **Figure 38** and **Figure 50**.

### Investment Risks

When taking an investment decision, it is important to consider the inherent risks. Deutsche Lufthansa operates in extremely competitive and volatile industry that require large amount of capital and that is strongly dependent on the market factors, economic factors, politic factors and others.

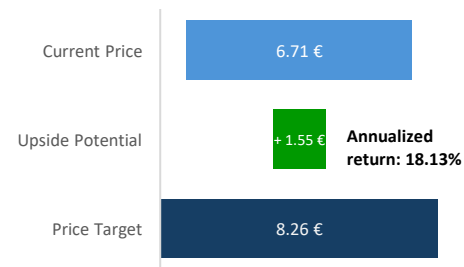
The most significant risks that are faced by airline industry is related to the state of the market that influences the Oil Prices that directly affect Jet Fuel Prices. Fuel costs represent around **22%** of the total costs of the group and its variations significantly impact on the value of the company.

**Figure 36:** LHA.DE stock historical prices €/Sh. and returns (%)



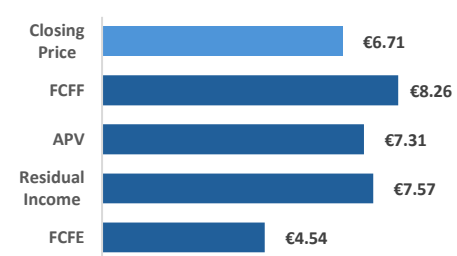
**Source:** Yahoo Finance & Author Analysis

**Figure 37:** Lufthansa's share price upside potential



**Source:** Author Analysis

**Figure 38:** Target Price by valuation method (€/Sh)



**Source:** Author Analysis

# 6. Valuation

## Free Cash Flow to the Firm

FCFF was the main model to provide the recommendation. As previously referred, FCFF provided a PT of **€8.3 /Sh.** at the **2025YE** corresponding to an annualized return of **18.1%**, against the closing price of **€6.71 /Sh.**, representing a total upside potential of **23.2%**. The explicit period comprises the FY2024E-29F period. The main drivers that explain the FCFF valuation are: i) **evolution of Passenger and Cargo Yields**; ii) **expected evolution of RPK and RTK**; iii) **expected evolution of MRO market**; iv) **expected evolution of Fuel Costs**; v) Capex regarding the expansion of fleet; vi) **WACC rate assumptions**; and vii) **Long-run sustainable growth rate and terminal value**.

## Revenues

As Lufthansa Group includes four different business segments **i) Passenger Airlines**, **ii) Logistics**, **iii) MRO** and **iv) Other Businesses** and group functions, the revenues for each segment were computed separately.

### Passenger Airlines

The main profitability drivers of this segment are: **1) Passenger Yields**, **2) RPK**, **3) Industry growth & traffic trends** and **4) Fuel & Labor Costs**. All of these were considered for the projections.

Revenues were computed by each region of Lufthansa's operations: Europe, Americas, Asia/Pacific and Middle East/Africa. Europe represents circa **70%** of total Traffic Revenues and has the highest yields (0.195 at YE2023). The average yield of network airlines was **0.109** at **YE2023**. The projections are presented in **Figures 40 and 42**.

Passengers Traffic Revenues were computed by region using the following formula:

$$\text{Traffic Revenue} = \text{Passenger Yield (RRPK)} * \text{Revenue Passenger – Kilometres}$$

The **RPK** was projected using the forecasted CAGR by Boeing for each region of operations. **Passenger Yields** were projected using the forecasted CAGR [2023-2042] from JADC (Appendix 10.2). The revenue from network airlines is expected to grow from **€27,151m to €31,892m in the 2023-29F period**. This growth is driven by the increase of RPK as a consequence of higher expected demand and, despite the negative effect of the reduction of passenger yields, the revenues are expected to grow at **2.72% CAGR** in the forecasted period.

### Air freight

The revenues for Logistics Segment were also projected by region of operations and considering the profitability drivers as: **1) Cargo Load-Factor** and **2) Cargo Yields**.

Projected cargo revenues are shown in **Figure 43** and are resulting from the following formula:

$$\text{Cargo Traffic Revenue} = \text{Cargo Yield (RRTK)} * \text{Revenue Tonne – Kilometres (RTK)}$$

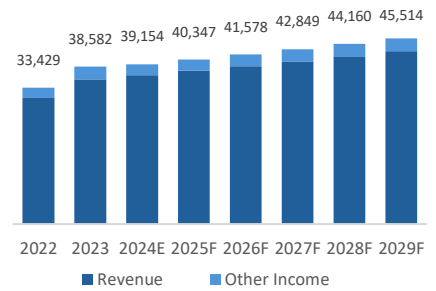
The **Revenue Tonne-Kilometres (RTK)** and **Cargo Yields** were projected for each region using a forecasted CAGR [2024-2042] by JADC (Appendix 10.2).

Similarly to the passengers' segment, the freight revenues growth is driven by the solid increase in RTK. Revenues from this segment are expected to increase at a **1.97% CAGR** in the forecasted period, even against the effect of the declining cargo yield.

### MRO services

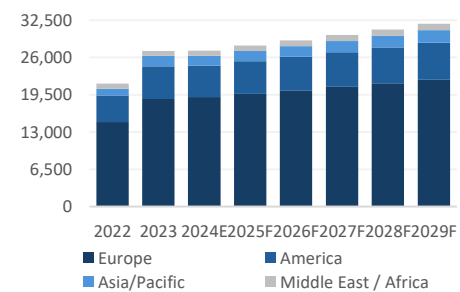
The MRO segment revenues were computed in two parts. One part of revenues of Lufthansa Technik comes from internal Clients (**circa 30% of the revenues**) and the other part comes from services provided to external Clients. When analyzing the results of the past years, it

**Figure 39: Consolidated Revenue and Other Income (€m)**



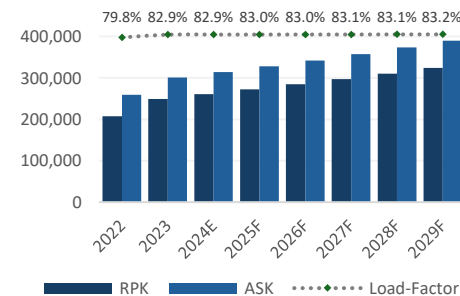
Source: Company Data & Author Analysis

**Figure 40: Network Airlines Revenue by Region (€m)**



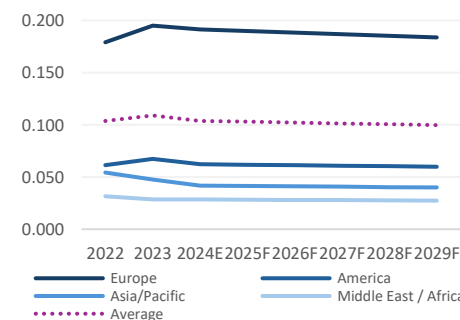
Source: Company Data & Author Analysis

**Figure 41: Forecasted Traffic Figures highlights (m)**



Source: Company Data & Author Analysis

**Figure 42: RRPK or Passenger yields**



Source: Company Data & Author Analysis

was noted that the internal revenue is closely related to the company's traffic revenues, stably representing around **7.5%** of those values over the years. From 2024E onwards, it was assumed that internal MRO revenue is going to represent **7.5%** of projected Traffic Revenues.

The external MRO revenue was forecasted taking into consideration the past performance of the company on the market and based on the assumption that Lufthansa Technik will have a stable market share of **5.2%** on the global MRO market, as it did in the past.

The forecasts for Global MRO market from **Oliver Wyman** were employed and are presented in **Figure 44**. By that way, total MRO segment revenue is estimated to increase from **€4,389m** to **€5,660m** in the 2024-29F period, corresponding to **4.33% CAGR**.

### Other businesses and group functions

The smallest segment of the group is constituted by companies that are dedicated to aviation flight training, IT and other activities, not related to the core business. Their revenues are stable over the years and represent in average **4.8%** of the Traffic Revenues' value. The values for 2024F-2029F were forecasted based on the assumption that the revenue from this segment is going to stay stable over the years and represent **4.8%** of Traffic Revenues.

### Costs

#### Fuel Costs

In the past years, the oil prices had a significant increase as a consequence of the latest geopolitical events, inflation and also a reduced supply of jet fuel limited by global refining capacity after a sharp growth in demand explained by COVID-19 recovery.

Aware of that situation, the management of Lufthansa stated that the company is focused on replacing older generations of aircraft with modern and more efficient ones, that allow **fuel savings of up to 25%**. In addition to this, the company is also actively engaged in hedging activities in order to reduce the risk from the volatility of the fuel prices.

The **EIA's** projections for the jet fuel prices are however optimistic. It is expected that the refining capacity will soon meet the demand. For the forecasting period, fuel price predictions from EIA were employed (Appendix 11). The averages price for the next years are shown in **Figure 46**. According to their projections, the prices are expected to decline **YoY** at a **CAGR of -2.8%** up to 2029, reaching a value of **€0.64 / liter** or **€2.24 / gallon** in 2029.

The fuel consumption savings effect from replacing the old aircraft with new ones was also considered for the cost's projections (Appendix 11).

#### Other Raw Materials and Consumables

These are variable costs, and their amount is directly related to the company's activity levels. The values were projected as a fixed **% of Total Revenues**, please refer to **Appendix 10.3** for more details.

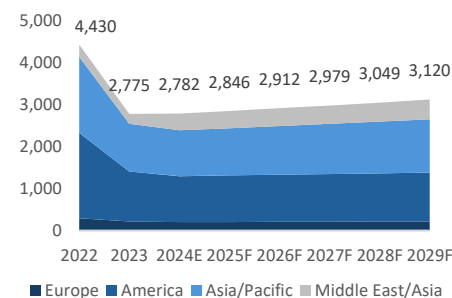
#### Staff Costs

The Company is experiencing temporary problems with its staff. Several strikes have been led by employees in the last years. The issues are related to low salaries and heavy workload. The heavy workload is indeed temporary as it is related to the struggle of the company to return to the normal operational capacity after COVID-19 as the increase in demand was much higher than the company expected, in the years of 2022 and 2023. The company plans to hire more staff in order to solve this issue and also to get ready for the further expected increase in demand.

Regarding the outcome of the strikes, it was accorded with 19 thousand employees, a 3-year salary increase plan with a total increase in base salary of 16.5%. These measures are an issue for the company as they lead to a sharp increase in costs. For the projected period, the Staff costs are going to increase at a **6.4% CAGR** in the 2023-2029F period, increasing from **€8,344m** to **€12,108m**.

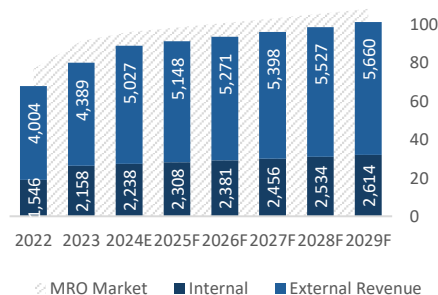
All these factors were considered for the projections – **Figure 47**.

**Figure 43: Lufthansa Cargo revenues by Region (€m)**



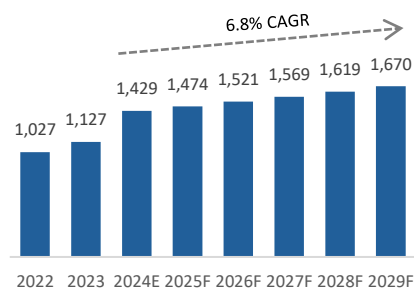
Source: Company Data & Author Analysis

**Figure 44: Lufthansa Technik Revenues (€m) and MRO Market size (€bn)**



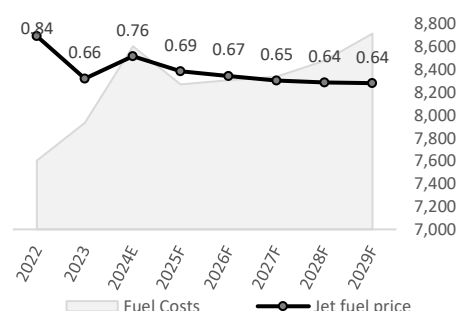
Source: Company Data & Author Analysis

**Figure 45: Other Businesses and Group functions revenues (€m)**



Source: Company Data & Author Analysis

**Figure 46: Fuel Costs (€m) and Jet Fuel Price (€/lt.)**



Source: Company Data & Author Analysis

### Services and Other Operating Expenses

The overwhelming majority of costs for services, materials and others are variable and their value depends on the company's activity levels. The forecasted costs were tied to the revenues of the business segments as a portion of these revenues (Appendix 10.3).

Among the Services costs, the most significant are the airports Fees & Charges, external MRO, Charter expenses and In-flight services. A significant rise in In-Flight expenses (**2.7% CAGR [2023-2029]**) is explained by the disposal of the group's Catering segment.

In general, Services costs are expected to increase at **1.9% CAGR [2023-2029]** and Other Expenses at **3.9% CAGR [2023-2029]**.

The summary of all operational expenses by category is shown in **Figure 48**. In total, they are expected to grow at **3.56% CAGR**, in the forecast period.

### Capital Expenditures

Capex projections were performed separately for Primary Investments, Secondary Investments and Financial Investments. The major amount goes to Primary Investments that include expenses with the fleet expansion. The forecasted value was computed considering expected deliveries of aircraft in the forecasting period. Secondary Investments' value was computed as a fixed % out of Total Revenues as their historical values showed a linear relationship. Projections for Capex are presented in **Figure 49**. A significant amount of Capex is expected in 2027 and 2028. The higher value of expenditure is justified by the fact that 45 and 44 new aircraft will be delivered in those years, respectively. The number of deliveries for the rest of the year is significantly lower (please refer to **Appendix 24**).

### WACC rate assumptions

FCFF were discounted using WACC rate (**Appendix 20**) which was derived by the following formula:

$$WACC = \left( Re * \frac{E}{V} \right) + \left( Rd * \frac{D}{V} * (1 - T) \right)$$

The cost of debt was assumed to be equal to the average **YTM** of the two last issued coupon bonds in May 2024 (2 bonds, one with coupon of **4.13%** and the other with **3.63%** - Appendix 21).

The first bond has a current price of **101.6€**, coupon rate of **4.13%**, 6 years to maturity, and a face value of **100€**. The second bond has a current price of **100.78€**, coupon rate of **3.63%**, 8 years to maturity and a face value of **99.6€**. The resulting yields-to-maturity are **3.89%** and **3.467%** respectively.

The cost of equity of **8.69%** was computed using the CAPM model where RFR is assumed to be equal to the yield of the German Government 10 Years Bond, whose value is **2.17%** and the ERP was assumed to be equal to the average market return on equity in Germany (Damodaran data): **4.12%** (**Appendix 10.1**).

A beta of **1.58** was computed using the regression model with the Deutsche Lufthansa stock's monthly returns against the monthly returns of the STOXX Europe 600 index. The resulting value is fairly aligned with the risk profile of the group. It was decided to use STOXX 600, as the majority of the company's returns are from the European segment.

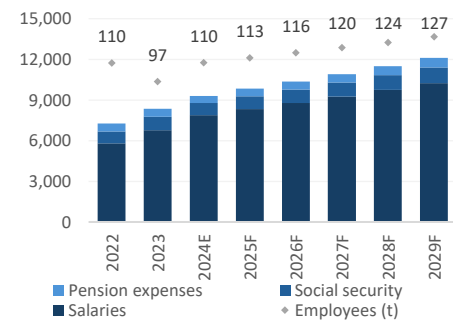
For the tax rate, the historical average effective tax rate of **20,9%** was employed. A target capital structure of 60% Equity and 40% Debt was considered and by that way, the terminal WACC rate results from the following:

$$Terminal\ WACC = (0.0869 * 0.6) + (0.0368 * 0.4 * (1 - 0.209)) = 6.38\%$$

### Long-term growth rate

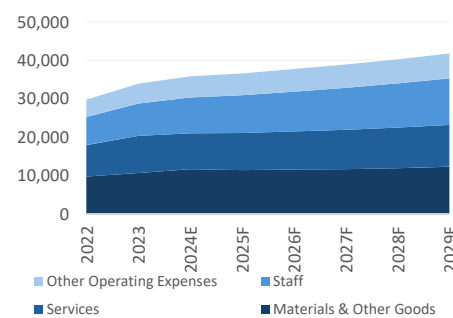
A sustainable long-term growth rate was computed and adjusted with the fisher's formula, assuming expected inflation of 2%. The resulting growth rate of **2.2%** was then used to determine the terminal value. The resulting **sustainable long-run growth rate** is suitable for Deutsche Lufthansa as the company is in its mature stage that operates in a highly competitive

**Figure 47: Staff Costs (€m) and Qty. of employees (thousands)**



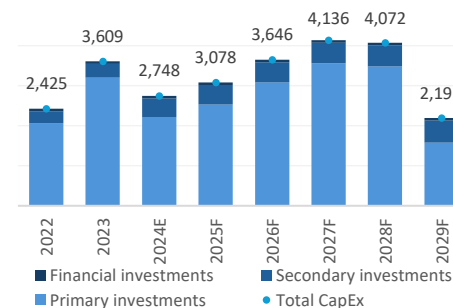
Source: Company Data & Author Analysis

**Figure 48: Expenses by Category (€m)**



Source: Company Data & Author Analysis

**Figure 49: Capital Expenditures (€m)**



Source: Company Data & Author Analysis

industry, the long-term growth rate couldn't be high and it's between the expected inflation rate and GDP growth rate.

## Relative Valuation – Multiples approach

In addition to DCF valuation method, a market-based approach was performed to evaluate the company by comparing it to similar firms in the industry. The comparative analysis was conducted using trailing twelve-month (TTM) financial metrics to ensure comparability and consistency.

**Peer group selection:** the selection of peer companies was based on Refinitiv Eikon results, ensuring that the comparison includes only the industry-relevant benchmarks. The identified peer companies are shown in **Table 8** as well as their current value.

**Valuation Multiples:** Price and Enterprise Value (EV) multiples were employed to derive valuation estimates. The price resulting from each multiple is summarized in **Figure 50**.

### Results:

- **TTM Price multiples** yielded target share prices between **€10.17 /Sh.** and **€17.32 /Sh.**,
- **TTM EV multiples** produced Target Prices between **€6.33 /Sh.** and **€13.98 /Sh.**

The average Price multiples equal to **€13.6 /Sh.**, and the average Target Price from EV multiples equals **€9 /Sh.** The Price Target resulting from the primary model, **€8.26 /Sh.**, lies significantly below the average Price multiples and slightly below the EV Multiples.

The results demonstrate a significant dispersion in the valuation, reflecting the limitations of the market-based approach, as it provides a quick benchmark and relies on the past performance. These values seem overvalued for Lufthansa as this kind of valuation doesn't consider the future projections for the Company. Another aspect that is possibly not being correctly reflected in the market-based valuation is the market volatility and Industry-Specific Challenges. Considering this fact, **MBV** was not considered relevant for Deutsche Lufthansa's valuation.

## Other methodologies

Residual Income (RI) Valuation approach was performed to estimate the intrinsic value of Deutsche Lufthansa's share value. As it is not expected that the Company is going to pay any dividends in the coming years, it was considered suitable to use this method as a complementary analysis for the main valuation method.

RI provided 2025YE **€7.57 /Sh.** PT. It is important to take into consideration that this model relies on accounting data, the resulting share price may be biased as it doesn't consider market reality. The investment recommendation would be **HOLD** as the annualized upside potential equals **10.07%**.

Additionally, APV was also determined (Appendix 15), with a resulting 2025YE **Price Target** of **€7.31 /Sh.** which is a bit inconsistent with the Price Target determined at the main model (FCFF) and would correspond to a total upside potential of **8.89%** with annualized returns of **7.05%** that correspond to a **REDUCE** investment recommendation.

**FCFE:** the Price Target of **€4.54 /Sh.** was determined by discounting the Cash Flows considering the Cost of Equity (Appendix 16). The investment recommendation, according to FCFE methodology, would be downgraded to **SELL**.

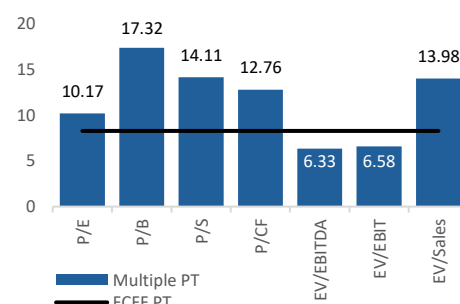
The resulting value is inconsistent with the FCFF result. The difference between the Prices can be explained by the discount rate. The cost of equity of Lufthansa is higher than the cost of debt, and consequently the FCFE was discounted at a higher rate, resulting in lower share price, which does not reflect the reality of the company as there is a predominance of debt over equity on its capital structure.

**Table 8:** Peers highlights

Ticker	Company	Market Cap (€m)	Share P.
EZJ.L	Easyjet PLC	4,858	6.25
AF.PA	Air France KLM SA	2,448	9.32
WIZZ.L	Wizz Air Holdings PLC	1,881	18.20
IAG.L	International Consolidated Airlines Group SA	12,467	2.53
DPW.DE	Deutsche Post AG	46,200	40.53
FRA.DE	Fraport Frankfurt Airport Services Worldwide AG	4,670	50.55
RYA.L	Ryanair Holdings PLC	18,539	16.34
<b>Average</b>			<b>20.53</b>

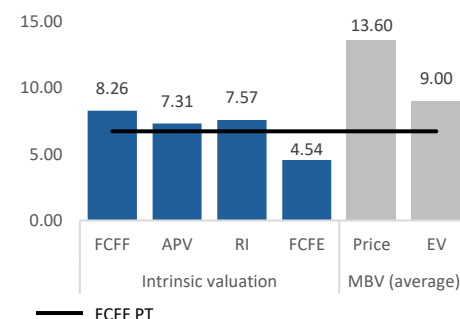
**Source:** Yahoo Finance & Author Analysis

**Figure 50:** Price Target (€/Sh.) by Multiple



**Source:** Author Analysis

**Figure 51:** Valuation Price Targets (€/Sh.)



**Source:** Author Analysis

# 7. Financial Analysis

## Revenues

Deutsche Lufthansa is expected to generate a robust revenue growth from 2024F to 2029F, with a CAGR of **3.0%** (please refer to **Figure 39**). This growth is explained by the increase in the global demand for air transport predicted by agencies for the next years, and also, as a consequence, the growth of the aviation MRO market, in which the Lufthansa Technik has a considerable market slice that will provide a **4.3% CAGR** in growth of revenues on that segment. In the other hand, the Logistics segment is not expected to grow at the same pace as in recent years. The air freight revenues are going to grow at a CAGR of **2.0%**, which is explained by a decrease in cargo yields and slower growth of demand (**Appendix 10.2**).

## Profitability

The profitability prospects are presented in **Figure 52** and **Figure 53**. By analyzing the forecasted ratios, it is possible to conclude that the overall profitability is expected to be lower than in the years before the COVID-19 crisis. The reason for the decrease in the company's profitability lies in the overall increase in the operational costs, especially in the fuel costs and staff costs. By that way, in **2029F** the **operating margin** and **net profit margin** are expected to reach **3.3%** and **1.6%** respectively. **ROA** and **ROE** are also expected to decline from **4.3%** and **20%** in 2023, to **1.3%** and **4.8%** respectively, in 2029F.

## Liquidity

The Liquidity position of Deutsche Lufthansa is going to enhance through the years, which is positive, considering the fact that the airline industry is capital-intensive and has high operational costs. The values presented in **Figure 54** show the improvement of the main cash ratios of the company in the period from 2024F to 2029F, reaching values close to 1.0 in case of Current Ratio and Quick Ratio.

## Financial Leverage

It is not expected that the capital structure of the company will have a **significant** change during the forecasting period.

The **Debt-to-Equity** ratio will slightly change over the years, reaching **2.81** by **2029F**. The debt portion is expected to decrease from **0.79** in **2023** to **0.74** in **2029F** and the equity portion to increase from **0.21** to **0.26** in the same period (Figure 54). The capital structure of the company has been changing over the years, the weight of debt has been decreasing and for valuation purposes it was assumed targets of 40% Debt and 60 Equity.

**Interest coverage:** the interest coverage is expected to decline from 2024F to 2029F, reaching **1.99** by the end of the forecasted schedule. The reason for that is the decline in the profitability margins of the company and the increase in the interest expenses because of higher debt.

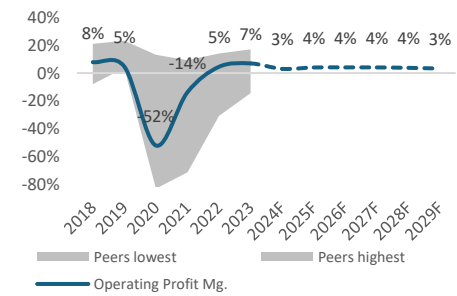
## Industry Ratios

The values that are presented in **Appendix 6** show that a decrease in yields from passenger transportation and also cargo transportation is expected. The decrease in passenger yields is mainly explained by the growth of the market presence and share of the LCC's and also operational improvements in overall industry. As for Cargo Yields, the decrease in the yields is mainly explained by intense competition in the market and also overcapacity in the Air Cargo Market.

However, despite the decrease in yields, the crucial profitability drivers like **RPK** and **RTK** are expected to grow over the forecast period as well as the load factors as was shown previously.

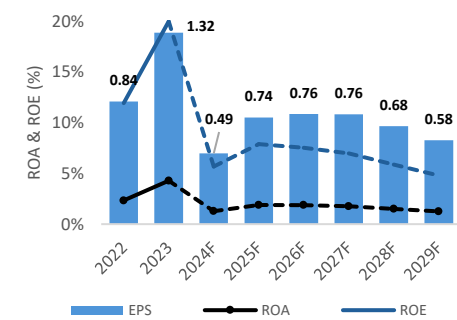
**CASK** is expected to reduce at **-0.99% CAGR** [2023-2029F]. This is explained mainly by the increase in available capacity and enhanced cost efficiency arising from the modernized fleet (**Appendix 22, chart 3**).

**Figure 52: Deutsche Lufthansa's and Peers Operating Profit Mg.**



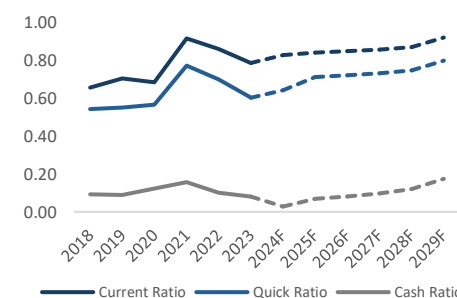
**Source: Company Data & Author Analysis**

**Figure 53: Deutsche Lufthansa's Profitability ratios**



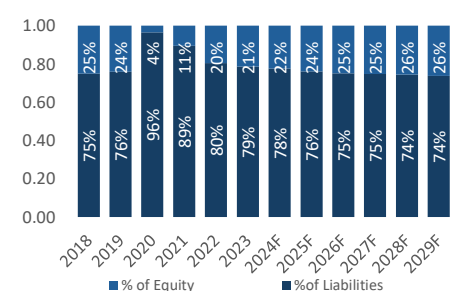
**Source: Company Data & Author Analysis**

**Figure 54: Deutsche Lufthansa's Liquidity ratios**



**Source: Company Data & Author Analysis**

**Figure 55: Deutsche Lufthansa's capital structure (book values)**



**Source: Company Data & Author Analysis**

## 8. Investment risks

Deutsche Lufthansa operates in a highly competitive and cyclical industry. It is strongly dependent on the state of the economy and its indicators. The market variables such as inflation, GDP growth, commodity prices, geopolitical environment and regulations are correlated with demand for air transport and consequently have an impact on airlines revenues. The company was identified as a **high-risk** investment, and the reasons for that are presented below.

### Market Risks

**(1) Petrol prices volatility:** One of the biggest market risks that the aviation industry faces are the petrol prices volatility since the fuel has a big weight in its cost structure. In Lufthansa, fuel costs represent **22%** of its total operational expenses and **22.3%** of Revenues, in 2023. Sharp increase in oil prices will lead to an increase in jet fuel prices and consequently significantly reduce the profitability of the company. Considering that, it was estimated that a change in **+1.6%** of the Long-Term **Jet Fuel Price** would reduce the company's **EV** by approximately **10%**. By that way, the investment recommendation would change to **SELL**. For more details, please refer to **Appendix 13.4**.

Although, the companies seek to reduce these effects through hedging strategies with derivative instruments.

**(2) World GDP decrease:** Since the growth of this industry is closely related to the growth of an economy as a whole, the economic recession will lead to impoverishment of the population and, consequently, a decrease in the flow of travelling people that will directly impact the revenues of the airlines. Decrease or stagnation of the GDP would directly affect the key profitability driver - the Passenger Yield, that will consequently lead to a decrease of the Traffic Revenues (Appendix 14).

**(3) Low-cost airlines:** Low-cost airlines could capture market share more than expected. As the Lufthansa is not a low-cost carrier, it may face issues in competing with low-cost airlines through the ticket pricing, which would directly affect the Passenger Yields.

### Political Risks

**(4) Geopolitics:** recently, several local conflicts between countries have begun to flare up in different parts of the world and have already negatively affected the activity of the airlines for some routes. The most problematic are the countries located in the Middle East. It looked feasible to assess the impact of the development of this market on the value of the company. For details of the analysis, please refer to **Appendix 13.5**.

### Regulatory and Environmental Risks

**(5) Industry regulations:** changes in government policies related to aviation safety, security and environmental standards can impact on an airline and require additional unexpected expenditures to comply with all standards and regulations.

Some of the environmental regulations may be changed due to unpredictable climate changes and require operational adjustments on the part of the companies.

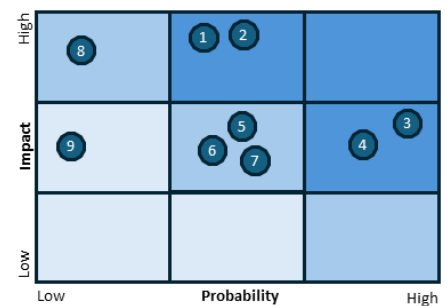
### Operational Risks

**(6) Airport operations:** airlines operational efficiency is dependent on the airports that provide ground handling services for refueling, catering, maintenance, baggage handling and others. Operational failures on the part of airports can affect flights schedules.

**(7) Employees strikes:** another sore point in the company is related to issues with staff. Several strikes were performed by its employees, that affected not only the daily operations of the company but also its ESG rankings in Social and Controversies scores. By now, the situation has been solved through a three-year agreement on salary increases, but more protest actions may take place after the expiration of the agreed period.

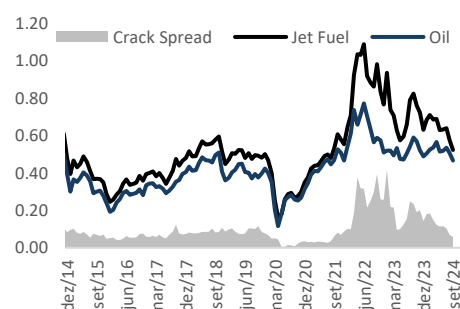
**(8) Aircraft and Maintenance:** airlines are required to undergo many types of maintenance and inspections on their aircraft. Failures of these inspections may lead to unexpected

Figure 56: Risk Matrix



Source: Author Analysis

Figure 57: Jet Fuel & Crack Spread (€/l)



Source: EIA & Author Analysis

expenses to get planes back to operations and also lead to flight delays or cancellations, exposing the company to regulatory fines and compensation payments to the passengers. Furthermore, another issue may come from the aircraft manufacturers in the form of problematic engines or models of aircraft like have been happening with Boeing in the last months.

**(9) Weather:** another point to take into consideration is the weather conditions that may suspend flight operations in some regions, blocking several routes. The weather conditions in question can go from thunder that can cause flight delays for several hours or days to volcanic eruptions that may last for weeks, although it is quite a rare occurrence.

## Sensitivity & Scenario Analysis

Sensitivity analysis was performed in order to visualize the impact of the changes in variables such as **WACC, long-run sustainable growth rate, RPK and Passenger Yield** in the Target Price.

In the base case, the long-run sustainable growth rate is fixed at **2.2%**. According to data from **Figure 59**, Target Price has a positive relationship with the growth rate.

In the case of WACC, the situation is different. The base case scenario considers a fixed target rate of **6.38%**. The relationship between Price Target and WACC is negative and as WACC increases, the Price Target decreases (Appendix 13.2).

Target Price sensitivities to profitability drivers such as Passenger Yields and RPK are displayed in **Table 9**.

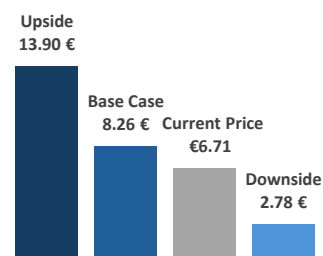
**Scenario Analysis:** As there are certain events that can have a significant impact on the profitability metrics, **Upside** and **Downside** scenarios were considered for the analysis of those impacts. The hypothetical circumstances that can lead to each of the scenarios are described in detail in the **Appendix 14**.

Taking into account the factors described in **Appendix 14**, the upside scenario considers **i) Lower Jet Fuel Prices, ii) Lower decrease in Passenger Yields and iii) Higher long-run sustainable growth rate**. In turn, the downside scenarios assume: **i) Higher Jet Fuel Prices, ii) Higher decrease rate in Passenger Yields and iii) Lower long-run sustainable growth rate**.

### Scenarios outputs:

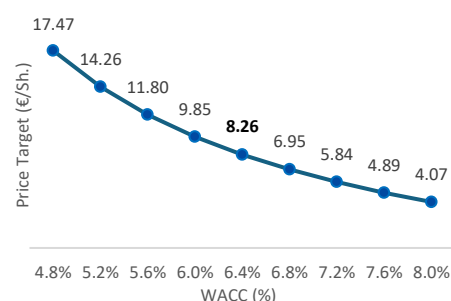
**Upside** scenario leads to a 2025F Price Target of **€13.90/Sh.** (STRONG BUY recommendation), and **Downside** scenario yields a Price Target of **€2.78/Sh.** (SELL recommendation) (**Figure 58**).

**Figure 58:** Price Target /Sh. - scenarios



Source: Author Analysis

**Figure 59:** Sensitivity of Price Target to WACC



Source: Author Analysis

**Table 9:** Price Target sensitivity to Key Profitability Drivers

		Price Target sensitivity to Passenger Yield and RPK growth rate											
		Passenger Yield [Average]											
		0.0987	0.0989	0.0991	0.0993	0.0995	0.0997	0.0999	0.1001	0.1003	0.1005	0.1007	
		%Ch.	-1.80%	-1.60%	-1.40%	-1.20%	-1.00%	-0.80%	-0.60%	-0.40%	-0.20%	0.00%	0.20%
RPK growth rate [Average]	4.62%	-5%	1.67	2.65	3.64	4.64	5.65	6.68	7.72	8.78	9.85	10.94	12.04
	4.67%	-4%	1.97	2.95	3.94	4.95	5.96	7.00	8.04	9.10	10.18	11.27	12.38
	4.72%	-3%	2.27	3.25	4.25	5.25	6.28	7.31	8.36	9.43	10.51	11.61	12.72
	4.77%	-2%	2.56	3.55	4.55	5.56	6.59	7.63	8.68	9.75	10.84	11.94	13.06
	4.82%	-1%	2.86	3.85	4.86	5.87	6.90	7.95	9.00	10.08	11.17	12.28	13.41
	4.87%	0	3.16	4.16	5.16	6.18	7.22	8.26	9.33	10.41	11.50	12.62	13.75
	4.92%	+1%	3.46	4.46	5.47	6.49	7.53	8.58	9.65	10.74	11.84	12.96	14.09
	4.96%	+2%	3.76	4.76	5.78	6.80	7.85	8.90	9.98	11.07	12.17	13.30	14.44
	5.01%	+3%	4.06	5.07	6.08	7.12	8.16	9.23	10.30	11.40	12.51	13.64	14.79
	5.06%	+4%	4.36	5.37	6.39	7.43	8.48	9.55	10.63	11.73	12.85	13.98	15.14
5.11%	+5%	4.67	5.68	6.70	7.75	8.80	9.87	10.96	12.06	13.19	14.33	15.48	

Source: Author Analysis



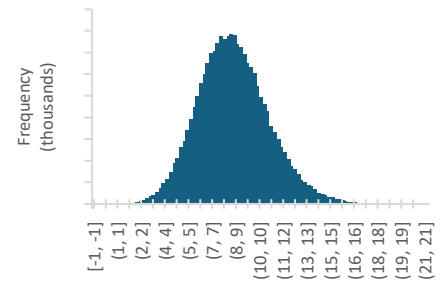
## Monte Carlo Simulation

Monte Carlo Simulation was performed in order to assess the changes of Price Target by stressing simultaneously such variables as: **i) Terminal WACC**, **ii) Long-run sustainable growth rate** and **iii) Long-term Jet Fuel Price**.

Based on the results of 100 thousand trials, it reached a mean value of **€8.41/Sh.** and median value of **€8.30/Sh. (Table 10)**, with a **standard deviation of 2.3**.

In terms of probabilities of the distribution, there is a **53.9% BUY** recommendation, **34.4%** probability of a **SELL/REDUCE** and **11.7% HOLD**, considering that the risk in investing in Deutsche Lufthansa is **High**.

**Figure 60:** Monte Carlo Simulation



**Source:** Author Analysis

**Table 10:** Monte Carlo statistics

Indicator	Amount
Trials	100,000
<b>Mean</b>	<b>8.41</b>
Median	8.30
St. Deviation	2.3
10th Percentile	5.54
90th Percentile	11.41
<b>Base Case</b>	<b>8.26</b>

**Source:** Author Analysis

# 9. Appendices

## Appendix 1: Statement of Financial Position

Statement of Financial Position in €m	Act 2018	Act 2019	Act 2020	Act 2021	Act 2022	Act 2023	E 2024	FC 2025	FC 2026	FC 2027	FC 2028	FC 2029
<b>Assets</b>	<b>38,213</b>	<b>42,659</b>	<b>39,484</b>	<b>42,538</b>	<b>43,335</b>	<b>45,321</b>	<b>45,851</b>	<b>46,639</b>	<b>48,660</b>	<b>51,296</b>	<b>54,006</b>	<b>55,208</b>
<b>i Current Assets</b>	<b>10,654</b>	<b>11,285</b>	<b>10,040</b>	<b>13,475</b>	<b>15,255</b>	<b>15,549</b>	<b>15,500</b>	<b>15,310</b>	<b>15,798</b>	<b>16,379</b>	<b>17,144</b>	<b>18,551</b>
Cash	1,500	1,415	1,806	2,307	1,784	1,590	525	1,253	1,511	1,857	2,371	3,512
Securities	1,735	1,970	3,654	5,359	6,511	6,400	6,451	6,502	6,553	6,604	6,655	6,706
Other Investments	357	459	260	542	867	712	437	437	437	437	437	437
Receivables	5,576	5,417	2,843	3,686	4,102	3,923	5,051	5,205	5,364	5,528	5,697	5,872
Inventory	968	980	726	675	812	961	1,059	1,038	1,050	1,062	1,084	1,115
Other Current Assets	518	1,044	751	906	1,179	1,963	1,977	876	884	892	900	909
<b>ii Non-Current Assets</b>	<b>27,559</b>	<b>31,374</b>	<b>29,444</b>	<b>29,063</b>	<b>28,080</b>	<b>29,772</b>	<b>30,351</b>	<b>31,328</b>	<b>32,862</b>	<b>34,917</b>	<b>36,862</b>	<b>36,658</b>
Aircraft and Engines	16,776	18,349	15,842	15,318	15,890	17,464	17,911	18,660	19,947	21,676	23,295	23,014
Repairable Parts	2,133	2,270	1,823	1,847	2,034	2,448	2,448	2,616	2,796	3,038	3,265	3,226
PP&E	2,221	4,041	3,671	3,354	3,331	2,913	2,918	2,934	2,962	3,002	3,055	3,120
Intangible	1,893	1,942	1,638	1,608	1,428	1,355	1,361	1,370	1,381	1,396	1,414	1,435
Deferred Tax Assets	2,131	2,268	4,833	4,661	2,928	3,059	3,059	3,059	3,059	3,059	3,059	3,059
Loans, receivables and other	640	617	565	664	684	1,156	1,156	1,156	1,156	1,156	1,156	1,156
Long-term Investments	1,765	1,887	1,072	1,611	1,785	1,377	1,498	1,535	1,562	1,589	1,618	1,647
<b>Liabilities</b>	<b>28,640</b>	<b>32,403</b>	<b>38,097</b>	<b>38,048</b>	<b>34,861</b>	<b>35,612</b>	<b>35,558</b>	<b>35,466</b>	<b>36,580</b>	<b>38,311</b>	<b>40,212</b>	<b>40,722</b>
<b>iii Current Liabilities</b>	<b>16,215</b>	<b>15,986</b>	<b>14,659</b>	<b>14,682</b>	<b>17,708</b>	<b>19,750</b>	<b>18,702</b>	<b>18,183</b>	<b>18,593</b>	<b>19,096</b>	<b>19,683</b>	<b>20,123</b>
Accounts Payable	5,720	5,351	3,321	4,186	5,660	5,905	6,452	6,320	6,393	6,465	6,600	6,790
Borrowings	1,677	1,634	3,116	1,629	1,881	2,888	1,939	1,979	2,065	2,237	2,422	2,396
Provisions	894	794	831	1,255	872	876	876	876	876	876	876	876
Advance payments & deferred income	388	382	1,295	648	681	722	811	835	861	887	914	942
Unused flight documents	3,969	4,071	2,064	3,340	4,898	4,981	4,233	4,366	4,504	4,646	4,793	4,945
Other Current Liabilities	3,567	3,754	4,032	3,624	3,716	4,378	4,392	3,807	3,894	3,984	4,078	4,174
<b>iv Non-Current Liabilities</b>	<b>12,425</b>	<b>16,417</b>	<b>23,438</b>	<b>23,366</b>	<b>17,153</b>	<b>15,862</b>	<b>16,856</b>	<b>17,283</b>	<b>17,987</b>	<b>19,215</b>	<b>20,529</b>	<b>20,598</b>
Long-Term Borrowings	5,008	8,396	12,252	15,041	13,270	11,055	11,570	11,807	12,320	13,348	14,452	14,299
Pension Provisions	5,865	6,659	9,531	6,676	2,069	2,895	3,372	3,562	3,752	3,953	4,164	4,385
Other Provisions	537	490	558	703	757	764	764	764	764	764	764	764
Advance payments & deferred income	51	32	33	30	44	67	67	67	67	67	67	67
Deferred Tax Liabilities	583	611	485	529	517	505	505	505	505	505	505	505
Other non-current Liabilities	381	229	579	387	496	576	578	578	578	578	578	578
<b>Equity</b>												
<b>v Shareholders' equity</b>	<b>9,573</b>	<b>10,256</b>	<b>1,387</b>	<b>4,490</b>	<b>8,474</b>	<b>9,709</b>	<b>10,293</b>	<b>11,173</b>	<b>12,081</b>	<b>12,985</b>	<b>13,794</b>	<b>14,487</b>
Issued Capital	1,217	1,224	1,530	3,060	3,060	3,063	3,063	3,063	3,063	3,063	3,063	3,063
Capital Reserve	343	378	378	956	252	258	258	258	258	258	258	258
Other Neutral Reserves	1,185	1,715	1,296	2,134	2,234	2,151	2,151	2,151	2,151	2,151	2,151	2,151
Net Income	2,163	1,213	(6,725)	(2,191)	791	1,673	584	880	908	904	809	693
Retained Earnings	4,555	5,617	4,868	491	2,068	2,514	4,187	4,771	5,651	6,559	7,463	8,272
Non-controlling Interests	110	109	40	40	69	50	50	50	50	50	50	50
<b>Total Equity and Liabilities</b>	<b>38,213</b>	<b>42,659</b>	<b>39,484</b>	<b>42,538</b>	<b>43,335</b>	<b>45,321</b>	<b>45,851</b>	<b>46,639</b>	<b>48,660</b>	<b>51,296</b>	<b>54,006</b>	<b>55,208</b>

Source: Company Data & Author Analysis

## Appendix 2: Income Statement

Income Statement in €m	Act 2018	Act 2019	Act 2020	Act 2021	Act 2022	Act 2023	E 2024	FC 2025	FC 2026	FC 2027	FC 2028	FC 2029	CAGR [2023- 2029]
<b>Revenue</b>	<b>35,542</b>	<b>36,424</b>	<b>13,589</b>	<b>16,811</b>	<b>30,895</b>	<b>35,442</b>	<b>36,427</b>	<b>37,536</b>	<b>38,681</b>	<b>39,863</b>	<b>41,083</b>	<b>42,342</b>	<b>3.01%</b>
<b>Traffic Revenue</b>	<b>27,801</b>	<b>28,136</b>	<b>9,078</b>	<b>11,876</b>	<b>25,864</b>	<b>29,926</b>	<b>29,971</b>	<b>30,914</b>	<b>31,889</b>	<b>32,897</b>	<b>33,937</b>	<b>35,012</b>	<b>2.65%</b>
Airlines	25,251	25,818	6,482	8,232	21,434	27,151	27,188	28,068	28,977	29,917	30,888	31,892	2.72%
Logistics	2,550	2,318	2,596	3,644	4,430	2,775	2,782	2,846	2,912	2,979	3,049	3,120	1.97%
<b>Other Revenue</b>	<b>7,741</b>	<b>8,288</b>	<b>4,511</b>	<b>4,935</b>	<b>5,031</b>	<b>5,516</b>	<b>6,456</b>	<b>6,622</b>	<b>6,792</b>	<b>6,967</b>	<b>7,146</b>	<b>7,330</b>	<b>4.85%</b>
MRO	3,927	4,378	2,724	3,117	4,004	4,389	5,027	5,148	5,271	5,398	5,527	5,660	4.33%
Other	3,814	3,910	1,787	1,818	1,027	1,127	1,429	1,474	1,521	1,569	1,619	1,670	6.77%
<b>Other Income</b>	<b>2,349</b>	<b>2,574</b>	<b>2,072</b>	<b>1,711</b>	<b>2,534</b>	<b>3,140</b>	<b>2,727</b>	<b>2,811</b>	<b>2,897</b>	<b>2,986</b>	<b>3,077</b>	<b>3,172</b>	<b>0.17%</b>
<b>Total Income</b>	<b>37,891</b>	<b>38,998</b>	<b>15,661</b>	<b>18,522</b>	<b>33,429</b>	<b>38,582</b>	<b>39,154</b>	<b>40,347</b>	<b>41,578</b>	<b>42,849</b>	<b>44,160</b>	<b>45,514</b>	<b>2.79%</b>
<b>Costs</b>	<b>35,091</b>	<b>37,309</b>	<b>22,750</b>	<b>20,840</b>	<b>32,033</b>	<b>36,126</b>	<b>38,049</b>	<b>38,833</b>	<b>40,001</b>	<b>41,230</b>	<b>42,618</b>	<b>44,127</b>	<b>3.39%</b>
Materials & Other Goods	9,683	10,816	4,205	4,163	9,785	10,660	11,697	11,459	11,590	11,721	11,965	12,310	2.43%
Services	8,684	9,011	4,248	4,783	8,188	9,718	9,321	9,615	9,918	10,232	10,556	10,891	1.92%
Staff	8,811	9,121	6,436	6,328	7,277	8,344	9,310	9,835	10,361	10,914	11,496	12,108	6.40%
Other Expenses	5,708	5,585	3,472	3,215	4,538	5,162	5,483	5,671	5,863	6,062	6,269	6,483	3.87%
Depreciations & Amortizations	2,205	2,776	4,389	2,351	2,245	2,242	2,239	2,254	2,268	2,300	2,332	2,334	0.68%
<b>EBIT (unadjusted)</b>	<b>2,800</b>	<b>1,689</b>	<b>(7,089)</b>	<b>(2,318)</b>	<b>1,396</b>	<b>2,456</b>	<b>1,105</b>	<b>1,514</b>	<b>1,577</b>	<b>1,619</b>	<b>1,542</b>	<b>1,387</b>	<b>-9.09%</b>
Interest Income	68	79	83	(6)	68	245	116	116	116	116	116	116	-11.66%
Interest Expense	(212)	(394)	(417)	(435)	(477)	(593)	(561)	(576)	(601)	(648)	(698)	(698)	2.75%
Other financial items	128	486	(1,208)	153	262	209	118	118	118	118	118	118	-9.05%
<b>EBT</b>	<b>2,784</b>	<b>1,860</b>	<b>(8,631)</b>	<b>(2,606)</b>	<b>1,249</b>	<b>2,317</b>	<b>778</b>	<b>1,173</b>	<b>1,211</b>	<b>1,206</b>	<b>1,078</b>	<b>924</b>	<b>-14.21%</b>
Tax	(588)	(615)	1,865	413	(239)	(380)	(195)	(293)	(303)	(301)	(270)	(231)	-7.97%
<b>Net-Income</b>	<b>2,196</b>	<b>1,245</b>	<b>(6,766)</b>	<b>(2,193)</b>	<b>1,010</b>	<b>1,937</b>	<b>584</b>	<b>880</b>	<b>908</b>	<b>904</b>	<b>809</b>	<b>693</b>	<b>-15.75%</b>

Source: Company Data & Author Analysis

## Appendix 3.1: Detailed Income Statement (1/2)

Income Statement: Detailed (1/2) in €m	Act 2018	Act 2019	Act 2020	Act 2021	Act 2022	Act 2023	E 2024	FC 2025	FC 2026	FC 2027	FC 2028	FC 2029	CAGR [2023- 2029]
<b>Revenue</b>	<b>35,542</b>	<b>36,424</b>	<b>13,589</b>	<b>16,811</b>	<b>30,895</b>	<b>35,442</b>	<b>36,427</b>	<b>37,536</b>	<b>38,681</b>	<b>39,863</b>	<b>41,083</b>	<b>42,342</b>	<b>3.01%</b>
<b>Traffic Revenue</b>	<b>27,801</b>	<b>28,136</b>	<b>9,078</b>	<b>11,876</b>	<b>25,864</b>	<b>29,926</b>	<b>29,971</b>	<b>30,914</b>	<b>31,889</b>	<b>32,897</b>	<b>33,937</b>	<b>35,012</b>	<b>2.65%</b>
<b>Passengers Traffic Revenue</b>	<b>25,251</b>	<b>25,818</b>	<b>6,482</b>	<b>8,232</b>	<b>21,434</b>	<b>27,151</b>	<b>27,188</b>	<b>28,068</b>	<b>28,977</b>	<b>29,917</b>	<b>30,888</b>	<b>31,892</b>	<b>2.72%</b>
Europe	-	-	-	-	14,768	18,778	19,114	19,682	20,266	20,868	21,488	22,126	<b>2.77%</b>
America	-	-	-	-	4,592	5,684	5,476	5,660	5,851	6,048	6,251	6,462	<b>2.16%</b>
Asia/Pacific	-	-	-	-	1,215	1,827	1,693	1,778	1,867	1,961	2,059	2,162	<b>2.85%</b>
Middle East / Africa	-	-	-	-	859	862	905	948	993	1,041	1,090	1,142	<b>4.80%</b>
<b>Cargo Traffic Revenue</b>	<b>2,550</b>	<b>2,318</b>	<b>2,596</b>	<b>3,644</b>	<b>4,430</b>	<b>2,775</b>	<b>2,782</b>	<b>2,846</b>	<b>2,912</b>	<b>2,979</b>	<b>3,049</b>	<b>3,120</b>	<b>1.97%</b>
Europe	198	189	185	236	294	219	201	205	209	213	217	222	<b>0.20%</b>
America	1,068	964	1,111	1,722	2,033	1,185	1,095	1,108	1,121	1,134	1,147	1,160	<b>-0.35%</b>
Asia/Pacific	1,107	949	1,171	1,451	1,808	1,137	1,091	1,124	1,159	1,194	1,230	1,268	<b>1.83%</b>
Middle East/Asia	177	216	129	235	295	234	395	409	424	439	454	470	<b>12.34%</b>
<b>Other Revenue</b>	<b>7,741</b>	<b>8,288</b>	<b>4,511</b>	<b>4,935</b>	<b>5,031</b>	<b>5,516</b>	<b>6,456</b>	<b>6,622</b>	<b>6,792</b>	<b>6,967</b>	<b>7,146</b>	<b>7,330</b>	<b>4.85%</b>
MRO Revenue	3,927	4,378	2,724	3,117	4,004	4,389	5,027	5,148	5,271	5,398	5,527	5,660	<b>4.33%</b>
Other Businesses Revenue	1,315	1,287	723	733	1,027	1,127	1,429	1,474	1,521	1,569	1,619	1,670	<b>6.77%</b>
Catering Revenue	2,499	2,623	1,064	1,085	0	0	0	0	0	0	0	0	<b>-</b>
<b>Other Income</b>	<b>2,349</b>	<b>2,574</b>	<b>2,072</b>	<b>1,711</b>	<b>2,534</b>	<b>3,140</b>	<b>2,727</b>	<b>2,811</b>	<b>2,897</b>	<b>2,986</b>	<b>3,077</b>	<b>3,172</b>	<b>0.17%</b>
Changes in inventories and work performed by entity and capitalized	531	685	175	109	354	727	341	351	362	374	386	398	<b>-9.56%</b>
Other operating income	1,818	1,889	1,897	1,602	2,180	2,413	2,387	2,459	2,534	2,612	2,692	2,774	<b>2.35%</b>
<b>Costs</b>	<b>35,091</b>	<b>37,309</b>	<b>22,750</b>	<b>20,840</b>	<b>32,033</b>	<b>36,126</b>	<b>38,049</b>	<b>38,833</b>	<b>40,001</b>	<b>41,230</b>	<b>42,618</b>	<b>44,127</b>	<b>3.39%</b>
<b>Fuel Costs</b>	<b>6,087</b>	<b>6,715</b>	<b>1,875</b>	<b>2,409</b>	<b>7,601</b>	<b>7,931</b>	<b>8,601</b>	<b>8,268</b>	<b>8,303</b>	<b>8,333</b>	<b>8,473</b>	<b>8,711</b>	<b>1.58%</b>
<b>Other Raw Materials and consumables</b>	<b>3,107</b>	<b>3,589</b>	<b>2,104</b>	<b>1,615</b>	<b>2,123</b>	<b>2,662</b>	<b>3,026</b>	<b>3,118</b>	<b>3,213</b>	<b>3,311</b>	<b>3,412</b>	<b>3,517</b>	<b>4.75%</b>
<b>Purchased Goods</b>	<b>489</b>	<b>512</b>	<b>226</b>	<b>139</b>	<b>61</b>	<b>67</b>	<b>70</b>	<b>73</b>	<b>75</b>	<b>77</b>	<b>79</b>	<b>82</b>	<b>3.39%</b>
<b>Services Cost</b>	<b>8,684</b>	<b>9,011</b>	<b>4,248</b>	<b>4,783</b>	<b>8,188</b>	<b>9,718</b>	<b>9,321</b>	<b>9,615</b>	<b>9,918</b>	<b>10,232</b>	<b>10,556</b>	<b>10,891</b>	<b>1.92%</b>
Fees & Charges	4,457	4,523	1,796	2,155	3,730	4,487	4,408	4,547	4,690	4,838	4,991	5,149	<b>2.3%</b>
Ext. MRO	1,848	1,911	1,139	1,181	1,756	2,104	1,797	1,854	1,912	1,973	2,035	2,100	<b>0.0%</b>
Charter expenses	717	814	469	409	855	878	782	807	833	860	888	917	<b>0.7%</b>
In-flight services	416	452	137	390	768	980	978	1,009	1,042	1,076	1,111	1,147	<b>2.7%</b>
External IT services	383	409	318	305	387	415	449	463	477	492	507	522	<b>3.9%</b>
Flight irregularities	216	199	66	51	224	271	173	179	184	190	197	203	<b>-4.7%</b>
Other services	647	703	323	292	468	583	733	756	779	802	827	852	<b>6.5%</b>
<b>Total Staff Costs</b>	<b>8,811</b>	<b>9,121</b>	<b>6,436</b>	<b>6,328</b>	<b>7,277</b>	<b>8,344</b>	<b>9,310</b>	<b>9,835</b>	<b>10,361</b>	<b>10,914</b>	<b>11,496</b>	<b>12,108</b>	<b>6.40%</b>
Wages and salaries	7,286	7,452	5,091	5,175	5,804	6,770	7,885	8,330	8,775	9,244	9,736	10,255	<b>7.2%</b>
Social security contributions	977	1,024	687	698	880	996	889	939	989	1,042	1,097	1,156	<b>2.5%</b>
Expenses for pension plans and other benefits	548	645	658	455	593	578	536	567	597	629	663	698	<b>3.2%</b>

Source: Company Data & Author Analysis

## Appendix 3.2: Detailed Income Statement (2/2)

Income Statement: Detailed (2/2) in €m	Act 2018	Act 2019	Act 2020	Act 2021	Act 2022	Act 2023	E 2024	FC 2025	FC 2026	FC 2027	FC 2028	FC 2029	CAGR [2023- 2029]
<b>Total Other Expenses</b>	<b>5,708</b>	<b>5,585</b>	<b>3,472</b>	<b>3,215</b>	<b>4,538</b>	<b>5,162</b>	<b>5,483</b>	<b>5,671</b>	<b>5,863</b>	<b>6,062</b>	<b>6,269</b>	<b>6,483</b>	<b>3.87%</b>
Foreign exchange losses	771	648	596	463	1,051	993	1,046	1,077	1,110	1,144	1,179	1,215	3.4%
Staff-related expenses	1,226	1,201	543	479	701	935	918	970	1,022	1,076	1,133	1,194	4.2%
Rental and maintenance expenses	923	742	603	531	510	617	618	637	656	676	697	718	2.6%
Sales commission paid to agencies	330	368	97	96	292	356	360	371	383	394	406	419	2.7%
Expenses for computerized distribution systems	524	506	126	156	302	341	456	470	485	499	515	530	7.6%
Auditing, consulting and legal expenses	252	312	203	306	266	312	273	281	290	298	307	317	0.3%
Commissions for credit cards	222	232	58	92	240	281	232	239	246	254	262	270	-0.7%
Advertising and sales promotions	439	384	128	136	229	281	381	393	405	417	430	443	7.9%
Other services	148	144	146	146	182	206	167	172	177	183	188	194	-1.0%
Insurance premiums for flight operations	56	61	42	51	65	63	61	63	65	67	70	72	2.2%
Other taxes	84	84	51	57	71	62	86	89	92	94	97	100	8.3%
Write-downs on receivables	100	120	251	73	79	61	98	101	104	107	111	114	11.0%
Communications costs	84	85	68	53	48	48	64	64	64	64	64	64	4.9%
Losses on disposal of non-current assets	17	39	39	56	26	33	43	43	43	43	43	43	4.6%
Other operating expenses	532	659	521	520	476	573	680	701	722	745	767	791	5.5%
Impairment on assets held for sale	0	0	0	0	0	0	0	0	0	0	0	0	-
<b>Depreciations &amp; Amortizations</b>	<b>2,205</b>	<b>2,776</b>	<b>4,389</b>	<b>2,351</b>	<b>2,245</b>	<b>2,242</b>	<b>2,239</b>	<b>2,254</b>	<b>2,268</b>	<b>2,300</b>	<b>2,332</b>	<b>2,334</b>	<b>0.68%</b>
<b>EBIT</b>	<b>2,800</b>	<b>1,689</b>	<b>(7,089)</b>	<b>(2,318)</b>	<b>1,396</b>	<b>2,456</b>	<b>1,105</b>	<b>1,514</b>	<b>1,577</b>	<b>1,619</b>	<b>1,542</b>	<b>1,387</b>	<b>-9.09%</b>
<b>Net Interest</b>	<b>(144)</b>	<b>(315)</b>	<b>(334)</b>	<b>(441)</b>	<b>(409)</b>	<b>(348)</b>	<b>(445)</b>	<b>(459)</b>	<b>(485)</b>	<b>(532)</b>	<b>(582)</b>	<b>(581)</b>	<b>8.93%</b>
<b>Interest Income</b>	<b>68</b>	<b>79</b>	<b>83</b>	<b>(6)</b>	<b>68</b>	<b>245</b>	<b>116</b>	<b>116</b>	<b>116</b>	<b>116</b>	<b>116</b>	<b>116</b>	<b>-11.66%</b>
Income from other securities and non-current financial loans	5	8	3	2	3	7	6	6	6	6	6	6	-3.78%
Other interest and similar income	63	71	80	(8)	65	238	111	111	111	111	111	111	-11.95%
<b>Interest Expenses</b>	<b>(212)</b>	<b>(394)</b>	<b>(417)</b>	<b>(435)</b>	<b>(477)</b>	<b>(593)</b>	<b>(561)</b>	<b>(576)</b>	<b>(601)</b>	<b>(648)</b>	<b>(698)</b>	<b>(698)</b>	<b>2.75%</b>
Interest expenses on pensions obligations	(97)	(119)	(97)	(78)	(83)	(77)	(85)	(89)	(94)	(99)	(104)	(110)	6.11%
Interest expenses on other provisions	(8)	3	(13)	(1)	(7)	(9)	(6)	(6)	(6)	(6)	(6)	(6)	-6.80%
Interest and similar expenses	(107)	(278)	(307)	(356)	(387)	(507)	(471)	(480)	(501)	(543)	(588)	(582)	2.32%
<b>Result from equity investments</b>	<b>174</b>	<b>168</b>	<b>(264)</b>	<b>2</b>	<b>23</b>	<b>213</b>	<b>127</b>	<b>127</b>	<b>127</b>	<b>127</b>	<b>127</b>	<b>127</b>	<b>-8.31%</b>
Result of joint ventures accounted for using the equity method	75	14	(236)	(2)	20	103	57	57	57	57	57	57	-9.49%
Result of associated companies accounted for using the equity method	39	74	(40)	(20)	(35)	18	27	27	27	27	27	27	7.24%
Dividends from other joint ventures	13	12	4	0	10	8	8	8	8	8	8	8	-0.21%
Dividends from other associated companies	6	3	2	0	1	2	4	4	4	4	4	4	12.71%
Income from profit transfer agreements	31	35	26	29	33	54	30	30	30	30	30	30	-9.18%
Expenses from loss transfer agreements	(26)	(19)	(35)	(22)	(34)	(16)	(24)	(24)	(24)	(24)	(24)	(24)	7.21%
Dividends from other equity investments	36	49	15	17	28	44	25	25	25	25	25	25	-9.24%
<b>Other financial items</b>	<b>(46)</b>	<b>318</b>	<b>(944)</b>	<b>151</b>	<b>239</b>	<b>(4)</b>	<b>(8)</b>	<b>(8)</b>	<b>(8)</b>	<b>(8)</b>	<b>(8)</b>	<b>(8)</b>	<b>12.94%</b>
<b>EBT</b>	<b>2,784</b>	<b>1,860</b>	<b>(8,631)</b>	<b>(2,606)</b>	<b>1,249</b>	<b>2,317</b>	<b>778</b>	<b>1,173</b>	<b>1,211</b>	<b>1,206</b>	<b>1,078</b>	<b>924</b>	<b>-14.21%</b>
<b>Tax</b>	<b>(588)</b>	<b>(615)</b>	<b>1,865</b>	<b>413</b>	<b>(239)</b>	<b>(380)</b>	<b>(195)</b>	<b>(293)</b>	<b>(303)</b>	<b>(301)</b>	<b>(270)</b>	<b>(231)</b>	<b>-7.97%</b>
<b>Net Income</b>	<b>2,196</b>	<b>1,245</b>	<b>(6,766)</b>	<b>(2,193)</b>	<b>1,010</b>	<b>1,937</b>	<b>584</b>	<b>880</b>	<b>908</b>	<b>904</b>	<b>809</b>	<b>693</b>	<b>-15.75%</b>

Source: Company Data & Author Analysis

## Appendix 4: Cash Flow Statement

Cash Flow Statement in €m	E 2024	FC 2025	FC 2026	FC 2027	FC 2028	FC 2029
<b>Cash From Operating Activities</b>	<b>2,443</b>	<b>4,038</b>	<b>3,851</b>	<b>3,938</b>	<b>3,989</b>	<b>3,934</b>
EBIT	1,105	1,514	1,577	1,619	1,542	1,387
D&A	2,239	2,254	2,268	2,300	2,332	2,334
Income tax	(195)	(293)	(303)	(301)	(270)	(231)
ΔNWC	(1,339)	(29)	145	147	202	252
Other Adjustments (1)	633	593	164	173	182	192
<b>Cash From Investing Activities</b>	<b>(2,676)</b>	<b>(3,172)</b>	<b>(3,751)</b>	<b>(4,300)</b>	<b>(4,219)</b>	<b>(2,069)</b>
CAPEX	(2,748)	(3,078)	(3,646)	(4,136)	(4,072)	(2,191)
Other Investments	0	(168)	(180)	(242)	(227)	39
<b>Cash From Financing Activities</b>	<b>(760)</b>	<b>(65)</b>	<b>233</b>	<b>787</b>	<b>825</b>	<b>(641)</b>
Borrowings	(434)	276	600	1,200	1,288	(178)
Interest paid	(327)	(341)	(367)	(413)	(464)	(463)
Dividends	0	0	0	0	0	0
<b>Net Change in Cash</b>	<b>(1,065)</b>	<b>728</b>	<b>258</b>	<b>347</b>	<b>514</b>	<b>1,141</b>
<b>Cash - Beginning Balance</b>	<b>1,590</b>	<b>525</b>	<b>1,253</b>	<b>1,511</b>	<b>1,857</b>	<b>2,371</b>
<b>Cash - Ending Balance</b>	<b>525</b>	<b>1,253</b>	<b>1,511</b>	<b>1,857</b>	<b>2,371</b>	<b>3,512</b>

Cash Flow Statement - Other Adjustments (1) in €m	E 2024	FC 2025	FC 2026	FC 2027	FC 2028	FC 2029
Equity investments accounted for using the equity method	(108)	(17)	(18)	(19)	(19)	(20)
Other equity investments	(13)	(7)	(8)	(8)	(8)	(8)
Non-current securities	0	(12)	(1)	(1)	(1)	(1)
Loans, receivables and other assets	0	0	0	0	0	0
Derivative financial instruments (CA)	0	0	0	0	0	0
Deferred tax assets	0	0	0	0	0	0
Derivative financial instruments (NCA)	0	0	0	0	0	0
Deferred charges and prepaid expenses (NCA)	0	0	0	0	0	0
Effective income tax receivables (NCA)	0	0	0	0	0	0
Fixed-term deposits (four to twelve months)	275	0	0	0	0	0
Assets held for sale	0	1,109	0	0	0	0
Pension provisions	477	190	190	200	211	222
Contract liabilities	2	0	0	0	0	0
Other financial liabilities	0	0	0	0	0	0
Advance payments received, deferred income and other non-financial liabilities (NCL)	0	0	0	0	0	0
Derivative financial instruments (CL)	0	0	0	0	0	0
Deferred tax	0	0	0	0	0	0
Other provisions (NCL)	0	0	0	0	0	0
Derivative financial instruments (NCL)	0	0	0	0	0	0
Liabilities in connection with assets held for sale	0	(670)	0	0	0	0
<b>Total Other Adjustments</b>	<b>633</b>	<b>593</b>	<b>164</b>	<b>173</b>	<b>182</b>	<b>192</b>

Source: Author Analysis

## Appendix 5: Key Financial Ratios

Financial Ratios	Act 2018	Act 2019	Act 2020	Act 2021	Act 2022	Act 2023	E 2024	FC 2025	FC 2026	FC 2027	FC 2028	FC 2029
<b>Liquidity</b>												
Current Ratio	0.66	0.71	0.68	0.92	0.86	0.79	0.83	0.84	0.85	0.86	0.87	0.92
% YoY	-25%	7%	-3%	34%	-6%	-9%	5%	2%	1%	1%	2%	6%
Quick Ratio	0.54	0.55	0.57	0.77	0.70	0.60	0.64	0.71	0.72	0.73	0.75	0.80
% YoY	-26%	1%	3%	37%	-9%	-14%	7%	11%	1%	1%	2%	7%
Cash Ratio	0.09	0.09	0.12	0.16	0.10	0.08	0.03	0.07	0.08	0.10	0.12	0.17
% YoY	-16%	-4%	39%	28%	-36%	-20%	-65%	146%	18%	20%	24%	45%
NWC	(5,561)	(4,701)	(4,619)	(1,207)	(2,453)	(4,201)	(3,202)	(2,873)	(2,795)	(2,717)	(2,538)	(1,573)
% YoY	246%	-15%	-2%	-74%	103%	71%	-24%	-10%	-3%	-3%	-7%	-38%
<b>Solvency</b>												
Debt-to-Equity	2.99	3.16	27.47	8.47	4.11	3.67	3.45	3.17	3.03	2.95	2.92	2.81
% YoY	2%	6%	769%	-69%	-51%	-11%	-6%	-8%	-5%	-3%	-1%	-4%
Debt-to-Assets	0.75	0.76	0.96	0.89	0.80	0.79	0.78	0.76	0.75	0.75	0.74	0.74
% YoY	1%	1%	27%	-7%	-10%	-2%	-1%	-2%	-1%	-1%	0%	-1%
Equity portion	0.25	0.24	0.04	0.11	0.20	0.21	0.22	0.24	0.25	0.25	0.26	0.26
% YoY	-2%	-4%	-85%	200%	85%	10%	5%	7%	4%	2%	1%	3%
Interest Coverage	13.21	4.29	-17.00	-5.33	2.93	4.14	1.97	2.63	2.62	2.50	2.21	1.99
% YoY	57%	-68%	-497%	-69%	-155%	42%	-52%	34%	0%	-5%	-12%	-10%
Net Interest Coverage	175.00	-9.88	-4.60	-8.05	9.50	17.67	3.38	4.44	4.30	3.92	3.33	3.00
% YoY	-200%	-106%	-53%	75%	-218%	86%	-81%	31%	-3%	-9%	-15%	-10%
%of Debt	0.75	0.76	0.96	0.89	0.80	0.79	0.78	0.76	0.75	0.75	0.74	0.74
% YoY	1%	1%	27%	-7%	-10%	-2%	-1%	-2%	-1%	-1%	0%	-1%
% of Equity	0.25	0.24	0.04	0.11	0.20	0.21	0.22	0.24	0.25	0.25	0.26	0.26
% YoY	-2%	-4%	-85%	200%	85%	10%	5%	7%	4%	2%	1%	3%
<b>Profitability</b>												
Operating Profit Mg.	7.9%	4.6%	-52.2%	-13.8%	4.5%	6.9%	3.0%	4.0%	4.1%	4.1%	3.8%	3.3%
% YoY	-11%	-41%	-1225%	-74%	-133%	53%	-56%	33%	1%	0%	-8%	-13%
Net Profit Margin	6.2%	3.4%	-49.8%	-13.0%	3.3%	5.5%	1.6%	2.3%	2.3%	2.3%	2.0%	1.6%
% YoY	-7%	-45%	-1557%	-74%	-125%	67%	-71%	46%	0%	-3%	-13%	-17%
ROA	5.7%	2.9%	-17.1%	-5.2%	2.3%	4.3%	1.3%	1.9%	1.9%	1.8%	1.5%	1.3%
% YoY	-13%	-49%	-687%	-70%	-145%	83%	-70%	48%	-1%	-6%	-15%	-16%
ROE	22.9%	12.1%	-487.8%	-48.8%	11.9%	20.0%	5.7%	7.9%	7.5%	7.0%	5.9%	4.8%
% YoY	-12%	-47%	-4119%	-90%	-124%	67%	-72%	39%	-5%	-7%	-16%	-18%
EPS	3.82	2.60	-11.32	-1.83	0.84	1.32	0.49	0.74	0.76	0.76	0.68	0.58
% YoY	-10%	-32%	-535%	-84%	-146%	56%	-63%	51%	3%	0%	-11%	-14%

Source: Company Data & Author Analysis

## Appendix 6: Key Industry Ratios

Industry Ratios	Act	Act	Act	Act	Act	Act	E	FC	FC	FC	FC	FC	CAGR
in millions	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	[2023-2029]
<b>ASK</b>	<b>349,759</b>	<b>359,154</b>	<b>109,843</b>	<b>145,145</b>	<b>259,381</b>	<b>300,582</b>	<b>313,827</b>	<b>327,676</b>	<b>342,156</b>	<b>357,298</b>	<b>373,132</b>	<b>389,692</b>	<b>4.42%</b>
Europe	-	-	-	-	104,940	118,174	122,594	127,179	131,936	136,870	141,989	147,300	<b>3.74%</b>
America	-	-	-	-	92,158	100,021	104,162	108,474	112,965	117,641	122,511	127,583	<b>4.14%</b>
Asia/Pacific	-	-	-	-	27,935	45,476	48,116	50,910	53,865	56,992	60,301	63,802	<b>5.81%</b>
Middle East / Africa	-	-	-	-	34,348	36,911	38,956	41,113	43,391	45,794	48,331	51,008	<b>5.54%</b>
<b>RPK</b>	<b>284,931</b>	<b>296,489</b>	<b>69,474</b>	<b>89,398</b>	<b>207,035</b>	<b>249,269</b>	<b>260,415</b>	<b>272,075</b>	<b>284,275</b>	<b>297,040</b>	<b>310,397</b>	<b>324,374</b>	<b>4.49%</b>
Europe	-	-	-	-	82,485	96,309	99,969	103,768	107,711	111,804	116,052	120,462	<b>3.80%</b>
America	-	-	-	-	74,914	84,434	87,980	91,675	95,526	99,538	103,718	108,075	<b>4.20%</b>
Asia/Pacific	-	-	-	-	22,393	38,405	40,658	43,043	45,569	48,242	51,072	54,068	<b>5.87%</b>
Middle East / Africa	-	-	-	-	27,243	30,121	31,808	33,589	35,470	37,456	39,554	41,769	<b>5.60%</b>
<b>Passenger Yield</b>	<b>0.089</b>	<b>0.087</b>	<b>0.093</b>	<b>0.092</b>	<b>0.104</b>	<b>0.109</b>	<b>0.104</b>	<b>0.103</b>	<b>0.102</b>	<b>0.101</b>	<b>0.100</b>	<b>0.100</b>	<b>-1.47%</b>
Europe	-	-	-	-	0.179	0.195	0.191	0.190	0.188	0.187	0.185	0.184	<b>-0.99%</b>
America	-	-	-	-	0.061	0.067	0.062	0.062	0.061	0.061	0.060	0.060	<b>-1.96%</b>
Asia/Pacific	-	-	-	-	0.054	0.048	0.042	0.041	0.041	0.041	0.040	0.040	<b>-2.85%</b>
Middle East / Africa	-	-	-	-	0.032	0.029	0.028	0.028	0.028	0.028	0.028	0.027	<b>-0.76%</b>
<b>Passengers (thousands)</b>	<b>142,549</b>	<b>145,870</b>	<b>36,384</b>	<b>46,956</b>	<b>101,775</b>	<b>122,535</b>	<b>127,191</b>	<b>132,025</b>	<b>137,042</b>	<b>142,249</b>	<b>147,655</b>	<b>153,265</b>	<b>3.80%</b>
Lufthansa	69,886	72,470	17,996	23,544	51,784	60,268	66,331	68,852	71,468	74,184	77,003	79,929	<b>4.82%</b>
SWISS	20,432	21,531	5,677	7,133	15,050	19,295	19,120	19,847	20,601	21,384	22,197	23,040	<b>3.00%</b>
Austrian	13,934	14,613	3,114	5,008	11,142	13,857	12,739	13,223	13,725	14,247	14,788	15,350	<b>1.72%</b>
Brussels	0	10,285	2,362	3,479	6,830	8,317	4,869	5,054	5,246	5,445	5,652	5,867	<b>-5.65%</b>
Eurowings	38,297	26,971	7,235	7,792	16,969	20,798	24,132	25,049	26,001	26,989	28,015	29,079	<b>5.75%</b>
<b>Load-Factor</b>	<b>81.5%</b>	<b>82.6%</b>	<b>63.2%</b>	<b>61.6%</b>	<b>79.8%</b>	<b>82.9%</b>	<b>83.0%</b>	<b>83.0%</b>	<b>83.1%</b>	<b>83.1%</b>	<b>83.2%</b>	<b>83.2%</b>	<b>0.06%</b>
<b>ATK</b>	<b>13,414</b>	<b>14,493</b>	<b>9,256</b>	<b>10,081</b>	<b>11,992</b>	<b>13,246</b>	<b>13,647</b>	<b>14,061</b>	<b>14,488</b>	<b>14,930</b>	<b>15,387</b>	<b>15,859</b>	<b>3.05%</b>
America	5,869	6,391	4,178	4,739	5,836	6,074	6,196	6,320	6,446	6,575	6,707	6,841	<b>2.00%</b>
Asia/Pacific	6,255	6,420	4,256	4,277	4,831	5,699	5,921	6,152	6,392	6,641	6,900	7,169	<b>3.90%</b>
Europe	474	529	364	349	449	512	527	542	557	572	588	605	<b>2.80%</b>
Middle East/Asia	815	1,153	458	716	876	961	1,003	1,047	1,094	1,142	1,192	1,244	<b>4.40%</b>
<b>RTK</b>	<b>8,934</b>	<b>8,899</b>	<b>6,461</b>	<b>7,198</b>	<b>7,231</b>	<b>7,471</b>	<b>7,697</b>	<b>7,930</b>	<b>8,171</b>	<b>8,421</b>	<b>8,678</b>	<b>8,944</b>	<b>3.05%</b>
America	3,909	3,924	2,916	3,384	3,519	3,426	3,495	3,564	3,636	3,708	3,783	3,858	<b>2.00%</b>
Asia/Pacific	4,166	3,942	2,971	3,054	2,913	3,214	3,339	3,470	3,605	3,745	3,892	4,043	<b>3.90%</b>
Europe	316	325	254	249	271	289	297	305	314	323	332	341	<b>2.80%</b>
Middle East/Asia	543	708	320	511	528	542	566	591	617	644	672	702	<b>4.40%</b>
<b>Cargo Yield</b>	<b>0.29</b>	<b>0.26</b>	<b>0.40</b>	<b>0.51</b>	<b>0.61</b>	<b>0.37</b>	<b>0.36</b>	<b>0.36</b>	<b>0.36</b>	<b>0.35</b>	<b>0.35</b>	<b>0.35</b>	<b>-1.04%</b>
Europe	0.63	0.58	0.73	0.95	1.08	0.76	0.68	0.67	0.67	0.66	0.66	0.65	<b>-2.53%</b>
America	0.27	0.25	0.38	0.51	0.58	0.35	0.31	0.31	0.31	0.31	0.30	0.30	<b>-2.31%</b>
Asia/Pacific	0.27	0.24	0.39	0.48	0.62	0.35	0.33	0.32	0.32	0.32	0.32	0.31	<b>-1.99%</b>
Middle East/Asia	0.33	0.31	0.40	0.46	0.56	0.43	0.70	0.69	0.69	0.68	0.68	0.67	<b>7.60%</b>
<b>Cargo Load-Factor</b>	<b>66.6%</b>	<b>61.4%</b>	<b>69.8%</b>	<b>71.4%</b>	<b>60.3%</b>	<b>56.4%</b>	<b>56.4%</b>	<b>56.4%</b>	<b>56.4%</b>	<b>56.4%</b>	<b>56.4%</b>	<b>56.4%</b>	<b>0.0%</b>

Source: Company Data & Author Analysis



## Appendix 7: Common-Size Statement of Financial Position

Statement of Financial Position	Act	Act	Act	Act	Act	Act	E	FC	FC	FC	FC	FC
in €m	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<b>Assets</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>i Current Assets</b>	<b>27.9%</b>	<b>26.5%</b>	<b>25.4%</b>	<b>31.7%</b>	<b>35.2%</b>	<b>34.3%</b>	<b>33.8%</b>	<b>32.8%</b>	<b>32.5%</b>	<b>31.9%</b>	<b>31.7%</b>	<b>33.6%</b>
Cash	3.9%	3.3%	4.6%	5.4%	4.1%	3.5%	1.1%	2.7%	3.1%	3.6%	4.4%	6.4%
Securities	4.5%	4.6%	9.3%	12.6%	15.0%	14.1%	14.1%	13.9%	13.5%	12.9%	12.3%	12.1%
Other Investments	0.9%	1.1%	0.7%	1.3%	2.0%	1.6%	1.0%	0.9%	0.9%	0.9%	0.8%	0.8%
Receivables	14.6%	12.7%	7.2%	8.7%	9.5%	8.7%	11.0%	11.2%	11.0%	10.8%	10.5%	10.6%
Inventory	2.5%	2.3%	1.8%	1.6%	1.9%	2.1%	2.3%	2.2%	2.2%	2.1%	2.0%	2.0%
Other Current Assets	1.4%	2.4%	1.9%	2.1%	2.7%	4.3%	4.3%	1.9%	1.8%	1.7%	1.7%	1.6%
<b>ii Non-Current Assets</b>	<b>72.1%</b>	<b>73.5%</b>	<b>74.6%</b>	<b>68.3%</b>	<b>64.8%</b>	<b>65.7%</b>	<b>66.2%</b>	<b>67.2%</b>	<b>67.5%</b>	<b>68.1%</b>	<b>68.3%</b>	<b>66.4%</b>
Aircraft and Engines	43.9%	43.0%	40.1%	36.0%	36.7%	38.5%	39.1%	40.0%	41.0%	42.3%	43.1%	41.7%
Repairable Parts	5.6%	5.3%	4.6%	4.3%	4.7%	5.4%	5.3%	5.6%	5.7%	5.9%	6.0%	5.8%
PP&E	5.8%	9.5%	9.3%	7.9%	7.7%	6.4%	6.4%	6.3%	6.1%	5.9%	5.7%	5.7%
Intangible	5.0%	4.6%	4.1%	3.8%	3.3%	3.0%	3.0%	2.9%	2.8%	2.7%	2.6%	2.6%
Deferred Tax Assets	5.6%	5.3%	12.2%	11.0%	6.8%	6.7%	6.7%	6.6%	6.3%	6.0%	5.7%	5.5%
Loans, receivables and other	1.7%	1.4%	1.4%	1.6%	1.6%	2.6%	2.5%	2.5%	2.4%	2.3%	2.1%	2.1%
Long-term Investments	4.6%	4.4%	2.7%	3.8%	4.1%	3.0%	3.3%	3.3%	3.2%	3.1%	3.0%	3.0%
<b>Liabilities</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>iii Current Liabilities</b>	<b>42.4%</b>	<b>37.5%</b>	<b>37.1%</b>	<b>34.5%</b>	<b>40.9%</b>	<b>43.6%</b>	<b>40.8%</b>	<b>39.0%</b>	<b>38.2%</b>	<b>37.2%</b>	<b>36.4%</b>	<b>36.5%</b>
Accounts Payable	15.0%	12.5%	8.4%	9.8%	13.1%	13.0%	14.1%	13.6%	13.1%	12.6%	12.2%	12.3%
Borrowings	4.4%	3.8%	7.9%	3.8%	4.3%	6.4%	4.2%	4.2%	4.2%	4.4%	4.5%	4.3%
Provisions	2.3%	1.9%	2.1%	3.0%	2.0%	1.9%	1.9%	1.9%	1.8%	1.7%	1.6%	1.6%
Advance payments & deferred income	1.0%	0.9%	3.3%	1.5%	1.6%	1.6%	1.8%	1.8%	1.8%	1.7%	1.7%	1.7%
Unused flight documents	10.4%	9.5%	5.2%	7.9%	11.3%	11.0%	9.2%	9.4%	9.3%	9.1%	8.9%	9.0%
Other Current Liabilities	9.3%	8.8%	10.2%	8.5%	8.6%	9.7%	9.6%	8.2%	8.0%	7.8%	7.6%	7.6%
<b>iv Non-Current Liabilities</b>	<b>32.5%</b>	<b>38.5%</b>	<b>59.4%</b>	<b>54.9%</b>	<b>39.6%</b>	<b>35.0%</b>	<b>36.8%</b>	<b>37.1%</b>	<b>37.0%</b>	<b>37.5%</b>	<b>38.0%</b>	<b>37.3%</b>
Long-Term Borrowings	13.1%	19.7%	31.0%	35.4%	30.6%	24.4%	25.2%	25.3%	25.3%	26.0%	26.8%	25.9%
Pension Provisions	15.3%	15.6%	24.1%	15.7%	4.8%	6.4%	7.4%	7.6%	7.7%	7.7%	7.7%	7.9%
Other Provisions	1.4%	1.1%	1.4%	1.7%	1.7%	1.7%	1.7%	1.6%	1.6%	1.5%	1.4%	1.4%
Advance payments & deferred income	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Deferred Tax Liabilities	1.5%	1.4%	1.2%	1.2%	1.2%	1.1%	1.1%	1.1%	1.0%	1.0%	0.9%	0.9%
Other non-current Liabilities	1.0%	0.5%	1.5%	0.9%	1.1%	1.3%	1.3%	1.2%	1.2%	1.1%	1.1%	1.0%
<b>Equity</b>												
<b>v Shareholders' equity</b>	<b>25.1%</b>	<b>24.0%</b>	<b>3.5%</b>	<b>10.6%</b>	<b>19.6%</b>	<b>21.4%</b>	<b>22.4%</b>	<b>24.0%</b>	<b>24.8%</b>	<b>25.3%</b>	<b>25.5%</b>	<b>26.2%</b>
Issued Capital	3.2%	2.9%	3.9%	7.2%	7.1%	6.8%	6.7%	6.6%	6.3%	6.0%	5.7%	5.5%
Capital Reserve	0.9%	0.9%	1.0%	2.2%	0.6%	0.6%	0.6%	0.6%	0.5%	0.5%	0.5%	0.5%
Other Neutral Reserves	3.1%	4.0%	3.3%	5.0%	5.2%	4.7%	4.7%	4.6%	4.4%	4.2%	4.0%	3.9%
Net Income	5.7%	2.8%	-	-5.2%	1.8%	3.7%	1.3%	1.9%	1.9%	1.8%	1.5%	1.3%
Retained Earnings	11.9%	13.2%	12.3%	1.2%	4.8%	5.5%	9.1%	10.2%	11.6%	12.8%	13.8%	15.0%
Non-controlling Interests	0.3%	0.3%	0.1%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
<b>Total Equity and Liabilities</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Source: Company Data & Author Analysis

## Appendix 8: Common-Size Income Statement

Income Statement in €m	Act 2018	Act 2019	Act 2020	Act 2021	Act 2022	Act 2023	E 2024	FC 2025	FC 2026	FC 2027	FC 2028	FC 2029
<b>Revenue</b>												
<b>Traffic Revenue</b>	<b>78.2%</b>	<b>77.2%</b>	<b>66.8%</b>	<b>70.6%</b>	<b>83.7%</b>	<b>84.4%</b>	<b>82.3%</b>	<b>82.4%</b>	<b>82.4%</b>	<b>82.5%</b>	<b>82.6%</b>	<b>82.7%</b>
Airlines	71.0%	70.9%	47.7%	49.0%	69.4%	76.6%	74.6%	74.8%	74.9%	75.0%	75.2%	75.3%
Logistics	7.2%	6.4%	19.1%	21.7%	14.3%	7.8%	7.6%	7.6%	7.5%	7.5%	7.4%	7.4%
<b>Other Revenue</b>	<b>21.8%</b>	<b>22.8%</b>	<b>33.2%</b>	<b>29.4%</b>	<b>16.3%</b>	<b>15.6%</b>	<b>17.7%</b>	<b>17.6%</b>	<b>17.6%</b>	<b>17.5%</b>	<b>17.4%</b>	<b>17.3%</b>
MRO	11.0%	12.0%	20.0%	18.5%	13.0%	12.4%	13.8%	13.7%	13.6%	13.5%	13.5%	13.4%
Other	10.7%	10.7%	13.2%	10.8%	3.3%	3.2%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
<b>Other Income</b>	<b>6.6%</b>	<b>7.1%</b>	<b>15.2%</b>	<b>10.2%</b>	<b>8.2%</b>	<b>8.9%</b>	<b>7.5%</b>	<b>7.5%</b>	<b>7.5%</b>	<b>7.5%</b>	<b>7.5%</b>	<b>7.5%</b>
<b>Costs</b>	<b>98.7%</b>	<b>102.4%</b>	<b>167.4%</b>	<b>124.0%</b>	<b>103.7%</b>	<b>101.9%</b>	<b>104.5%</b>	<b>103.5%</b>	<b>103.4%</b>	<b>103.4%</b>	<b>103.7%</b>	<b>104.2%</b>
Materials & Other Goods	27.2%	29.7%	30.9%	24.8%	31.7%	30.1%	32.1%	30.5%	30.0%	29.4%	29.1%	29.1%
Services	24.4%	24.7%	31.3%	28.5%	26.5%	27.4%	25.6%	25.6%	25.6%	25.7%	25.7%	25.7%
Staff	24.8%	25.0%	47.4%	37.6%	23.6%	23.5%	25.6%	26.2%	26.8%	27.4%	28.0%	28.6%
Other Expenses	16.1%	15.3%	25.6%	19.1%	14.7%	14.6%	15.1%	15.1%	15.2%	15.2%	15.3%	15.3%
Depreciations & Amortizations	6.2%	7.6%	32.3%	14.0%	7.3%	6.3%	6.1%	6.0%	5.9%	5.8%	5.7%	5.5%
<b>EBIT (unadjusted)</b>	<b>7.9%</b>	<b>4.6%</b>	<b>-52.2%</b>	<b>-13.8%</b>	<b>4.5%</b>	<b>6.9%</b>	<b>3.0%</b>	<b>4.0%</b>	<b>4.1%</b>	<b>4.1%</b>	<b>3.8%</b>	<b>3.3%</b>
Interest Income	0.2%	0.2%	0.6%	0.0%	0.2%	0.7%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
Interest Expense	-0.6%	-1.1%	-3.1%	-2.6%	-1.5%	-1.7%	-1.5%	-1.5%	-1.6%	-1.6%	-1.7%	-1.6%
Other financial items	0.4%	1.3%	-8.9%	0.9%	0.8%	0.6%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
<b>EBT</b>	<b>7.8%</b>	<b>5.1%</b>	<b>-63.5%</b>	<b>-15.5%</b>	<b>4.0%</b>	<b>6.5%</b>	<b>2.1%</b>	<b>3.1%</b>	<b>3.1%</b>	<b>3.0%</b>	<b>2.6%</b>	<b>2.2%</b>
Tax	-1.7%	-1.7%	13.7%	2.5%	-0.8%	-1.1%	-0.5%	-0.8%	-0.8%	-0.8%	-0.7%	-0.5%
<b>Net-Income</b>	<b>6.2%</b>	<b>3.4%</b>	<b>-49.8%</b>	<b>-13.0%</b>	<b>3.3%</b>	<b>5.5%</b>	<b>1.6%</b>	<b>2.3%</b>	<b>2.3%</b>	<b>2.3%</b>	<b>2.0%</b>	<b>1.6%</b>

Source: Company Data & Author Analysis

## Appendix 9: Deutsche Lufthansa fleet evolution

Deutsche Lufthansa AG - Total Fleet Evolution							
Model	2023	2024F	2025F	2026F	2027F	2028F	2029F
Airbus A220	30	30	30	37	44	51	58
Airbus A319	86	86	86	86	86	86	86
Airbus A320	185	175	166	157	148	139	139
Airbus A320neo	55	65	74	83	92	101	101
Airbus 321	76	71	66	61	57	53	53
Airbus 321neo	25	30	35	40	44	48	48
Airbus A330	46	41	36	31	26	21	16
Airbus A340	43	36	29	22	15	9	9
Airbus A350	26	31	36	41	46	51	56
Airbus A380	8	8	8	8	8	8	8
Boeing 737	0	0	0	0	7	14	21
Boeing 747	27	27	27	27	27	27	27
Boeing 767	3	3	3	3	3	3	3
Boeing 777	18	18	23	28	33	38	38
Boeing 787	5	12	19	26	33	39	39
Boeing 777F	17	18	19	20	21	22	23
Bombardier CRJ	28	28	28	21	14	7	0
Embraer	43	43	43	43	43	43	36
<b>Total fleet</b>	<b>721</b>	<b>722</b>	<b>728</b>	<b>734</b>	<b>747</b>	<b>760</b>	<b>761</b>
<b>Older Generation Aircraft</b>	<b>545</b>	<b>518</b>	<b>492</b>	<b>459</b>	<b>427</b>	<b>396</b>	<b>377</b>
<b>New Generation Aircraft</b>	<b>176</b>	<b>204</b>	<b>236</b>	<b>275</b>	<b>320</b>	<b>364</b>	<b>384</b>

Source: Company Data & Author Analysis

## Appendix 10.1: Forecasting Assumptions (1/3)

Assumptions	Assumption
<b>Statement of Financial Position</b>	
Capital Expenditures	Projections made by the author are based on new aircraft deliveries each year and historical Capital Expenditures aligned with activity levels.
Inventories, Payables, Receivables & Other Current Assets	Based on historical ratios of DSO, DPO and % of Revenues for other assets and inventories.
Debt / Borrowings	Based on Lufthansa's debt repayment schedule and new borrowing calculated aligned with Capital Expenditures.
<b>Cost of Capital</b>	
Cost of Equity (R <sub>e</sub> )	Cost of Equity was determined using CAPM model.
Risk-free rate (RFR)	Based on 10 Year German Government Bond.
Beta	Top-Down Approach. The beta was computed with a regression over STOXX600 index.
Market Risk Premium (MRP)	Rate provided by Damodaran for Germany.
Cost of Debt (R <sub>d</sub> )	The average of Real YTM's of the two last coupon bonds issued by Lufthansa.

Source: Author Analysis

## Appendix 10.2: Forecasting Assumptions (2/3)

Assumptions - IS Revenues		E	FC	FC	FC	FC	FC	Assumption
	unit	2024	2025	2026	2027	2028	2029	
<b>Income Statement</b>								
<b>Airlines Traffic Revenue</b>								
								<b>Traffic revenues for airlines are calculated with the formula: = Passenger Yield * RPK.</b>
<b>Passenger Yield</b>	% change	-4.73%	-0.80%	-0.80%	-0.80%	-0.80%	-0.80%	JADC states that global yields are going decrease at 0,8% CAGR [2024-2042]. Note: 2024E was adjusted accordingly to first semester actuals.
<b>RPK</b>								
Europe	% change	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	Boeing CAGR forecast for RPK [2024-2042]. Source: Boeing Commercial Market Outlook 2024-2042.
America	% change	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	
Asia/Pacific	% change	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	
Middle East / Africa	% change	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	
<b>Load-Factor</b>	% change	0.06%	0.06%	0.06%	0.06%	0.06%	0.06%	JADC states that the global average load-factor will increase from 82% to 83% at a 0.1% CAGR until 2043.
<b>GDP growth rate</b>	% change	3.20%	3.20%	3.20%	3.10%	3.10%	3.10%	IMF forecast for global GDP growth rate.
<b>Jet Fuel Price</b>	€/liter	0.76	0.69	0.67	0.65	0.64	0.64	Jet Fuel prices forecast from EIA.
<b>World number of Passengers</b>	bn	4.45	4.61	4.79	4.97	5.16	5.36	IATA forecast. They predict that the global number of passengers will grow at 3.8% CAGR [2023-2040].
<b>Cargo Revenues</b>								
								<b>Cargo revenues for airlines are calculated with the formula: = RRTK* RTK.</b>
<b>RTK</b>								
Europe	% change	2.80%	2.80%	2.80%	2.80%	2.80%	2.80%	Forecasted CAGR for RTK from JADC.
America	% change	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
Asia/Pacific	% change	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	
Middle East/Asia	% change	4.40%	4.40%	4.40%	4.40%	4.40%	4.40%	
<b>RRTK (cargo yield)</b>	% change	-0.82%	-0.82%	-0.82%	-0.82%	-0.82%	-0.82%	JADC forecast for cargo yields.
<b>Maintenance, Repair and Overhaul - Revenues</b>								
								<b>MRO Revenues were computing with the following formula: = MRO Global Market Forecast * Lufthansa Technik Market Share (average)</b>
<b>MRO Global Market Forecast</b>	Growth r.	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	source: OliverWyman Global Fleet And MRO Market Forecast 2024-2034.
<b>MRO Global Market</b>	€bn	95.97	98.28	100.63	103.05	105.52	108.06	
<b>Lufthansa Technik Market Share (average)</b>	%	5.24%	5.24%	5.24%	5.24%	5.24%	5.24%	Based on historical values, Lufthansa Technik has a stable average of 5.24% of the market share on the global MRO market.
<b>MRO Revenues</b>	€m	5,027	5,148	5,271	5,398	5,527	5,660	MRO Revenue = 5.24% * MRO Global Market
<b>Global fleet expansion</b>	% change	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	source: OliverWyman Global Fleet And MRO Market Forecast 2024-2034.
<b>Other Revenue</b>	% of Traffic Revenue	4.77%	4.77%	4.77%	4.77%	4.77%	4.77%	Assumption was made based on historical values. Other Revenues represent 4.77% on average from Traffic Revenues. <b>Other Revenues = 4,77% * Traffic Revenues</b>

Source: Author Analysis

## Appendix 10.3: Forecasting Assumptions (3/3)

Assumptions - IS Costs		E	FC	FC	FC	FC	FC	Assumption
unit		2024	2025	2026	2027	2028	2029	
<b>Fuel Costs</b>								
<b>Fuel and Lubricants</b>	€m	8,601	8,268	8,303	8,333	8,473	8,711	The value was computed using the following formula: <b>Fuel and Lubricants cost per liter * Total Fuel Consumption</b>
<b>Fuel Consumption</b>	tons	8,915,587	9,172,626	9,418,272	9,662,493	9,918,600	10,237,024	Author Analysis. Computed using historical consumptions and then adjusted for the fuel savings effect arising from newer generation of aircraft that company gets every year.
<b>Fuel Consumption per Flight</b>	tons	8.95	8.87	8.78	8.68	8.58	8.53	Fuel consumption per flight results by dividing by total consumption by total flights each year. Fuel savings effects are visible on YoY evolution of this ratio.
<b>Fuel Cost (incl. Lubricants)</b>	€/liter	0.96	0.90	0.88	0.86	0.85	0.85	Author Analysis. Regression analysis was applied in order to include lubricant costs in the Jet Fuel Cost.
<b>Passengers per Flight</b>	number	128	128	128	128	128	128	Average historical capacity per aircraft. It was assumed the that this number will remain stable.
<b>Total Flights</b>	number	995,804	1,033,644	1,072,923	1,113,694	1,156,014	1,199,943	Computed from total transported passengers each year divided by average aircraft capacity per flight.
<b>Other Raw Materials and Consumables</b>	% of Revenue	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	Average historical percentage. It was assumed that the cost will remain 8.3% from Total Revenues in the forecasted period.
<b>Purchased Goods</b>	% of Revenue	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	Same rationale as for <b>Other Raw Materials and Consumables</b> .
<b>Services</b>								
								Services costs were computed separately by each category with an assumption that the cost will be a fixed % out of Traffic Revenue or Passenger Traffic Revenue. The fixed percentage was computed using the historical values.
Fees & Charges	%	14.71%	14.71%	14.71%	14.71%	14.71%	14.71%	% of Traffic Revenue
Ext. MRO	%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	% of Traffic Revenue
Charter expenses	%	2.88%	2.88%	2.88%	2.88%	2.88%	2.88%	% of Passengers Traffic Revenue
In-flight services	%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	% of Passengers Traffic Revenue
External IT services	%	1.23%	1.23%	1.23%	1.23%	1.23%	1.23%	% of Total Revenue
Flight irregularities	%	0.64%	0.64%	0.64%	0.64%	0.64%	0.64%	% of Passengers Traffic Revenue
Other services	%	2.01%	2.01%	2.01%	2.01%	2.01%	2.01%	% of Total Revenue
<b>Staff Costs</b>	YoY % change	11.57%	5.65%	5.35%	5.34%	5.33%	5.33%	Author analysis. The salary increases effect arising from the agreement with the employees was considered for computations.
<b>Other Expenses</b>	YoY % change	6.2%	3.4%	3.4%	3.4%	3.4%	3.4%	Same rationale as for Services costs was applied to compute Other Expenses.
Foreign exchange losses	%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	% of Revenue
Staff-related expenses	%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	% of Staff Wages
Rental and maintenance expenses	%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	% of Revenue
Sales commission paid to agencies	%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	% of Revenue
Expenses for computerized distribution systems	%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	% of Revenue
Auditing, consulting and legal expenses	%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	% of Revenue
Commissions for credit cards	%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	% of Revenue
Advertising and sales promotions	%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	% of Revenue
Other services	%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	% of Revenue
Insurance premiums for flight operations	%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	% of Traffic Revenue
Other taxes	%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	% of Revenue
Write-downs on receivables	%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	% of Revenue
Communications costs	%	64	64	64	64	64	64	10y average
Losses on disposal of non-current assets	%	43	43	43	43	43	43	10y average
Other operating expenses	%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	% of Revenue

Source: Author Analysis

## Appendix 11: Jet Fuel consumption and cost forecast

Jet Fuel consumption		Act	Act	Act	Act	Act	Act	E	FC	FC	FC	FC	FC
Unit		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<b>Flights</b>	number	1,172,061	1,186,053	382,470	451,978	817,127	936,079	995,804	1,033,644	1,072,923	1,113,694	1,156,014	1,199,943
Kilometres Flown	million	2,343	2,411	730	861	1,662	1,904	2,039	2,130	2,226	2,326	2,430	2,540
Passengers	thousands	142,549	145,870	36,384	46,956	101,775	122,535	127,191	132,025	137,042	142,249	147,655	153,265
Passengers per flight (average)	number	122	123	95	104	125	131	128	128	128	128	128	128
<b>Total Fuel Consumption</b>	<b>tons</b>	<b>10,254,365</b>	<b>10,435,324</b>	<b>3,507,461</b>	<b>4,324,746</b>	<b>7,284,584</b>	<b>8,451,407</b>	<b>8,915,587</b>	<b>9,172,626</b>	<b>9,418,272</b>	<b>9,662,493</b>	<b>9,918,600</b>	<b>10,237,024</b>
Fuel Consumption per flight	tons	8.75	8.80	9.17	9.57	8.91	9.03	8.95	8.87	8.78	8.68	8.58	8.53
Fuel Consumption per Km	liters	4.38	4.33	4.80	5.03	4.38	4.44	4.37	4.31	4.23	4.15	4.08	4.03
Jet Fuel Price - EIA forecast	€ / Lt.	0.45	0.44	0.25	0.41	0.84	0.66	0.76	0.69	0.67	0.65	0.64	0.64
<b>Fuel and Lubricants cost</b>	<b>€ / Lt.</b>	<b>0.59</b>	<b>0.64</b>	<b>0.53</b>	<b>0.56</b>	<b>1.04</b>	<b>0.94</b>	<b>0.96</b>	<b>0.90</b>	<b>0.88</b>	<b>0.86</b>	<b>0.85</b>	<b>0.85</b>
Fuel Cost per 1 Flight	€m	5,193.42	5,661.64	4,902.35	5,329.91	9,302.10	8,472.58	8,637.06	7,999.11	7,738.25	7,482.29	7,329.68	7,259.65

Source: Company Data & Author Analysis

## Appendix 12: Valuation: FCFF

Discounted Cash Flows in €m	FC 2025F	FC 2026F	FC 2027F	FC 2028F	FC 2029F	Terminal
<b>EBIT</b>	1,514	1,577	1,619	1,542	1,387	
<b>EBIT * (1-T)</b>	1197	1247	1280	1219	1096	
<b>Depreciation &amp; Amortization</b>	2,254	2,268	2,300	2,332	2,334	
<b>CAPEX</b>	3,078	3,646	4,136	4,072	2,191	
<b>Δ NWC</b>	-29	145	147	202	252	
<b>FCFF</b>	401	-275	-703	-724	987	
%E	35.3%	36%	35.9%	36%	38.5%	60%
%D	64.7%	64%	64.1%	64%	61.5%	40%
<b>WACC</b>	<b>4.95%</b>	<b>4.99%</b>	<b>4.98%</b>	<b>4.99%</b>	<b>5.14%</b>	<b>6.38%</b>
<b>PV of FCFF</b>	<b>401.30</b>	<b>-262.35</b>	<b>-637.57</b>	<b>-625.28</b>	<b>808.09</b>	
<b>Enterprise Value</b>	<b>19,536.18</b>	<b>19,134.88</b>	<b>20,365.36</b>	<b>22,082.68</b>	<b>23,907.80</b>	<b>24,148.24</b>
<b>Terminal Value</b>						<b>24,148.24</b>
(+) Cash & Equivalents		7,755				
(-) Debt		17,402				
<b>Equity Value</b>		<b>9,888.55</b>				
<b>#Shares</b>		<b>1,196.60</b>				
<b>Price Target</b>		<b>8.26 €</b>				
<b>Closing Price / Sh.</b>		<b>6.71 €</b>				
Upside potential		23.2%				
Annualized return		18.13%				

Source: Author Analysis

## Appendix 13.1: FCFF – Sensitivity of Enterprise Value against WACC and long-run (g) rate.

		WACC (%)									
		2025F	4.8%	5.2%	5.6%	6.0%	6.4%	6.8%	7.2%	7.6%	8.0%
Long-run sustainable growth (%)	1.4%	23,592	21,277	19,396	17,835	16,519	15,393	14,417	13,564	12,811	
	1.6%	25,009	22,412	20,327	18,614	17,181	15,964	14,915	14,002	13,200	
	1.8%	26,612	23,678	21,354	19,466	17,900	16,579	15,448	14,469	13,613	
	2.0%	28,442	25,100	22,493	20,401	18,682	17,243	16,021	14,969	14,052	
	2.2%	30,550	26,709	23,764	21,432	19,536	17,964	16,638	15,504	14,521	
	2.4%	33,008	28,546	25,191	22,575	20,474	18,749	17,305	16,078	15,022	
	2.6%	35,911	30,662	26,806	23,850	21,509	19,606	18,029	16,698	15,559	
	2.8%	39,393	33,129	28,650	25,283	22,656	20,548	18,816	17,367	16,136	
	3.0%	43,650	36,042	30,774	26,904	23,936	21,586	19,677	18,093	16,757	

Source: Author Analysis

## Appendix 13.2: FCFF – Sensitivity of Price Target against WACC and long-run (g) rate.

		WACC (%)									
		2025F	4.8%	5.2%	5.6%	6.0%	6.4%	6.8%	7.2%	7.6%	8.0%
Long-run sustainable growth (%)	1.4%	11.65	9.72	8.15	6.84	5.74	4.80	3.99	3.27	2.64	
	1.6%	12.84	10.67	8.92	7.49	6.30	5.28	4.40	3.64	2.97	
	1.8%	14.18	11.73	9.78	8.21	6.90	5.79	4.85	4.03	3.31	
	2.0%	15.71	12.91	10.74	8.99	7.55	6.35	5.33	4.45	3.68	
	2.2%	17.47	14.26	11.80	9.85	8.26	6.95	5.84	4.89	4.07	
	2.4%	19.52	15.79	12.99	10.80	9.05	7.61	6.40	5.37	4.49	
	2.6%	21.95	17.56	14.34	11.87	9.91	8.32	7.00	5.89	4.94	
	2.8%	24.86	19.62	15.88	13.07	10.87	9.11	7.66	6.45	5.42	
	3.0%	28.42	22.06	17.66	14.42	11.94	9.98	8.38	7.06	5.94	

## Appendix 13.3: FCFF – Sensitivity of EV to Key Profitability Drivers.

		EV sensitivity to Passenger Yield and RPK growth rate											
		Passenger Yield [Average]											
			0.0987	0.0989	0.0991	0.0993	0.0995	0.0997	0.0999	0.1001	0.1003	0.1005	0.1007
		%Ch.	-1.80%	-1.60%	-1.40%	-1.20%	-1.00%	-0.80%	-0.60%	-0.40%	-0.20%	0.00%	0.20%
RPK growth rate [Average]	4.62%	-5%	11,812	12,965	14,130	15,309	16,503	17,713	18,941	20,187	21,451	22,735	24,040
	4.67%	-4%	12,153	13,309	14,478	15,661	16,860	18,076	19,308	20,560	21,830	23,120	24,430
	4.72%	-3%	12,494	13,654	14,827	16,015	17,219	18,439	19,677	20,934	22,210	23,506	24,822
	4.77%	-2%	12,836	13,999	15,177	16,369	17,578	18,804	20,047	21,309	22,591	23,893	25,216
	4.82%	-1%	13,178	14,346	15,528	16,725	17,938	19,169	20,418	21,686	22,974	24,282	25,611
	4.87%	0	13,522	14,694	15,880	17,082	18,300	19,536	20,791	22,064	23,358	24,672	26,008
	4.92%	+1%	13,866	15,042	16,233	17,439	18,663	19,904	21,164	22,444	23,743	25,064	26,406
	4.96%	+2%	14,211	15,391	16,587	17,798	19,027	20,274	21,539	22,825	24,130	25,457	26,805
	5.01%	+3%	14,557	15,742	16,942	18,158	19,392	20,644	21,916	23,207	24,518	25,851	27,206
	5.06%	+4%	14,904	16,093	17,298	18,519	19,758	21,016	22,293	23,590	24,908	26,247	27,609
5.11%	+5%	15,252	16,445	17,655	18,881	20,126	21,389	22,672	23,975	25,299	26,645	28,013	

Source: Author Analysis

## Appendix 13.4: Sensitivity of EV and Price Target against changes in Long-Term Jet Fuel Price.

Price Target sensitivity to Jet Fuel Price									
Jet Fuel Price	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68
Enterprise Value	26,777	25,078	23,309	21,464	19,536	17,517	15,396	13,160	10,789
Price Target	14.31	12.90	11.42	9.88	8.26	6.58	4.80	2.94	0.95

Source: Author Analysis

## Appendix 13.5: Sensitivity of EV and Price Target against changes Middle East & Africa Market.

Price Target sensitivity to Development of Middle East & Africa Market											
Middle East & Africa RPK growth rate	5.60%	5.10%	4.60%	4.10%	3.60%	3.10%	2.60%	2.10%	1.60%	1.10%	0.60%
Enterprise Value	19,536	19,382	19,230	19,081	18,934	18,791	18,650	18,511	18,375	18,241	18,110
Price Target	8.26	8.13	8.00	7.87	7.74	7.62	7.49	7.37	7.26	7.14	7.02
%ch. PT	0%	-1.6%	-1.6%	-1.6%	-1.6%	-1.6%	-1.6%	-1.6%	-1.6%	-1.6%	-1.6%

Source: Author Analysis

## Appendix 14: Upside / Downside scenarios - details

Jet Fuel Price	Description	2024E	2025F	2026F	2027F	2028F	2029F
Base Case		0.76	0.69	0.67	0.65	0.64	0.64
<b>Upside</b>	<b>Lower fuel price (-5%)</b>	<b>0.72</b>	<b>0.66</b>	<b>0.64</b>	<b>0.62</b>	<b>0.61</b>	<b>0.61</b>
Potential factors:	1) Accelerated global economic slowdown; 2) Peace Deal in Oil-Exporting Regions;						
<b>Downside</b>	<b>Higher Jet Fuel Price (+5%)</b>	<b>0.79</b>	<b>0.73</b>	<b>0.70</b>	<b>0.68</b>	<b>0.67</b>	<b>0.67</b>
Potential factors:	1) Increase of Geopolitical Tensions in Oil-Exporting Regions; 2) Tightening Environmental Regulations; 3) Supply Chain disruptions;						

Passenger Yield (RPK)	Description	2024E	2025F	2026F	2027F	2028F	2029F
Base Case		-0.80%	-0.80%	-0.80%	-0.80%	-0.80%	-0.80%
<b>Upside</b>	<b>Lower decrease rate of yields (-5%)</b>	<b>-0.76%</b>	<b>-0.76%</b>	<b>-0.76%</b>	<b>-0.76%</b>	<b>-0.76%</b>	<b>-0.76%</b>
Potential factors:	1) Higher travel demand; 2) Successful Loyalty Programs; 3) Expansion of Premium Offerings;						
<b>Downside</b>	<b>Higher decrease rate of yields (+5%)</b>	<b>-0.84%</b>	<b>-0.84%</b>	<b>-0.84%</b>	<b>-0.84%</b>	<b>-0.84%</b>	<b>-0.84%</b>
Potential factors:	1) Price Wars & Higher pressure from Low-Cost Airlines; 2) Weak demand; 3) Economic uncertainty;						

Long-Run terminal rate	Description	Terminal
Base Case		2.20%
<b>Upside</b>	<b>Higher rate (+10%)</b>	<b>2.31%</b>
Potential factors:	Enhanced earnings arising from: 1) Higher demand, Higher yields, Cost efficiency, technological advancements and others.	
<b>Downside</b>	<b>Lower rate (-10%)</b>	<b>2.09%</b>
Potential factors:	Inferior earnings arising from: 2) Lower Demand, Lower Yields, less Cost efficiency and others.	

Source: Author Analysis

## Appendix 15: Valuation: APV

Discounted Cash Flows in €m	FC 2025F	FC 2026F	FC 2027F	FC 2028F	FC 2029F	Terminal
<b>FCFF</b>	401	-275	-703	-724	987	
<b>PV FCFF</b>	401	-261	-632	-617	794	
<b>Interest Tax Shield</b>	120.60	125.98	135.79	146.31	146.17	
<b>PV of Tax Shield</b>	120.60	121.51	126.33	131.28	126.50	
<b>Ru</b>	5.4%	5.5%	5.5%	5.5%	5.6%	6.7%
<b>Terminal Value</b>						22,489.41
<b>PV of Terminal Value</b>	18,078.83					
<b>Vu</b>	17,764.53					
<b>APV (Vu + PV of Tax Shield)</b>	18,391					
(+) Cash & Equivalents	7,755					
(-) Debt	17,402					
<b>Equity Value</b>	8,743					
<b>#Shares</b>	1,196.60					
<b>Price Target</b>	7.31					
<b>Closing Price / Sh.</b>	6.71 €					
Upside potential	8.9%					
Annualized return	7.05%					

Source: Author Analysis

## Appendix 16: Valuation: FCFE

Discounted Cash Flows in €m	FC 2025F	FC 2026F	FC 2027F	FC 2028F	FC 2029F	Terminal
<b>Net Income</b>	880	908	904	809	693	
<b>D&amp;A</b>	2254	2268	2300	2332	2334	
<b>Δ Working Capital</b>	-29	145	147	202	252	
<b>CAPEX</b>	3078	3646	4136	4072	2191	
<b>Net Borrowing</b>	276	600	1200	1288	-178	
<b>FCFE</b>	360	-14	122	154	405	
<b>PV of FCFE</b>	360	-13	103	120	290	
<b>(Re)</b>	8.69%	8.69%	8.69%	8.69%	8.69%	8.69%
<b>Terminal Value</b>						6,382
<b>PV of Terminal Value</b>	4,572					
<b>Equity Value</b>	861.13					
<b>#Shares</b>	1,197					
<b>Price Target</b>	0.72					
<b>Closing Price / Sh.</b>	6.71 €					
Downside potential	-89.3%					
Annualized return	-83.24%					

Source: Author Analysis



## Appendix 17: Valuation: Residual Income

Residual Income Model	E 2024	FC 2025	FC 2026	FC 2027	FC 2028	FC 2029
<b>Book Value / Sh.</b>	8.60	9.34	10.10	10.85	11.53	12.11
EPS		0.74	0.76	0.76	0.68	0.58
Charge for Equity Capital		0.75	0.81	0.88	0.94	1.00
Residual Income		-0.01	-0.05	-0.12	-0.27	-0.42
PV of Residual Income		-0.01	-0.05	-0.10	-0.21	-0.66
(R <sub>e</sub> )	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
<b>Vo</b>	<b>7.57 €</b>					
<b>Closing Price / Sh.</b>	<b>6.71 €</b>					
Up/Dn potential		12.7%				
Annualized return		10.07%				

Source: Author Analysis

## Appendix 18: Peers financial data (TTM)

Peers	Revenue	Market Cap	EBITDA	EBIT	Enterprise Value	# Shares	EPS	Share Price	Book Value/share	Cash Flow (op)	Free Cash Flow
Deutsche Lufthansa AG	36,435.00	7,989.00	4,487	2,028	13,440	1,196.60	1.01	6.68	8.07	4,633	589
Easyjet PLC	10,480.65	4,858.00	1,616	770.18	4,610	777.22	0.49	6.25	3.22	1,474	556.97
Air France KLM SA	30,669.00	2,448.00	4,019	1,256	8,250	262.63	-1.27	9.32	-12.76	1,545	-2,677
Wizz Air Holdings PLC	5,073.10	1,881.00	1,293.10	537.8	6,540	103.38	2.96	18.20	1.77	677	-32.1
International Consolidated Airlines Group SA	30,594.00	12,467.00	6,413	4,193	18,620	4,920.00	0.52	2.53	0.97	5,451	1,780
Deutsche Post AG	81,636.00	46,200.00	10,491	5,849	65,650	1,140.00	2.74	40.53	18.88	8,626	5,550
Fraport Frankfurt Airport Services Worldwide AG	4,235.00	4,670.00	1,515.30	991	1,740	92.39	5.02	50.55	48.56	928	-146
Ryanair Holdings PLC	13,420.60	18,539.00	2,963	1,865.50	16,920	1,134.48	1.41	16.34	6.93	3,033.00	1,203

Source: Yahoo Finance & Author Analysis

## Appendix 19: Multiples – by Peer

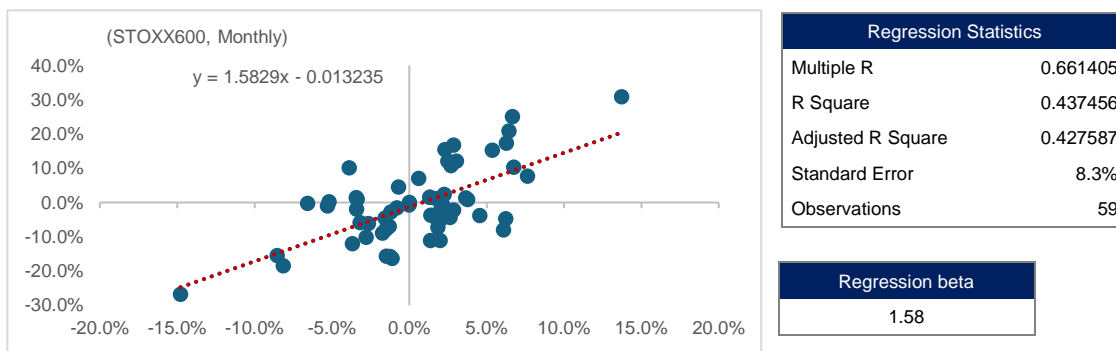
Multiple	Median	Deutsche Lufthansa AG	Easyjet PLC	Air France KLM S.A.,	Wizz Air Holdings PLC	IAG, S.A.	Deutsche Post AG	Fraport Frankfurt Airport Services Worldwide AG	Ryanair Holdings PLC
<b>Price Multiples</b>									
P/E	10.07 x	6.61 x	12.76 x	-7.34 x	6.15 x	4.87 x	14.79 x	10.07 x	11.59 x
P/B	2.15 x	0.83 x	1.94 x	-0.73 x	10.28 x	2.61 x	2.15 x	1.04 x	2.36 x
P/S	0.46 x	0.22 x	0.46 x	0.08 x	0.37 x	0.41 x	0.57 x	1.10 x	1.38 x
P/CF	3.29 x	1.72 x	3.29 x	1.58 x	2.78 x	2.29 x	5.36 x	5.03 x	6.11 x
<b>Enterprise Value Multiples</b>									
EV/EBITDA	2.90 x	3.00 x	2.85 x	2.05 x	5.06 x	2.90 x	6.26 x	1.15 x	5.71 x
EV/EBIT	6.57 x	6.63 x	5.99 x	6.57 x	12.16 x	4.44 x	11.22 x	1.76 x	9.07 x
EV/Sales	0.61 x	0.37 x	0.44 x	0.27 x	1.29 x	0.61 x	0.80 x	0.41 x	1.26 x

Source: Yahoo Finance & Author Analysis

## Appendix 20: WACC

WACC	2025F	2026F	2027F	2028F	2029F	Terminal [Target]
<b>Cost of Equity</b>						
RFR	2.17%	2.17%	2.17%	2.17%	2.17%	2.17%
ERP	4.12%	4.12%	4.12%	4.12%	4.12%	4.12%
Beta	1.58	1.58	1.58	1.58	1.58	1.58
<b>(Re)</b>	<b>8.69%</b>	<b>8.69%</b>	<b>8.69%</b>	<b>8.69%</b>	<b>8.69%</b>	<b>8.69%</b>
<b>Cost of Debt</b>						
(R <sub>d</sub> )	3.678%	3.678%	3.678%	3.678%	3.678%	3.678%
Tax rate (%)	20.9%	20.9%	20.9%	20.9%	20.9%	20.9%
<b>After-tax (R<sub>d</sub>)</b>	<b>2.91%</b>	<b>2.91%</b>	<b>2.91%</b>	<b>2.91%</b>	<b>2.91%</b>	<b>2.91%</b>
<b>WACC</b>						
Weight of Equity	35.3%	36.0%	35.9%	36.0%	38.5%	60.0%
Weight of Debt	64.7%	64.0%	64.1%	64.0%	61.5%	40.0%
Pre-tax WACC (R <sub>u</sub> )	5.4%	5.5%	5.5%	5.5%	5.6%	6.7%
<b>WACC</b>	<b>4.95%</b>	<b>4.99%</b>	<b>4.98%</b>	<b>4.99%</b>	<b>5.14%</b>	<b>6.38%</b>

### Beta Regression (Top – Down approach)

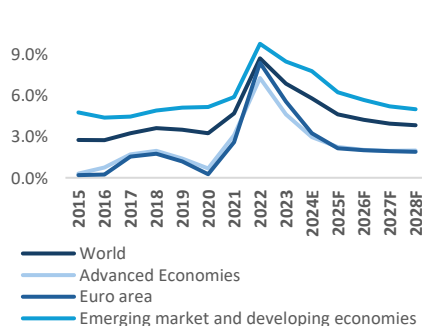


## Appendix 21: Cost of Debt

WKN/ISIN	Amount (m)	YTM	Coupon	Maturity	Issue Date	Maturity Date	Issued Price	Current Price [€]	Face Value [€]
A383QY / XS2892988192	500	3.89%	4.13%	8	03/09/2024	03/09/2032	100%	101.6	100
A383QX / XS2892988275	500	3.47%	3.63%	4	03/09/2024	03/09/2028	99.60%	100.78	99.6
<b>Average (cost of debt R<sub>d</sub>)</b>		<b>3.678%</b>							

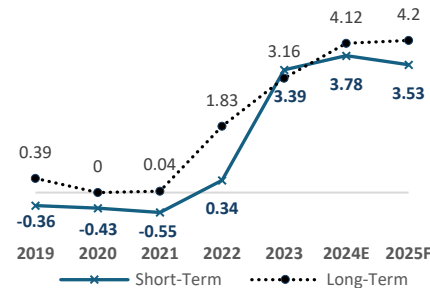
## Appendix 22: Industry & Economic, and operational highlights

### 1. Inflation rate (actuals + forecast)



Source: IMF & Author Analysis

### 2. Interest rates in Euro Area (actuals + forecast)



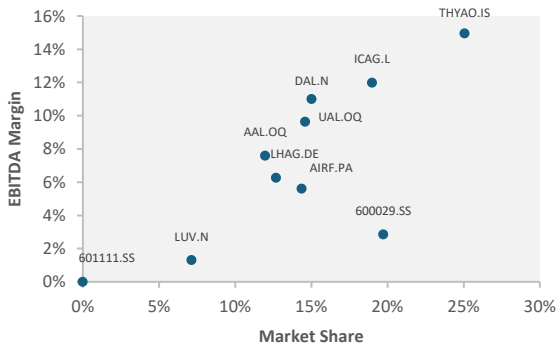
Source: IMF & Author Analysis

### 3. Deutsche Lufthansa's Cost per ASK and average passenger yield



Source: IMF & Author Analysis

Top 10 Industry leaders EBIT margin x Market Share (%)



Source: Refinitiv Eikon & Author Analysis

Industry leader's fleet size

RIC	Competitors (billion €)	Fleet size
DAL.N	Delta Air Lines	1,273.00
UAL.OQ	United Airlines	1,358.00
AAL.OQ	American Airlines	1,521.00
LHAG.DE	Lufthansa Group	721.00
AIRF.PA	Air France-KLM	551.00
ICAG.L	IAG	582.00
LUV.N	Southwest Airlines	817.00
600029.SS	China Southern Airlines	662.00
601111.SS	Air China	494.00
THYAO.IS	Turkish Airlines	453.00

Source: Refinitiv Eikon & Author Analysis

Appendix 23: Business and Corporate Structure

DEUTSCHE LUFTHANSA AG	
Name	Role
<b>Executive Board</b>	
Carsten Spohr	Chairman of the Executive Board
Christina Foerster	Brand & Sustainability
Harry Hohmeister	Global Markets & Network
Detlef Kayser	Fleet & Technology
Michael Niggemann	Human Resources & Infrastructure
Remco Steenbergen	Chief Financial Officer
<b>Supervisory Board</b>	
<b>Chairman &amp; Chairwoman's</b>	
Karl-Ludwig Kley	Executive Board of Merck KGaA
Erich Clementi	Supervisory Board of E.ON SE
Thomas Enders	Member of various Supervisory Boards
Karl Gernandt	Kühne Holding AG
Michael Kerkloh	Executive Board of Flughafen München GmbH
Carsten Knobel	Executive Board Henkel AG & Co. KGaA
Harald Krüger	Supervisory Board of Deutsche Telekom AG
Britta Seeger	Executive Board Mercedes-Benz Group AG
Astrid Stange	CEO of ELEMENT Insurance AG
Angela Titzrath	Executive Board Hamburger Hafen und Logistik AG
Dipl.-Ing. Jürgen Weber	Supervisory Board Deutsche Lufthansa AG
<b>Employee representatives</b>	
Christine Behle	Deputy Chair of the trade union
Tim Busse	Flight attendant
Sara Grubisic	Purser
Christian Hirsch	Information management consultant
Jamila Jadran	Senior Project Manager
Arne Christian Karstens	Flight captain
Klaus Winkler	Engine technician
Holger Benjamin Koch	Senior Director Airport / Industry Charges
Marvin Reschinsky	Trade union secretary
Birgit Rohleder	Team Lead IT

Source: Company Data & Author Analysis

## Appendix 24: Deutsche Lufthansa AG fleet expected deliveries

Model	Replacing	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total
Airbus A350	Airbus A330 /A340 / A380	5	5	5	5	5	5	5	7		42
Boeing 787	Boeing 767 & A340	7	7	7	7	6					34
Boeing 777	Boeing 767 / older 777	0	5	5	5	5					20
Boeing 777F	-	1	1	1	1	1	1	2			8
Airbus A220	Bombardier / Embraer			7	7	7	7	6	6		40
Airbus A320neo	Airbus A320	10	9	9	9	9					46
Airbus A321neo	Airbus A321	5	5	5	4	4					23
Boeing 737	A319 /A320				7	7	7	7	6	6	40
<b>Total</b>		<b>28</b>	<b>32</b>	<b>39</b>	<b>45</b>	<b>44</b>	<b>20</b>	<b>20</b>	<b>19</b>	<b>6</b>	<b>253</b>

Source: Company Data & Author Analysis

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### Recommendation System

Level of Risk	SELL	REDUCE	HOLD/NEUTRAL	BUY	STRONG BUY
High Risk	$0\% \leq$	$>0\% \ \& \ \leq 10\%$	$>10\% \ \& \ \leq 20\%$	$>20\% \ \& \ \leq 45\%$	$>45\%$
Medium Risk	$-5\% \leq$	$>-5\% \ \& \ \leq 5\%$	$>5\% \ \& \ \leq 15\%$	$>15\% \ \& \ \leq 30\%$	$>30\%$
Low Risk	$-10\% \leq$	$>-10\% \ \& \ \leq 0\%$	$>0\% \ \& \ \leq 10\%$	$>10\% \ \& \ \leq 20\%$	$>20\%$

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I disclose that AI tools were employed during the development of this thesis as follows:

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Timur Ismagilov, October 11, 2024