CATÓLICA LISBON
BUSINESS & ECONOMICS

Equity Research Valuation

Fraport AG Airport Services Worldwide

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Dissertation written under the supervision of Professor José Carlos Tudela Martins

Dissertation submitted in partial fulfilment of requirements for the MSc in Finance, at the Universidade Católica Portuguesa, 05.01.2022.

Abstract

On March 11, 2020, Covid-19 was officially announced as a global pandemic inflicting global challenges, economic, financial, and healthcare crises. In its wake, the travel industry was set to a complete halt resulting in international passenger freefalls of 95% in the subsequent month. Thus far, airport stocks are still trading below cruising altitude, marking one of the most damaged industries worldwide. Therefore, this thesis aims to analyze the intrinsic value of Fraport AG – Airport Services Worldwide, to exploit the effect of the pandemic and form an investment decision. The recovery profile is determined by unfolding vaccination rollouts, lifting travel restrictions, and increasing consumer spending power. Based on these assumptions, the intrinsic value per share, derived from the DCF analysis, should be €65.54 as of December 31, 2021. Based on the closing price of €59.18, the upside potential amounts to 10.7% and suggests a buy recommendation in the short run. However, the share price is expected to grow at 8.2% CAGR to €89.70 in 2025, proposing a hold recommendation in the long run. Scenario, sensitivity, and Monte Carlo analyses reveal more upside potential. Lastly, the results are compared to the target price of AlsterResearch AG.

A 11 de Março de 2020, a Covid-19 foi oficialmente anunciada como uma pandemia o que veio impor desafios globais, crises económicas, financeiras e nos sistemas de saúde. Por conseguinte, a indústria de viagens sofreu uma total interrupção, pelo que no mês seguinte se observou uma queda de 95% do número de passageiros internacionais. Até ao momento, as ações dos aeroportos estão ainda a ser negociadas abaixo da altitude de cruzeiro, pelo que é uma das indústrias mais perturbadas com a pandemia à escala mundial. Dessa forma, esta tese visa analisar o valor intrínseco da Fraport AG - Airport Services Worldwide, considerando o impacto da pandemia e assim propor uma recomendação de investimento. O perfil de recuperação é determinado pela ampliação dos planos de vacinação, pelo levantamento de restrições de viagem, e pelo aumento do poder de compra dos consumidores. Considerando estes pressupostos, o valor intrínseco por ação, resultado de uma análise DCF, será de 65,54€ à data de 31 de dezembro de 2021. Com base no preço de fecho de 59,18€, a ascendente potencial remonta a 10,7% e a recomendação é a realização de uma compra para o curto prazo. Contudo, espera-se que o preço da ação cresça a 8,2% CAGR para 89,70€ em 2025, propondo-se uma recomendação de manutenção da posição no longo prazo. As análises de diferentes cenários, sensibilidade, e Monte Carlo revelam um potencial mais positivo. Por último, os resultados são comparados com o preço alvo da AlsterResearch AG.

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List of Abbreviations

APR	Accounts Payable Ratio
APV	Adjusted Present Value
ARR	Accounts Receivable Ratio
CAPEX	Capital Expenditures
CAPM	Capital Asset Pricing Model
CCC	Cash Conversion Cycle
CFF	Cash Flow from Financing Activities
CFI	Cash Flow from Investing Activities
CFO	Cash Flow from Operating Activities
CR	Current Ratio
D&A	Depreciation and Amortization
DDM	Dividend Discount Model
DIO	Days Inventory Outstanding
DPO	Days Payables Outstanding
DSO	Days Sales Outstanding
EAT	Earnings after Taxes
EBIT	Earnings before Interest, Taxes
EBITDA	Earnings before Interest, Taxes, Depreciation and Amortization
EBT	Earnings before Taxes
FCF	Free Cash Flow
FCFE	Free Cash Flow to Equity
FCFF	Free Cash Flow to the Firm
FOREX	Foreign Exchange
GGM	Gordon Growth Model
ICR	Interest Coverage Ratio
IDW	Institute of Public Auditors in Germany
ITR	Inventory Turnover Ratio
ITS	Interest Tax Shield
NIBD	Net Interest Bearing Debt
NOA	Net Operating Assets
NOWC	Net Operating Working Capital
NWC	Net Working Capital
O&D	Origin and Destination
OA	Operating Assets
OL	Operating Liabilities
PD	Probability of Default
PM	Profit Margin
PPE	Property, Plant, and Equipment
QR	Quick Ratio
ROA	Return on Assets
ROE	Return on Equity
SE	Shareholders' Equity
TATR	Total Asset Turnover Ratio
TCFF	Total Cash-Flow to the Firm
TV	Terminal Value
WACC	Weighted Average Cost of Capital

Equity Valuation Fraport AG

Germany/ Airport Operators and Services
Primary Index: MDAX
Ticker: FRA.DE
ISIN: DE0005773303

Recommendation:	Hold
Current Price:	€59.18
Price Target:	€65.54
Upside Potential:	10.7%

"INVESTORS, PREPARE FOR TAKE-OFF"

Summary

The DCF analysis, with its three different methods: *FCFF*, *TCFF*, and *APV* result in an average share price of €65.54 as of December 31, 2021, in the consensus scenario. This indicates an upside potential of 10.7% compared to the closing price of €59.18. The share price is expected to grow at 8.2% CAGR to €89.70 in 2025. Furthermore, the share price is within the range of the comps share price of €58.03, and therefore, validated. The price ranges of the valuation summary are taken from the sensitivity analysis. The scenario, sensitivity, and Monte Carlo simulation reveal more upside potential than downside.

Investment Recommendation [IR1]

Considering the recent drop of around -10% in share price due to the announcement of the Omicron variant, current share prices are identified to be undervalued as indicated by the upside potential. Therefore, a BUY recommendation is issued for the short run to profit from this recent shock. Information on market timing is provided in *Appendix 22*.

Investment Recommendation [IR2]

As soon as the vaccination progresses and herd immunity is reached, share prices will reach cruising altitude by 2025. However, since the share price is expected to grow at 8.2% CAGR and global indices like the S&P500 offer an average annualized return of around 10-11% since inception, a HOLD recommendation is issued for the long run. More information on the historical share price and the forecasted share price ranges are in *Appendix 22*.

Company Profile

Fraport AG is the owner and operator of Frankfurt airport and is active at 31 airports on three continents. Frankfurt airport ranks place 15 worldwide, and 4 in Europe concerning pax carried (70.6M in 2019). It operates through four segments: Aviation, Retail and Real Estate, Ground Handling, and International Activities.

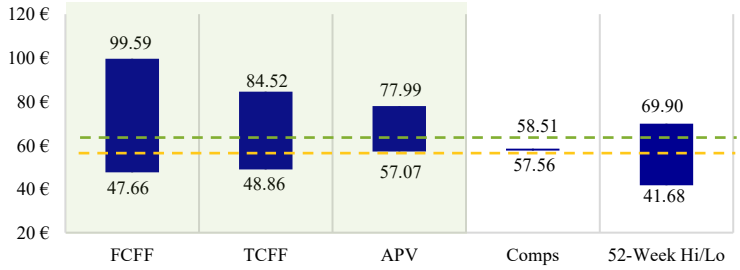
Key Information

CEO	Stefan Schulte
Founded	1924
IPO	2021 @ €35.00
Headquarter	Frankfurt
Employees	18,249

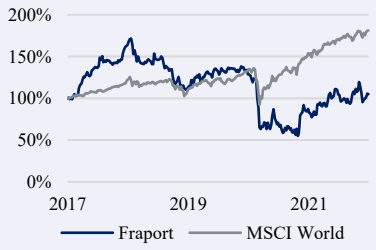
Market Data

Shares O/S	92,39M
Market Cap	5,745B
Dividend	0.00
52-Week Hi/Lo	41.68 / 69.90
Average Volume	270,621

Valuation Summary



Share Price



Financial Model

(in EUR millions)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Revenue	3,785	1,797	2,232	3,447	3,943	4,038	4,043	4,228	4,373	4,490	4,611	4,736
EBITDA	1,180	-251	755	1,134	1,275	1,282	1,261	1,318	1,364	1,400	1,438	1,477
EAT	454	-690	-15	236	265	261	238	272	306	336	367	399
EBITDA Margin	31.2%	-13.9%	33.8%	32.9%	32.3%	31.8%	31.2%	31.2%	31.2%	31.2%	31.2%	31.2%
EAT Margin	12.0%	-38.4%	-0.7%	6.8%	6.7%	6.5%	5.9%	6.4%	7.0%	7.5%	8.0%	8.4%
ROE	9.8%	-18.4%	-0.4%	5.9%	6.2%	5.8%	5.1%	5.7%	6.2%	6.6%	6.9%	7.2%
Debt-to-Equity	1.1	2.1	2.7	2.8	2.6	2.2	2.1	2.1	2.0	1.9	1.8	1.7
Net Debt-to-EBITDA	3.8	-23.5	9.8	8.2	7.2	7.1	7.1	6.7	6.4	6.1	5.8	5.6
Free Cash Flow (FCFF)				-1,825	92	91	171	405	438	463	490	518
Average Share Price			65.54	69.99	76.53	83.56	89.70	93.51	97.19	100.89	104.50	108.09
EV/Revenue			6.2x	4.7x	4.2x	4.3x	4.4x	4.3x	4.2x	4.1x	4.1x	4.0x
EV/EBITDA			18.3x	14.2x	13.1x	13.4x	14.0x	13.6x	13.4x	13.2x	13.0x	12.8x

1 Introduction

Equity valuations are frequently used by investors such as small individuals, hedge funds, and institutional investors to discover the intrinsic value of a company's equity and ultimately derive rational investment decisions. Equity valuation is often perceived as the backbone of the modern financial system since it grants companies with solid fundamentals to command a premium in the market. On the other hand, companies with weak performances witness a fall in their market value. Stock prices constantly change based on new information received and investors' attempts to factor in the financial effect on the stock price. Prime example, Warren Buffet made the concept of value investing famous by identifying the intrinsic value of a company and leveraging this knowledge by investing in undervalued companies. The outbreak of the Covid-19 pandemic put the entire aviation industry at a halt, and to date, airline and airport stocks still trade far below cruising altitude. Therefore, this dissertation's objective is to analyze the fair value of Fraport AG – Airport Services Worldwide, hereinafter referred to as Fraport, to utilize the effect of the pandemic and form a potential investment decision.

This paper is compiled of five main chapters. The second chapter covers the necessary theoretical background of the methods used in company valuation to identify the most suitable methods applied in this paper. Chapters three and four introduce the industry and company. Chapter five analyzes the historical financial performance and creates the foundation for the financial forecast, presented in chapter six. Finally, chapter seven applies the selected valuation methods and estimates the fair value as of December 31, 2021. Furthermore, it compares the valuation of this paper to the equity research report published by AlsterResearch AG. The valuation summary is provided at the beginning of this paper, formulating the recommendation.

2 Theoretical Background

The following literature introduces the most commonly used valuation methods and compares their benefits, drawbacks, and overall applicability. Furthermore, the effect of leverage on firm value is explained. Lastly, the most suitable methods for Fraport characteristics are portrayed.

2.1 Discounted Cash Flow (Intrinsic Value Approach)

The discounted cash-flow valuation can be broken down into two distinct approaches that arrive at the enterprise or equity value. These approaches primarily differ in the type of cash flow in combination with the respective discount rate. For example, the *FCFE* approach determines the equity value directly by discounting the net cash flow that belongs only to equity holders using the levered cost of equity. Alternatively, the *FCFF* approach indirectly determines the equity value by discounting the gross cash flow belonging to both equity and debt holders using the WACC, resulting in the enterprise value. Therefore, this enterprise value must be adjusted by subtracting the company's net debt and minority interest to arrive at the equity value. Ceteris paribus, all approaches should lead to identical intrinsic values approved in the jurisdiction *(IDW S1, 2008)*.

The cash flows that are discounted at an appropriate risk-reflecting rate are future cash flows that are projected. In practice, the forecast is divided into two periods. First is the detailed planning period, typically projecting an integrated financial statement model for the next 5 to 10 years. And the second period is based on a long-term growth rate, resulting in a TV. The projected number of years depends on the business stability. Considering the economic shock from Covid-19, detailed planning periods will cover more years due to the longer recovery profiles of particular industries. Even though forecasts well into the future might be more inaccurate, this will decrease the impact of the TV on the intrinsic value, which is even more sensitive to changes in the discount and perpetuity growth rate than the cash flows.

This sub-chapter introduces the three enterprise value methods applied in this thesis: *FCFF*, *TCFF*, and *APV*. However, the equity value cash flow-based methods: *DDM* and *FCFE*, are covered in *Appendix 10*.

2.1.1 Free Cash Flow to the Firm (FCFF)

In contrast to the two approaches, *DDM* and *FCFE*, which arrive at the company's equity value, the following three approaches estimate the enterprise value. The *FCFF* belongs to all company claim holders and starts with the earnings before interest and taxes. It directly subtracts the

taxes from the earnings before interest and taxes as if the company was unlevered and further subtracts net capital expenditures as well as changes in net working capital:

$$FCFF = EBIT * (1 - T) - NCAPEX - \Delta NWC \quad (1)$$

The unlevered cash flow is before any debt payments and does not entail any tax advantages stemming from the interest payments. The tax advantage, however, is considered in the discount rate. The discount rate is the after-tax WACC.

$$EV = \sum_{t=1}^{n} \frac{FCFF_t}{(1 + R_{WACC(incl.\ tax\ shield)})^t} + \frac{TV}{(1 + R_{WACC(incl.\ tax\ shield)})^t} \quad (2)$$

According to *Damodaran (2012)*, the *FCFF* is best suited and superior to the *FCFE* method in settings where companies have either a high degree of leverage or during periods of significant changes in capital structure. In addition, *FCFE* is more difficult to estimate due to the volatility induced by debt issuances or payments. Moreover, the fact that the equity value only represents a small portion of the firm's total value, it is more sensitive towards assumptions about growth and risk. However, in theory, both methods should yield the same results.

2.1.2 Total Cash Flow to the Firm (TCFF)

The *TCFF* is an alternative variant of the *FCFF* approach. Both methods, however, return similar enterprise values. The only difference is how it accounts for the tax advantage of debt capital. Here, the tax advantage is not captured in the discount rate as it uses before-taxes cost of debt but in the cash flow. The formula subtracts the taxes from the earnings before taxes assuming the company to be levered:

$$TCFF = EBT * (1 - T) - NCAPEX - \Delta NWC \quad (3)$$

$$EV = \sum_{t=1}^{n} \frac{TCFF_t}{(1 + R_{WACC(excl.\ tax\ shield)})^t} + \frac{TV}{(1 + R_{WACC(excl.\ tax\ shield)})^t} \quad (4)$$

2.1.3 Adjusted Present Value (APV)

The *APV* is another indirect method, first introduced by *Myers (1974)*, that emerged over recent years to calculate the company's enterprise value. Compared to the other indirect enterprise value methods, *FCFF* and *TCFF*, the tax advantage of debt capital is neither recognized in the

cash flows to be discounted nor in the discount factor itself. However, the concept of this method is to calculate the value of the company as if it was unlevered, discounted at the unlevered cost of equity, add the present value of the interest tax shield (ITS), and lastly, subtract the expected financial distress cost from borrowing money:

$$EV = \sum_{t=1}^{n} \frac{FCFF_t}{(1 + R_{E(U)})^t} + \frac{TV}{(1 + R_{E(U)})^t} + PV(ITS) - E(Distress\ Cost) \quad (5)$$

Modigliani & Miller (1958) first analyzed the capital structure impact on the firm's value when considering the market imperfection of corporate taxes. However, instead of discounting the present value of the ITS at the risk-free rate, *Myers (1974)* proposed the cost of debt to be the discount factor. He argues "the risk of tax-saving arising from the use of debt is the same as the risk of the debt":

$$ITS = Average\ Debt * Cost\ of\ Debt * Tax\ Rate \quad (6)$$

The present value of the ITS, discounted at the cost of debt:

$$PV(ITS) = \sum_{t=1}^{n} \frac{ITS_t}{(1 + R_D)^t} + \frac{TV}{(1 + R_D)^t} \quad (7)$$

The expected financial distress cost is the product of the unlevered enterprise value, the probability of default, and the percentage amount of bankruptcy cost:

$$E(Distress\ Cost) = EV\ (U) * Probability\ of\ Default * Bankruptcy\ Cost \quad (8)$$

This method's biggest downfall is determining the expected financial distress cost. *Altman et al. (1999)* researched and summarized the probability of default for bond ratings over ten years using a statistical approach based on observable firm characteristics at different debt levels. Therefore, the bond rating can be used as an indicator of the probability of default. On the other hand, studies have investigated the magnitude of the bankruptcy cost. Consensus found direct bankruptcy costs, mainly composed of legal and administrative expenses, to be small relative to firm value. *Shapiro & Titman (1985)* anticipate indirect bankruptcy cost, primarily brand damage, loss of key personnel, customers, and investment opportunities, to range between 25% and 30% of firm value. However, they fail to provide direct evidence. Furthermore, the indirect

cost depends on the type of industry, for example, when comparing heavy, tangible assets to rich intangible assets companies.

2.1.4 Terminal Value (TV)

As mentioned earlier, the second stage of the DCF method applies the concept of the terminal value since cash flows cannot be estimated forever. The terminal value reflects the firm's value into infinity at a given period and will be added to the firm's value from the first stage. According to *Damodaran (2012)*, the terminal value can be estimated in three different ways: liquidation, exit multiple, or perpetual growth model.

The value coming from the liquidation method represents the total value of a firm's assets as if it was sold to the highest bidder at the end of its forecasted life.

The multiples approach calculates the terminal value through enterprise or equity multiples. Consequently, the origin of the multiple plays a critical role since it can result in a dangerous mix of DCF and relative valuation when using a comparable company multiple.

Lastly, the perpetuity approach, compared to the liquidation approach, assumes an infinite life of the company. The company uses its cash flows to reinvest and grow at a constant rate forever. This growth rate represents the stage of the business life cycle or can be coupled to the GDP or inflation rate of the given country.

$$Terminal\ Value = \frac{FCF_{t+1}}{(R - G)} \qquad (9)$$

2.2 Market Approach (Relative Value Approach)

Unlike DCF, which estimates a company's intrinsic value based on the present value of its future cash flows, relative valuation explores the value of a company based on how similar publicly traded companies currently price in the market. *Damodaran (2009)* distinguishes four standardized matrices: earnings, book value, revenue, and industry multiples. Depending on the multiple, either the enterprise or equity value of the company is calculated.

Tuovila (2020) identifies the price-to-earnings and EV-to-EBITDA multiples to be dominantly used in the industry. Every type of multiple has its advantages and pitfalls. For example, earnings multiples are affected by the capital structure and incorporate one-time events that can be misleading *(Goedhart et al., 2005)*.

Moreover, book value multiples are subject to accounting choices and may vary between companies within the same industry *(Fernández, 2002)*.

On the other hand, industry multiples were first introduced for internet companies. They could still be applied even though companies had negative earnings and negligible revenues during their early days. Therefore, the value was based on the number of clicks they generated. However, industry multiples are hard to compare to a company's fundamentals and, thus, hard to justify *(Damodaran, 2012)*.

In addition, multiples can either be trailing, current, or forward-looking. Liu et al. (2002) discovered that forward-looking multiples provide more accurate price predictions. They found that when comparing individual companies to their industry average, the dispersion was twofold for historical compared to forward multiples.

According to *Damodaran (2009)*, relative valuation outnumbered DCF valuations by almost ten times during 2001 and is still widely used among practitioners due to the following reasons: less time and resource consuming, easier to understand, to sell, and to defend. However, the strengths are also its weaknesses. Corresponding to *DVFA (2012)*, relative valuation should be used to support the DCF result. However, both methods should fall in the same range. "Any deviation from this requirement must be justified."

Two common relative valuation methods can be distinguished, namely comparable company and precedent transactions analysis, discussed below.

2.2.1 Comparable Company Analysis (Comps)

According to *DVFA (2012)*, the main goal of this method is to find the right comparable company concerning the risk profile, profitability, and earnings growth. Typically, peers in the same industry are selected since they face similar risks. Furthermore, this company group is narrowed according to the following factors: geographic coverage, business model comparability, profitability, and growth. In terms of growth, *Damodaran (2009)* argues that multiples depend on the current stage of the business lifecycle, with high-growth companies typically trading at higher multiples.

2.2.2 Precedent Transaction Analysis (Precedents)

This valuation technique is based on historical transactions in which entire companies were sold or bought. The price reflects the historical willingness of an investor to pay for a company based on a multiple. This technique, however, comes with two significant issues. The first one is that

the transactions took place in the past, so market conditions may have changed. Secondly, the purchase price almost certainly entails a takeover premium paid to the target company's shareholders to receive ownership and control rights. The takeover premium is the percentage increase in the price paid compared to the fair value of the target company, considering synergies and transaction costs *(Hayes, 2020)*.

2.3 Weighted Average Cost of Capital (WACC)

Damodaran (2012) defines the cost of capital as "the opportunity cost of all capital invested in an enterprise." In economics, opportunity cost is the forgone benefit sacrificed from deciding against the best alternative option. This cost is assessed against all sources of capital in an enterprise, namely debt and equity. The formula weights each cost proportional to the amount it contributes to the whole capital structure considering their market values (MV):

$$WACC(incl.\,tax\ shield) = \frac{D}{(D+E)} * R_D * (1-T) + \frac{E}{(D+E)} * R_{E(L)} \qquad (10)$$

The weighted average cost of capital is an important metric that significantly influences the present value of future cash flows. That is why the components' concepts are explained in detail in the following sub-chapters.

2.3.1 Market Value of Equity and Debt

The cost of capital is weighted on the MV of debt and equity. The MV of equity can be calculated by multiplying the current share price by the number of outstanding shares. However, if the WACC is calculated for each year, this formula cannot be applied. An alternative way to derive the MV of equity is to calculate the enterprise value using a forward multiple and subtract the MV of debt.

Debt can either be short or long-term. The BV of short-term debt can be assumed to be equal to the MV. If the company has outstanding bonds, then this value of long-term debt already reflects the MV. All other long-term debt that is recorded as BV on the balance sheet can be converted into MV using the bond pricing formula below:

$$MV\ of\ LT\ Debt = C\left(\frac{1-\frac{1}{(1+R_D)^t}}{R_D}\right) + \frac{FV}{(1+R_D)^t} \qquad (11)$$

Here, the long-term debt can be assumed to be a single coupon bond, with the coupon representing the interest expense and the maturity reflecting the weighted average maturity of the debt.

2.3.2 Cost of Debt

The cost of debt is either the weighted YTM of a company's outstanding bonds or the implied probability of default (PD) for the company's credit rating subtracted by the risk-free rate. The credit rating for companies without public rating can be obtained using the synthetic accounting-based approach. Based on the historical performance of liquidity and leverage ratios, the credit rating can be derived based on industry averages.

2.3.3 Cost of Equity

Equity holders do not claim an explicit return on their invested capital compared to debt holders. However, their opportunity cost of equity capital reflects the possibility to invest in any other public listed company with a similar risk profile. The cost of equity formula is what Eugene Fama later referred to as the Capital Asset Pricing Model (CAPM), first introduced in the doctoral Thesis by *Sharpe (1964)*. Later research by *Gitman & Vandenberg (2000)* found the CAPM to be the most commonly used model among practitioners as it was applied by 65% of US firms.

The CAPM assumes a minimum required return equal to the risk-free rate plus a risk premium. The risk premium is the beta ratio product, representing company-specific risk relative to the market and the market risk premium. Lastly, the market risk premium is simply the expected return from holding a risky market portfolio:

$$R_{E(L)} = R_F + \beta(L) * MRP \qquad (12)$$

The *APV* method uses the unlevered cost of equity as the discount rate in the first part of the equation. There are two different ways to derive this value. The first one would be to use the unlevered beta in the CAPM model instead. Alternatively, according to *IDW S1 (2008)*, given a known after-tax WACC, the unlevered cost of equity can also be computed based on the following relationship:

$$R_{E(U)} = \frac{WACC(incl.\,tax\ shield)}{(1 - T * \frac{D}{E})} \qquad (13)$$

2.3.3.1 Risk-Free Rate

Over the years, IDW's recommendation to use the "Svensson method" to estimate the risk-free rate gained attention. The main problem of the CAPM is that it requires a single unique, risk-free rate. In practice, however, a non-flat yield curve is non-existent since YTMs shift for different times to maturity. In a study by *Svensson (1994)* who attempted to solve this problem, extended the earlier findings by *Nelson & Siegel (1987)* and developed a functional relation that estimates the risk-free spot rate over time t as a function of $\beta_{0,1,2}$ and $\tau_{1,2}$ using non-linear optimization:

$$(0,t) = \beta_0 + \beta_1\left(\frac{1-e^{-t/\tau_1}}{t/\tau_1}\right) + \beta_2\left(\frac{1-e^{-t/\tau_1}}{t/\tau_1} - e^{-t/\tau_1}\right) \qquad (14)$$

Germany's central bank frequently estimates and publishes the factors on their website that can be used to calculate the yield curve.

2.3.3.2 Levered Beta

As mentioned earlier, beta is a measure of market risk, of which the levered (or equity) beta considers the capital structure impact, whereas the unlevered (asset) beta does not. For public companies, levered beta is the return coefficient of a company when regressed using ordinary least squares (OLS) against a benchmark index:

$$\beta(L) = \frac{Cov(R_E, R_M)}{Var(R_M)} = \frac{n * \sum_{t=1}^{n} x_t * y_t - \sum_{t=1}^{n} x_t * \sum_{t=1}^{n} y_t}{n * \sum_{t=1}^{n} x_t^2 - (\sum_{t=1}^{n} x_t)^2} \qquad (15)$$

The *APV* method requires using the unlevered cost of equity to value the company as if it was all-equity financed. Therefore, the levered beta must be unlevered. Different approaches to unlever levered betas exist. The most commonly used in practice are *Modigliani & Miller (1963)*, *Damodaran (1994)*, and *Harris & Pringle (1985)*. In Germany, *IDW S1 (2008)* suggests using the following formula:

$$\beta(U) = \frac{\beta(L)}{(1 + \frac{MV\ Debt - ITS}{MV\ Equity})} \qquad (16)$$

Alternatively, the unlevered cost of equity can be computed from a known WACC, see equation *(13)* introduced before.

2.3.3.3 Adjusted Beta

The Covid-19 pandemic and the increased volatility in stock market returns significantly influenced levered betas to change. A recent study by *Roper & Ang (2020)* shows that roughly 60% of S&P500 companies experienced an increase in beta. However, such black swan events should not be considered for valuation purposes since they can substantially bias the outcome. Several techniques are in place to remedy this problem, of which winsorizing appears to be frequently used in the industry. The main idea behind this method is to minimize the influence of outliers which can be achieved by pre-defining the upper and lower limits through the standard deviation that measures the dispersion around the mean. This method is possible since stock returns are assumed to follow a normal distribution. For example, pre-defining the interval between negative and positive two sigmas cuts 2.2% of the tails on each side, limiting the interval to 95.6%.

Another issue coming from the OLS regression is that it is prone to estimation errors. *Vasicek (1973)* proposed an adjustment made to minimize the estimation error and ultimately increase the reliability of beta. This adjustment shifts the beta towards the market average of one with a greater magnitude if the estimation error of the OLS is high. Consequently, less weight is given towards the company beta:

$$\beta_{iadjusted} = \frac{\sigma^2_{\beta_{i1}}}{\sigma^2_{\bar{\beta}_1} + \sigma^2_{\beta_{i1}}}\bar{\beta}_1 + \frac{\sigma^2_{\bar{\beta}_1}}{\sigma^2_{\bar{\beta}_1} + \sigma^2_{\beta_{i1}}}\beta_{i1} \qquad (17)$$

2.3.3.4 Market Risk Premium

According to *Chen (2020)*, the market risk premium is "the difference between the expected return on a market portfolio and the risk-free rate." It represents the CAPM's security market line (SML) slope. In Germany the Fachausschuss für Unternehmensbewertung und Betriebswirtschaft (FAUB) of the IDW publishes its recommendation range for the market risk premium. In October 2019, they increased the rate from 5.5% -7.0% to 6.0% – 8.0%. They justify the increase due to the current negative treasury yields for almost all maturities derived by the German central bank using the Svensson method *(FAUB, 2019)*.

2.4 Conclusion

Now that the main methods to company valuation are introduced, the best-suited methods are selected for this paper.

Since this paper aims to value Fraport, owner and operator of airports, the DCF is the primary valuation choice as airports typically have long-term projections that offer visibility regarding cash flow *(Radia et al., 2013)*. In addition, the DCF allows analyzing the different revenue streams of an airport more closely and separately. In the case of Fraport, these are Aviation, Retail and Real Estate, Ground Handling, and International Activities.

Furthermore, since airports are infrastructure operators and, therefore, heavy tangible-asset intense, the indirect methods *FCFF*, *TCFF*, and *APV* that first derive at the enterprise value are preferred. In addition, considering the Covid-19 impact and the resulting capital structure change, coming from the issuance of debt to remain liquid and the repayment schedule in the subsequent years might turn the *FCFE* negative. According to *Kaplan Schweser (2008)*, *FCFF* is preferred for companies with negative *FCFE* or changing capital structures.

Lastly, the market approach is also considered, mainly emphasizing the EV-to-EBITDA multiple since it disregards depreciation and amortization (D&A), capital structure impact, and taxation. That is because D&A largely depends on the size of the airports. This valuation range is only used to compare and validate the DCF result.

3 Industry Overview

On the one hand, the current macro-economic environment and the initiatives and goals of the central banks are discussed to understand the impact on the industry. On the other hand, this chapter outlines the industry-specific drivers and travel forecasts of the aviation industry that are Covid-19 adjusted.

3.1 Macroeconomic Analysis

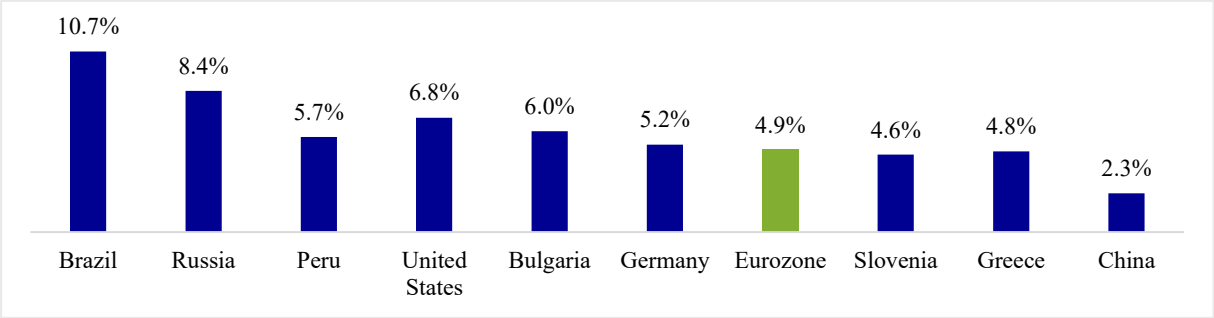
The two primary missions of central banks are to provide price stability and maintain low unemployment rates to foster economic growth ultimately. To mitigate the impact of Covid-19 on the economy and protect the citizens, firms, and governments, central banks started quantitative easing programs worldwide. In Europe, for example, the ECB put in place the pandemic emergency purchase program (PEPP), which helps alleviate spending and investment *(ECB, 2021a)*. Air travel demand largely depends on the customer's capacity to spend and thus, is more sensitive to changes in fares *(IATA, 2007)*. Several macroeconomic indicators might paint how demand will develop in the short-to-medium term. One crucial part will be the central bank's communication strategy to positively affect and steer the market through the crisis.

3.1.1 Inflation Rates

With various countries in lockdown and inventories absorbing the lack of production, global supply-chains have become disruptive, resulting in supply-side shifts and inflation hikes *(Buchholz, 2021)*. To date, the annual inflation rate of the Eurozone reached its 13-year high of 4.9%, which represents more than twice the target of the ECB. However, despite the inflation surge, Lagarde, president of the ECB, believes that the market will correct itself without intervention, and therefore, high inflation rates are transitory, reversing back to 1.5% in 2023 *(Randow, 2021)*. On the other side, FED's chairman Powell announced in a hawkish pivot to begin raising interest rates and end bond purchases in March 2022 *(Sanyal & Randewich, 2021)*.

Moreover, the Bank of England elevated the key interest rate to 0.25% *(Financial Times, 2021)*. If stock prices reflect the present value of future cash flows, a higher interest rate will increase the discount rate and, therefore, lower valuations. *Figure 1* shows current inflation rates for Fraport's key sites.

Figure 1: Fraport's key sites inflation rates as of December 14, 2021



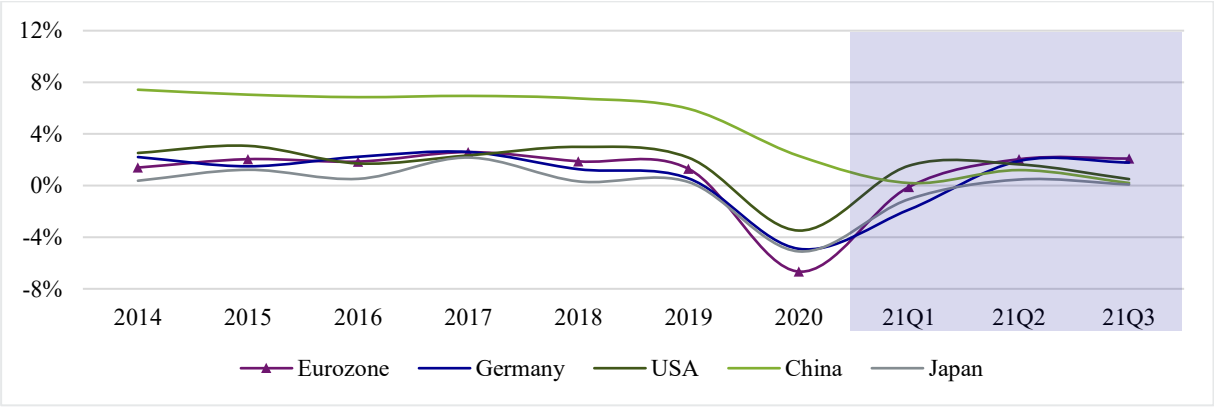
Source: Trading Economics

3.1.2 Gross Domestic Product (GDP)

The propensity for air travel is positively linked to actual GDP and GDP growth. Due to the pandemic, GDP growth plunged to record lows, forcing the Eurozone to take the biggest punch of -6.7% in 2020. Due to the vaccination programs and fewer restrictions, overall GDP reversed into positive territory in 2021. Consumer spending is an essential GDP driver in Q4 *(US Economic Outlook, 2021)*. According to *Sanicola et al. (2021)*, US Airline consumer spending has already exceeded pre-pandemic levels for the first time since July, attributable to rising comfort levels for the upcoming winter season as vaccination for kids picks up. In addition, Lufthansa confirmed that current booking levels are 80% of 2019, following trends in business travel and increasing demand for long-haul flights, especially since entry restrictions in western countries have eased.

Another potential catalyst for increases in demand in Q4 could be the arrival of Pfizer's novel antiviral pill *(Randall, 2021)*. In addition, U.S. infectious disease expert Fauci states that the current Covid-19 booster protects against the new Omicron variant *(Aboulenein & Erman, 2021)*.

Figure 2: Gross Domestic Product (GDP) y-o-y growth rate by country

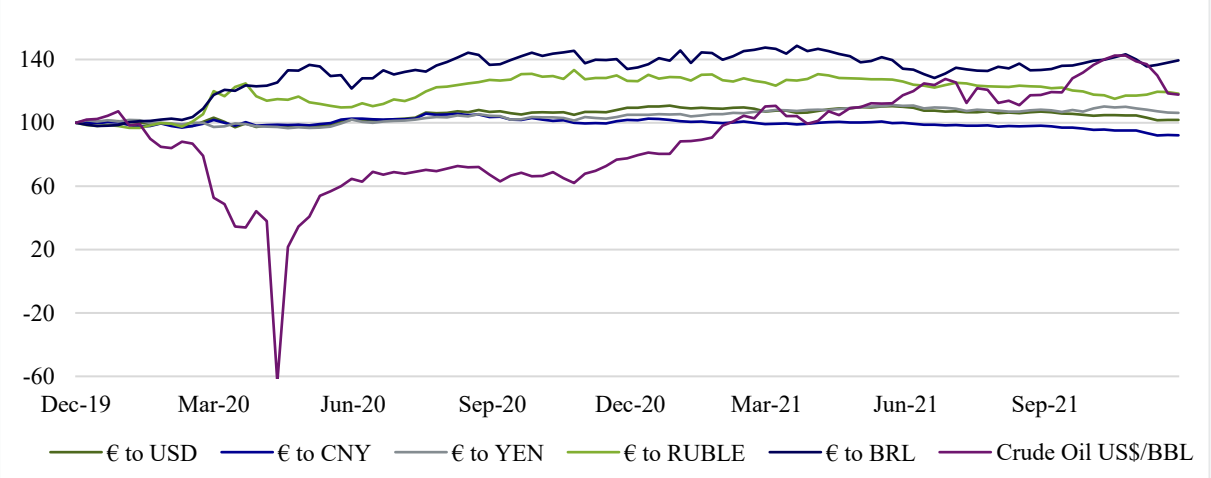


Source: International Monetary Fund (IMF), OECD, and German Federal Statistical Office

3.1.3 Foreign Exchange Rates (FOREX) and Crude Oil Price Development

Fraport is active internationally with business operations covering three continents. With its accounting currency denominated in the Euro, it is affected by changes in FOREX. Over the past two years, the Euro has achieved a strong performance, mainly appreciating against the Brazilian Real and Russian Rouble. On the other hand, crude oil prices had skyrocketed to the $80 per barrel watermark in October, increasing fuel prices for airlines and consumers. To increase oil supply and bring prices down, OPEC+ agreed to speedier oil production by 400,000 barrels per day starting in December 2021. According to Biden, other possible options to further enhance supply would be authorizing U.S. Strategic Petroleum Reserve sales *(Lawler et al., 2021)*. In the medium term, crude oil prices are expected to settle at around $70 per barrel in 2022 *(Amadeo, 2021)*. Thus far, WTI Crude rebounded and trades at $70.87 per barrel as of December 16, 2021.

Figure 3: Fraport's significant exchange rates and crude oil price

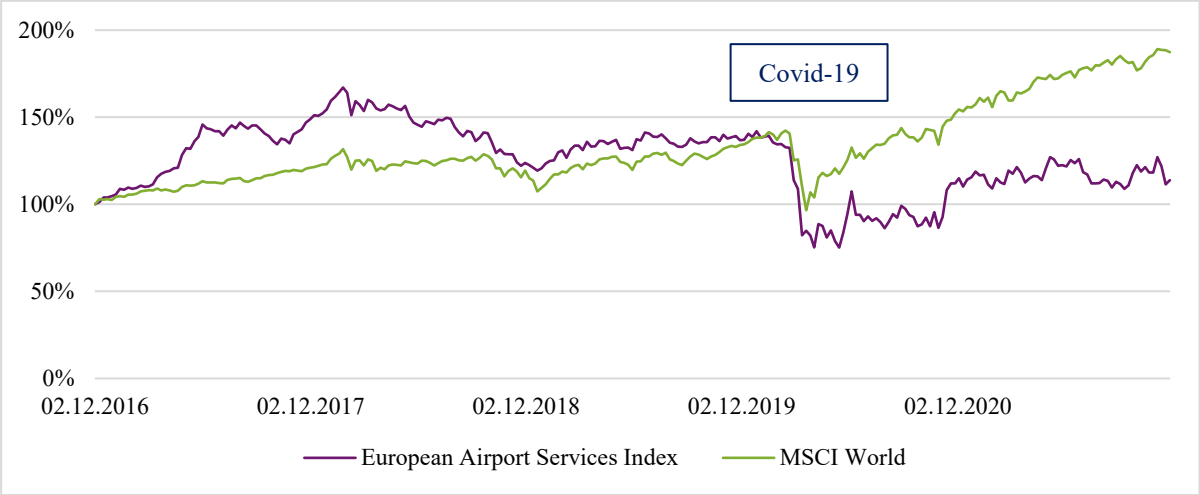


Source: Own Analysis, Refinitiv Eikon

3.2 SARS-CoV-2

On March 11, 2020, Covid-19 was officially announced as a global pandemic. The aviation industry was put to a complete halt in its wake, resulting in global passenger freefalls of around 95% in the subsequent month. Due to the significant revenue losses, share prices plummeted and have not yet recovered.

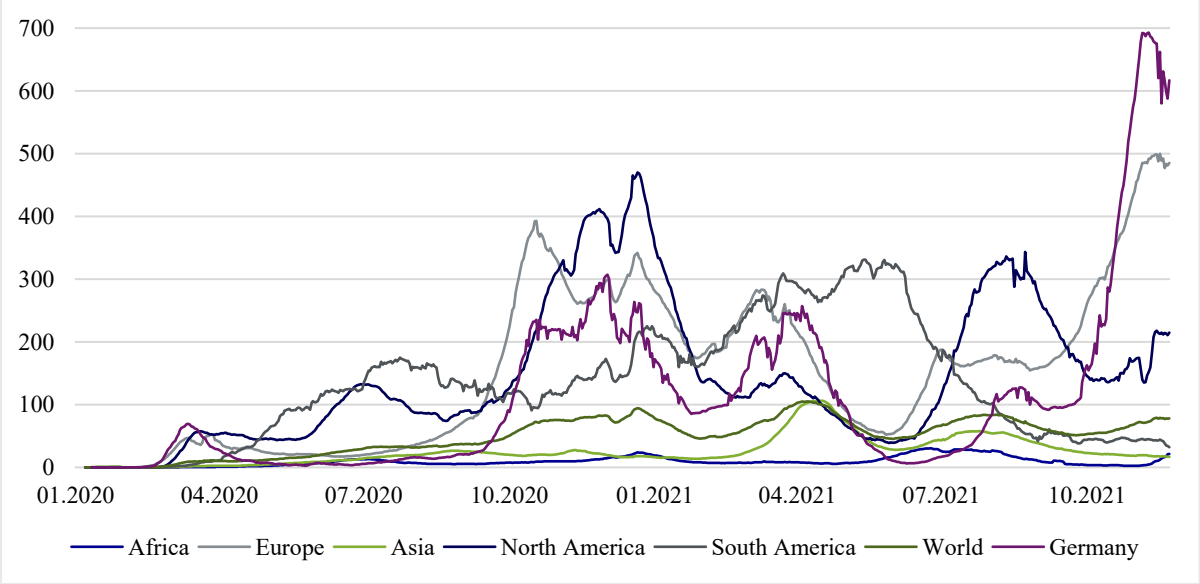
Figure 4: Share price development of European airports compared to MSCI World



Source: Refinitiv Eikon, Own Analysis

Diseases, in general, impose one of the most significant risks to the travel industry. As a result, to fight against the spread of Covid-19, countries worldwide imposed lockdowns and travel bans to varying extents. This rollercoaster ride can be seen in *Figure 5*.

Figure 5: Daily new Covid-19 cases per million people (7-day average)

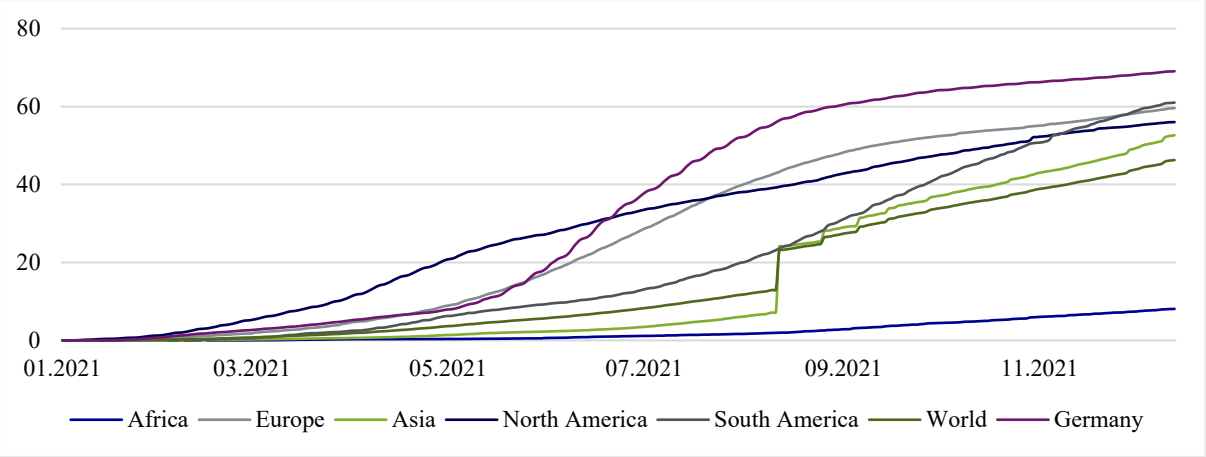


Source: Our World in Data

Simultaneously, scientists are trying to develop and produce vaccines faster than ever to stop the widespread of Covid-19. Today, approximately 21 vaccines are being rolled out in countries worldwide *(Gavi, 2021)*. This rollout is the lifeline for the travel industry and a significant indicator of future recovery since countries are announcing stringent travel policies requiring full vaccination before boarding. In developed countries, the current state of vaccination has

lost its momentum mainly due to vaccination opponents. According to *Stewart (2021)*, as of November 4, 2021, 79.8% of adults in Germany received full vaccination against Covid-19.

Figure 6: Percentage share of the population fully vaccinated against Covid-19

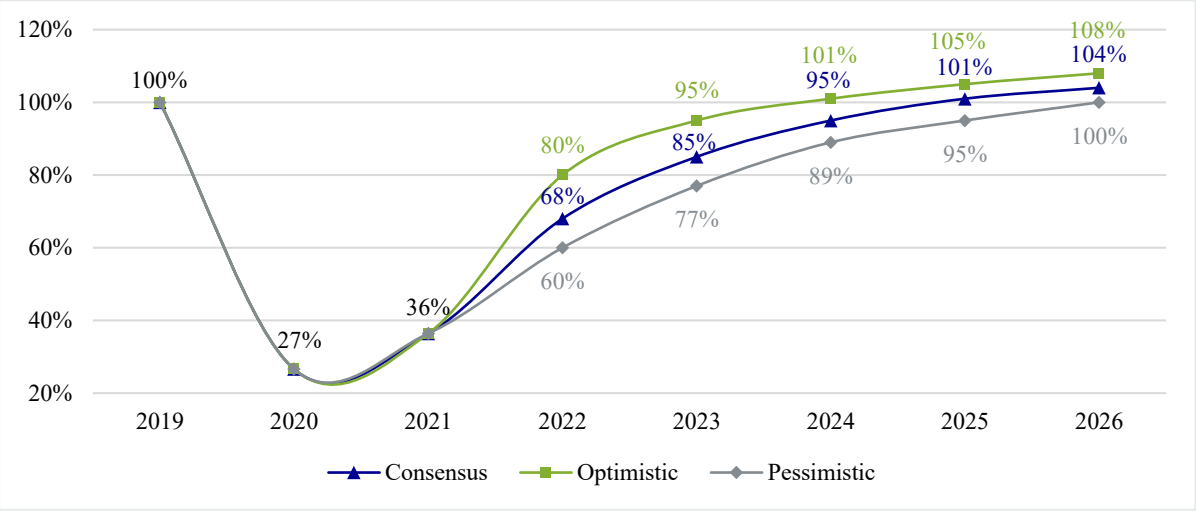


Source: Our World in Data

3.3 Global Air Transportation Outlook

To tackle the ongoing challenges coming from Covid-19, international aviation organizations such as IATA, ICAO, EASA, and WHO cooperate in formulating industry-specific guidelines that aim to mitigate the effects of a human outbreak *(ICAO, 2021)*. Moreover, they provide recommendations and forecasts on how they perceive air travel to proceed in the future. Airports Council International (ACI) published a recovery forecast of European flight movements, as illustrated in *Figure 7* below. The different recovery scenarios depend on further lockdowns, travel restrictions, vaccination campaigns, and the risk-aversion of travelers.

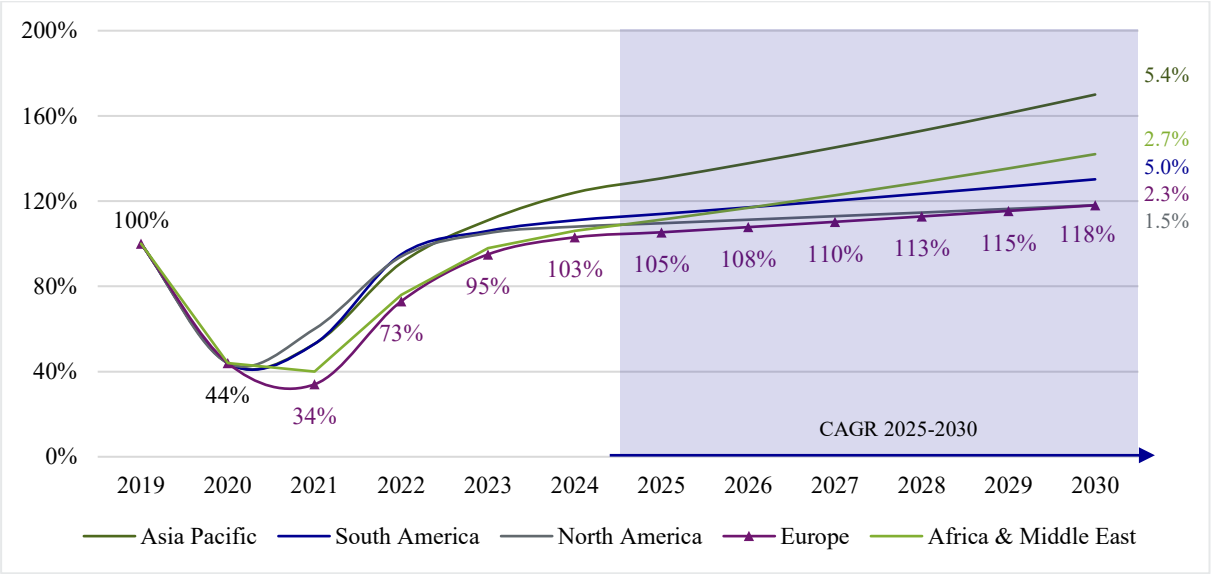
Figure 7: European flight movement forecast as a percentage of 2019



Source: ACI (2021)

On the other hand, the International Air Transport Association (IATA) published a global passenger and cargo forecast while expecting western Europe to reach pre-pandemic levels as early as 2024. Emerging markets' recovery profiles are sooner than developed countries, following higher CAGR estimates between 2025 and 2030. In particular, Asia Pacific is expected to benefit from tailwinds indicating 5.4% y-o-y growth rates, mainly attributable to China's strong domestic recovery with demand already exceeding 2019 levels *(G. Chen et al., 2021)*.

Figure 8: Long-term passenger and cargo forecast as a percentage of 2019



Source: IATA Economics using data from Tourism Economic/IATA Air Passenger Forecast, April 2021

3.4 Competitive Landscape

Frankfurt airport competes for origin and destination (O&D) passengers primarily inside Germany, with airports in the vicinity of approximately 200 kilometers and international transfer passengers with main competitors in Europe. However, competition has evolved from hubs in the Middle East over recent years as they are an attractive gateway to Asia-Pacific. Frankfurt airport claims to have one of the largest catchment areas in Europe, addressing 38 million people or 47% of Germany's entire population that lives within the airport's vicinity *(Fraport, 2019b)*. This incredible size is mainly attributable to the connectivity of the regional and long-distance trains, especially considering Fraport's primary customer Lufthansa and their partnership program with Deutsche Bahn *(Frewel, 2021)*.

Figure 9: Competitive O&D and transfer passenger's landscape

Source: Fraport Visual Fact Book 2019

Fraport entered expansion and modernization programs at Frankfurt airport to maintain an international competitive edge in the long run. For example, the new runway Northwest (2011) further increases airside capacity as well as the extension of Peer A-Plus (2012), and the current construction of terminal 3 (2026) provides sufficient landside capacity to accommodate future growth *(Fraport, 2020b)*.

In terms of annual passengers, Frankfurt airport ranks place 15 worldwide and with 70.6 million passengers fourth place in Europe in 2019 behind London Heathrow (80.9), Paris Charles de Gaulle (76.2), and Amsterdam Schiphol (71.7). Frankfurt ranks second place in Europe in 2019 with 2.1 million metric tons of cargo after Paris Charles de Gaulle *(Fraport, 2019a)*.

Table 1: Airport competition comparison key KPIs

Key KPIs	DXB	LHR	CDG	AMS	FRA	MUC	DOH
Square km	na	12.1	32.4	27.9	26.5	15.6	22.0
Runways	2	2	4	6	4	2	2
Runway independent to use	na	no	yes	yes	no	yes	na
Movements per hour	62	90	118	110	104	90	na
Passengers	86.4	80.9	76.2	71.7	70.6	48	38.8
Passenger growth	-3.1%	1.0%	5.4%	0.9%	1.5%	3.6%	12.5%
Airlines serving	98	75	84	82	86	59	34
Seats	1,628,508	1,171,365	1,162,594	1,137,633	989,561	621,929	814,265
Cargo payload (in mio.)	75.2	32.2	33.8	44.9	51.0	10.6	66.3
Frequencies	6,096	5,406	5,979	6,910	5,643	3,949	3,546
Top Airline	EM	BA	AF	KLM	LH	LH	QA
Share departing seats	55.0%	45.6%	57.2%	51.7%	58.7%	63.6%	88.1%

Source: Centre for Aviation (CAPA)

4 Company Overview

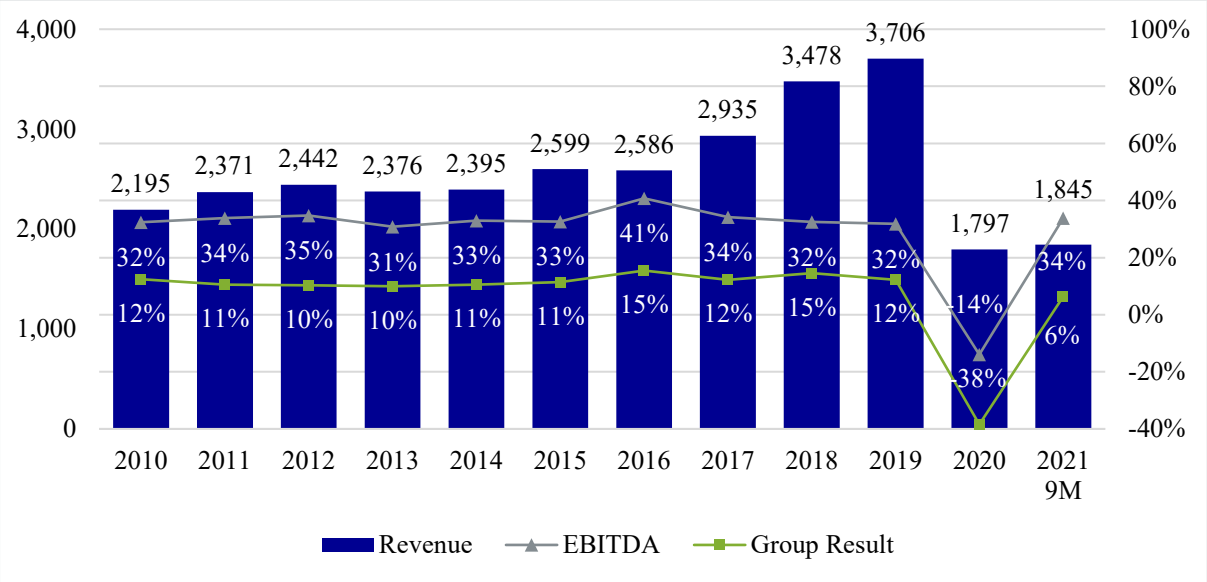
This chapter introduces the business model of Fraport and provides a sneak peek into financial and passenger-related information of the past performance. Due to better comparability, the retrieved data is mainly based on the pre-Covid year 2019. In addition, risk and ESG analyses are covered in *Appendix 20* and *21*. All information is drawn from Fraports annual reports.

4.1 Fraport at a Glance

Fraport was first founded in 1924, focusing on Frankfurt airport, following its initial public offering in 2001. The group is active at 31 airports in 11 countries and has approximately 22,500 employees, and is one of Hesse, Germany's biggest employers.

Over the past ten years, Fraport increased its revenue by a 6% CAGR while keeping its profit margins constant, see *Figure 10* below. The significant increases in 2018 and 2019 were mainly due to the disposal of Hanover airport and the implication of IFRS 16. In 2019, the Frankfurt site contributed 51.8% of the group result, and the remaining 48.2% came from its International Activities.

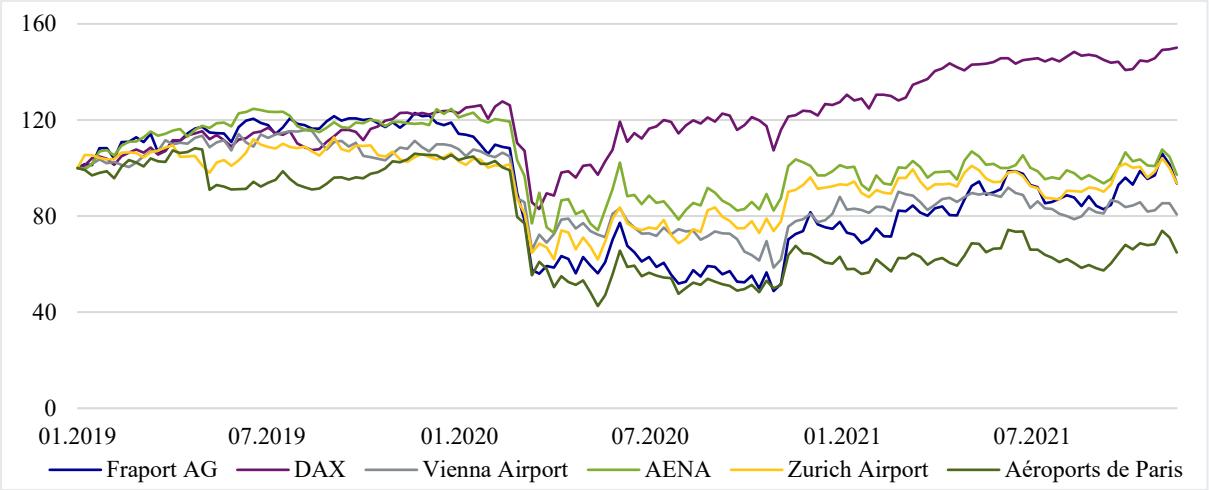
Figure 10: Fraport historical financial performance overview



Source: Fraport AG Visual Fact Book 2019

The share price of Fraport had a strong pre-Covid rally of 20% in 2019. Due to the Covid-19 havoc, airlines and airports suffered from significant revenue losses, negative profit margins, and, as a result, freefalling share prices that have not recovered to date (see *Figure 11*).

Figure 11: Share price development comparison among peer group and DAX



Source: Refinitiv Eikon

The majority shareholder of Fraport, with 51.79%, are German regional and local authorities. The State of Hesse held 31.31% directly and 20.48% indirectly through its subsidiary Stadtwerke Frankfurt am Main Holding GmbH. Deutsche Lufthansa AG had 7.8 million of the approximately 92.4 million basic shares outstanding, resulting in 8.44% ownership, followed by British Columbia (3.05%) and a free float of the remaining 36.72%.

Figure 12: Fraport shareholder structure as of December 31, 2020

Source: Fraport Annual Report 2020

4.2 Business Segments

Fraport can be divided into four business segments: Aviation, Retail and Real Estate, Ground Handling, and International Activities. The first three segments are based on the Frankfurt side. In contrast, International Activities covers all airports outside Frankfurt and mainly comprises participation in asset deals and concessions agreements.

In 2019, International Activities contributed to the majority of EBITDA (38.1%), followed by Retail and Real Estate (33.7%), Aviation (23.1%), and Ground Handling (5.1%), see *Table 2*.

International Activities has gained significant importance over the years, almost three-folding revenues generated from 2016 to 2019. Moreover, this segment is one of the key drivers for future growth since Frankfurt airport already operates close to maximum runway capacity, with another runway unlikely to be built. A detailed summary of the different business models can be found in *Appendix 19*.

Table 2: Financial overview of Fraport's business segments for the year 2019

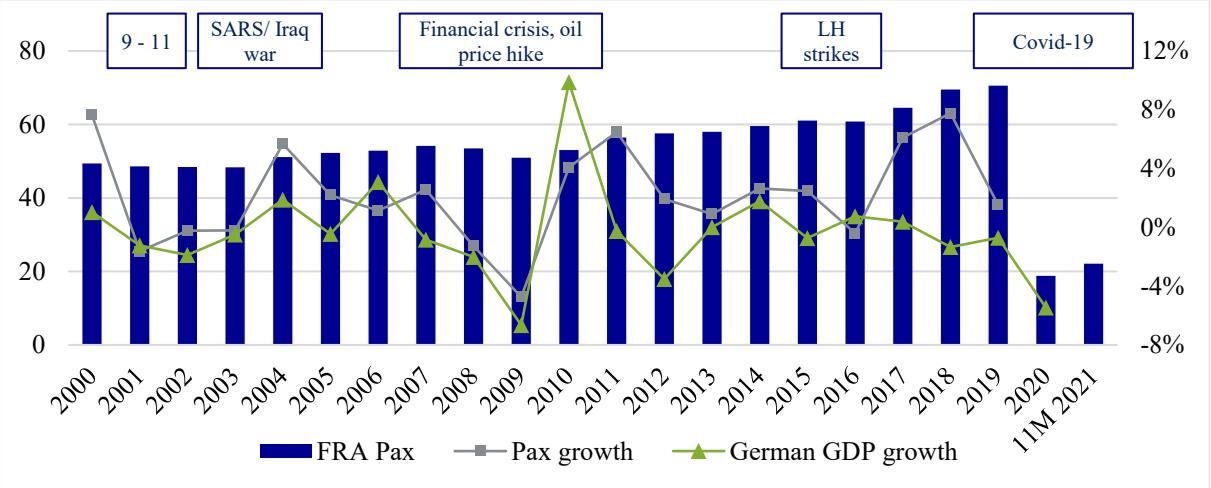
2019 in mio. €	Aviation	Retail & Real Estate	Ground Handling	International Activities & Services
Revenue	1,027	508	707	1,464
% of Group	*27.7%*	*13.7%*	*19.1%*	*39.5%*
EBITDA	273	398	60	449
% of Group	*23.1%*	*33.7%*	*5.1%*	*38.1%*
EBIT	114	309	12	271
% of Group	*16.1%*	*43.8%*	*1.7%*	*38.4%*
Employees	6,380	644	9,236	6,254
% of Group	*28.3%*	*2.9%*	*41.0%*	*27.8%*

Source: Fraport AG Visual Fact Book 2019

4.3 Traffic Development

Over the years, Fraport was able to foster strong passenger growth at the Frankfurt site with a CAGR of 3.3% from 2013 to 2019 despite the stagnation of the German economy in terms of GDP, see *Figure 13*. The correlation between GDP and passenger growth during this period was 0.87, indicating a strong relationship. Passenger numbers, however, plunged in the wake of Covid-19 from 70.6 million in 2019 to 18.8 million in 2020, representing a decline of -73.4%.

Figure 13: Frankfurt site passenger development since 2000



Source: Fraport Traffic Figures 2021, Macrotrends LLC

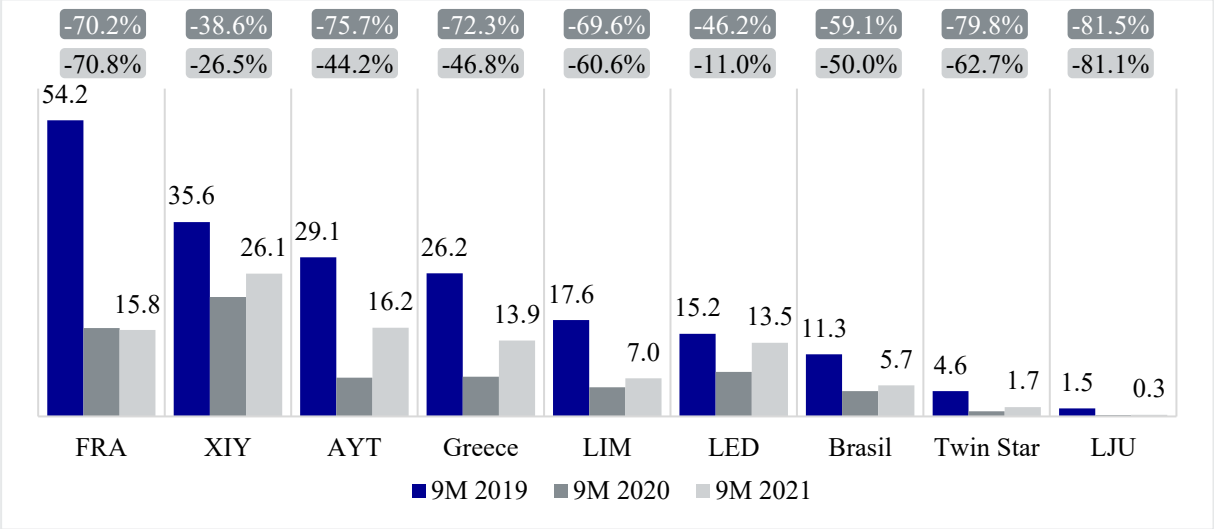
Around 22.1 million passengers toured through Frankfurt airport in the first eleven months of 2021, representing a decrease of -68.7% compared to 2019 and a growth of 17.6% compared

to the previous year. Last year passenger numbers dropped from march onwards. The strong performance in 2021 compared to 2020 is made possible by the recovery of holiday travel, especially at European destinations. In addition, domestic travel experienced strong growth of 3.7%, while, on the other hand, intercontinental traffic was down -13.5% due to lasting travel warnings and restrictions.

The pandemic did not severely affect cargo throughput, which achieved a +24.6% growth compared to 2020, reaching a new all-time high.

Fraport's Group airports recorded overall positive passenger numbers in the first nine months of 2021. Especially tourist destinations such as Turkey, Greece, and Bulgaria benefited during the holiday season. Furthermore, airports Xi'an and St. Petersburg demonstrated substantial recoveries, mainly influenced by domestic demand. Detailed information regarding historical monthly passenger and cargo volumes at the Frankfurt site can be seen in *Appendix 19*.

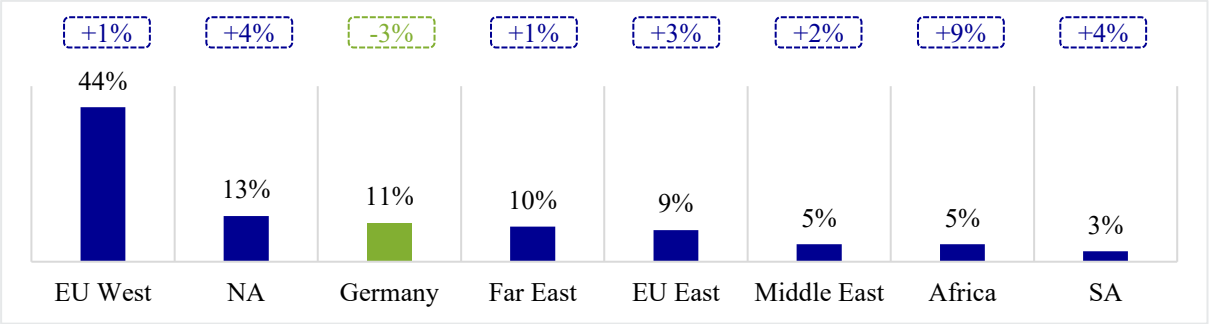
Figure 14: Year-to-date 9M passenger performance as a percentage of 2019 (in millions)



Source: Fraport Visual Fact Books 2019, 2020, and 2021

Almost half of all passengers originate from countries in the western part of Europe. North America has been gaining more passengers over the recent years due to a solid y-o-y growth rate of 4%. The domestic market consistently loses passengers due to the main rail competitor Deutsche Bahn. This trend will continue as carbon-neutral travel on short-haul routes will replace air travel.

Figure 15: Frankfurt site traffic split by departing continent in 2019 and y-o-y growth



Source: Fraport Visual Fact Book 2019

In 2019, the top five airlines: Lufthansa, Condor, Ryanair, United Airlines, and Austrian Airlines, accounted for over 70% of all passengers traveling through Frankfurt airport, of which the majority stake is attributable to Fraport's primary customer Lufthansa. Moreover, Fraport claims to have the highest transfer passenger share in central Europe, with approximately 54% of all travelers at the Frankfurt site. Out of those 54% transfer passengers, 70% or around 26.6 million passengers travel Intercont to Cont and vice versa. Lastly, with 297 destinations offered in 2019, Frankfurt airport claims the highest connectivity indicating a competitive edge over its European peers.

5 Historical Financial Statement Analysis

This chapter explores the historical financial performance of Fraport and is divided into two parts. The first part focuses on the pre-Covid-19 performance, while the second part investigates the post-Covid-19 condition and highlights the countermeasures made during the crisis. Numbers are in millions and extracted from Fraport's annual reports.

5.1 Pre-SARS-CoV-2

In this chapter, the financial statements from 2014 to 2019 are briefly analyzed using two simple methods: trend and common size analysis. Even though this analysis is superficial, it still provides a thorough overview of the financial history. Lastly, key ratios are compared to Fraport's main peers.

5.1.1 Trend Analysis

Table 3 below provides an overview of the growing trend of the income statement with 2014 as the reference index year. Overall revenue has increased 1.5 times over the years, indicating a strong growth trend. While the growth in the cost of materials outpaced revenues, lower operating expense growth was able to offset this, resulting in an EBITDA growth equal to revenue. Finally, Fraport has achieved even more substantial group results due to lower interest and taxes.

Table 3: Trend analysis, Income Statement

Income Statement (Percentage)	2014	2015	2016	2017	2018	2019
Aviation	100%	105%	103%	108%	114%	116%
Retail & Real Estate	100%	107%	108%	114%	111%	111%
Ground Handling	100%	103%	96%	98%	103%	108%
External Activities	100%	128%	138%	205%	324%	367%
Other operating income	100%	112%	516%	106%	174%	111%
Total revenue	**100%**	**109%**	**120%**	**122%**	**146%**	**153%**
Cost of materials	100%	114%	117%	135%	204%	225%
Gross Profit	**100%**	**107%**	**121%**	**118%**	**130%**	**134%**
Operating expenses	100%	107%	112%	113%	121%	123%
EBITDA	**100%**	**107%**	**133%**	**127%**	**143%**	**149%**
D&A	100%	107%	117%	117%	130%	155%
EBIT (= operating result)	**100%**	**108%**	**144%**	**133%**	**151%**	**146%**
Interest expense	100%	80%	104%	127%	56%	106%
EBT	**100%**	**116%**	**155%**	**135%**	**179%**	**157%**
Taxes on income	100%	111%	147%	119%	134%	110%
Group result	**100%**	**118%**	**159%**	**143%**	**201%**	**180%**

Source: Own Analysis, Annual Reports

Table 4 highlights key balance sheet figures. NOA has increased significantly, mainly due to new concession agreements (Greece in 2017 and Brazil in 2018). OL and NBD increased less

than OA, indicating an efficient use of its CFO to fund future projects. NOWC is quite useless since the value, in absolute terms, is relatively low.

Table 4: Trend analysis, Balance Sheet

Balance Sheet (Percentage)	2014	2015	2016	2017	2018	2019
Operating Assets (OA)	100%	99%	97%	128%	133%	150%
Operating Liabilities (OL)	100%	85%	84%	102%	106%	123%
Net Operating Assets (NOA)	100%	118%	115%	159%	166%	183%
Net Interest Bearing Debt (NIBD)	100%	90%	76%	103%	103%	119%
Net Operating Working Capital (NOWC)	100%	64%	25%	-16%	-95%	-84%
Shareholders' Equity (SE)	100%	107%	116%	120%	130%	138%

Source: Own Analysis, Annual Reports

5.1.2 Common Size Analysis

Table 5 indicates the income statement line items as a percentage of revenue. As mentioned earlier, the International Activities segment gained importance and threefold revenues from 2014 to 2019. Overall, top-line profitability margins stagnated while bottom-line profitability slightly strengthened due to lower interest and taxes.

Table 5: Common size analysis, Income Statement

Income Statement (Percentage)	2014	2015	2016	2017	2018	2019
Aviation	36%	35%	31%	32%	28%	27%
Retail & Real Estate	18%	18%	17%	17%	14%	13%
Ground Handling	27%	25%	21%	21%	19%	19%
External Activities	16%	19%	19%	27%	36%	39%
Other operating income	3%	3%	12%	3%	3%	2%
Total revenue	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Cost of materials	22%	23%	21%	24%	30%	32%
Gross Profit	**78%**	**77%**	**79%**	**76%**	**70%**	**68%**
Operating expenses	46%	46%	43%	43%	38%	37%
EBITDA	**32%**	**32%**	**36%**	**33%**	**31%**	**31%**
D&A	12%	12%	12%	12%	11%	13%
EBIT (= operating result)	**20%**	**19%**	**23%**	**21%**	**20%**	**19%**
Interest expense	4%	3%	4%	5%	2%	3%
EBT	**15%**	**16%**	**20%**	**17%**	**19%**	**16%**
Taxes on income	5%	5%	6%	5%	5%	4%
Group result	**10%**	**11%**	**14%**	**12%**	**14%**	**12%**

Source: Own Analysis, Annual Reports

5.1.3 Ratio Analysis

This sub-chapter reveals a more accurate insight into the historical financial condition of Fraport concerning liquidity, leverage, efficiency, and profitability and is, therefore, considered a cornerstone of fundamental equity analysis. In addition, the 2019 ratios are compared to the weighted average ratios of Fraport's main peers: Aeroports de Paris (40%), Aena (40%), Zürich (10%), and Vienna (10%) airports. Weights are allocated according to comparability to Fraport.

More information on the peer group selection follows in *Chapter 7.6.* A detailed overview of the peers' ratios can be found in *Appendix 6*.

Table 6 presents the most important liquidity ratios that indicate the ability to pay off short-term debt obligations using the company's current assets. Overall, QR and CR leveled below one, which is not necessarily alarming since Fraport manages its current assets efficiently. Lastly, ICR is sufficient to cover all interest-bearing debt obligations; however, Fraport ranks at the lower edge than its peers.

Table 6: Liquidity ratio analysis

Liquidity Ratios	2014	2015	2016	2017	2018	2019	2019 Ø
Quick Ratio (QR)	1.08	0.79	1.24	0.81	0.91	0.84	0.71
Current Ratio (CR)	1.14	0.83	1.28	0.84	0.93	0.85	0.73
Interest Coverage Ratio (ICR)	4.47	6.00	6.18	4.70	12.15	6.13	14.82

Source: Own Analysis, Annual Reports

Table 7 illustrates efficiency ratios that indicate how efficiently Fraport utilizes its assets and resources to generate revenues. The company could generate around 30 cents in revenues for every Euro in assets. CCC is not meaningful since airports are service companies and typically have very little NOWC and, thus, changes in NOWC.

Table 7: Efficiency ratio analysis

Efficiency Ratios	2014	2015	2016	2017	2018	2019	2019 Ø
Total Asset Turnover Ratio (TATR)	0.27	0.30	0.33	0.28	0.31	0.30	0.30
Inventory Turnover Ratio (ITR)	12.20	14.26	16.41	24.59	37.69	50.74	15.47
Accounts Receivable Ratio (ARR)	14.12	17.40	22.80	20.98	20.25	18.64	8.40
Accounts Payable Ratio (APR)	3.97	4.27	4.24	3.88	3.80	4.03	0.89
Inventory Days (DIO)	29.91	25.59	22.30	14.85	9.69	7.19	38.00
Accounts Receivable Days (DSO)	25.86	20.98	16.06	17.40	18.02	19.59	44.61
Accounts Payable Days (DPO)	92.05	85.57	86.34	94.19	96.02	90.63	476.20
Cash Conversion Cycle (CCC)	-36.29	-39.00	-47.98	-61.94	-68.31	-63.85	-393.58

Source: Own Analysis, Annual Reports

Overall, Fraport was in a healthy condition in terms of leverage. Compared to its peers, Fraport holds slightly more leverage; however, the Net Debt-to-EBITDA performed worst compared to its peers and might be an indicator of distress in the future (see *Table 8*).

Table 8: Solvency ratio analysis

Solvency Ratios	2014	2015	2016	2017	2018	2019	2019 Ø
Total Assets to Equity	2.74	2.52	2.31	2.69	2.62	2.73	2.31
Debt to Equity	1.28	1.09	0.94	1.12	1.08	1.15	0.97
LT Debt to Total Capital	42.98%	37.00%	36.48%	36.52%	35.81%	37.59%	32.42%
Net Debt to EBITDA	4.80	4.02	2.72	3.89	3.47	3.82	2.45

Source: Own Analysis, Annual Reports

Lastly, Fraport is in a healthy state of profitability; however, compared to its peers, Fraport again falls to the latter end, being far less profitable (see *Table 9*).

Table 9: Profitability ratio analysis and DuPont analysis

Profitability Ratios	2014	2015	2016	2017	2018	2019	2019 Ø
EBITDA Margin	32.04%	31.68%	35.68%	33.32%	31.34%	31.18%	50.09%
EBIT Margin	19.58%	19.43%	23.48%	21.36%	20.28%	18.63%	33.93%
Profit Margin (PM)	10.21%	11.09%	13.55%	11.95%	14.04%	12.00%	23.46%
Return on Equity (ROE)	7.66%	8.46%	10.42%	8.93%	11.58%	9.83%	15.31%
Return on Assets (ROA)	2.79%	3.36%	4.51%	3.32%	4.42%	3.60%	7.01%

Source: Own Analysis, Annual Reports

To conclude, Fraport is a strong company with solid fundamentals. It operates with a more considerable amount of leverage which might become problematic when looking at the ICR or Net Debt-to-EBITDA ratios. Fraport almost always ranks last with room for improvement compared to the main peers.

5.2 Post-SARS-CoV-2

In the first nine months of 2021, revenue grew by 34.7% YTD to €1,817. The growth is attributable to the continued traffic recovery, especially during the summer. Segments Aviation and International Activities had the most vigorous growth due to increased revenue in security services at the Frankfurt site and demand in holiday destinations Antalya and Greece airports, respectively. Increased real estate and parking revenue could slightly offset decreasing net retail revenue per passenger, which was €3.74 compared to €4.40 in 2020. Ground Handling benefited from the positive traffic development with increased cargo movements.

Lastly, other operating income significantly stimulated revenue. On the one hand, this one-time income represents the Covid-19 rescue package offered by the German Federal Government and the State of Hesse for the incurred losses during the first lockdown in 2021. On the other hand, including the agreement reached between Fraport Greece and the local government for state support *(Bellos, 2020)*. Excluding this one-time income, group revenue increased by 14% to €1,501.

Table 10: Revenue by segment 9M 2021 compared to 9M 2020

Key Figures	9M 2020	9M 2021	Delta	Delta %
Aviation	353.5	422.7	69.2	19.6
% of Group	*26.2%*	*23.3%*		
Retail and Real Estate	225.5	231.8	6.3	2.8
% of Group	*16.7%*	*12.8%*		
Ground Handling	249.9	269.6	19.7	7.9
% of Group	*18.5%*	*14.8%*		
International Activities	488.6	577.3	88.7	18.2
% of Group	*36.2%*	*31.8%*		
Other Operating Revenue	31.1	315.1	39.1	5.1
Total Revenue	**1,348.6**	**1,816.5**	**467.9**	**34.7**

Source: Fraport Interim Release Q3/9M 2021

Cost of materials and other operating expenses decreased by -6% to €585 mainly due to fewer external staff and other services purchased as demand is still low. Group personnel expenses are down -35.3% from the ongoing headcount reduction due to the "Zukunft FRA – Relaunch 50" restructuring program. This program aims to restructure the group more efficiently and leaner, in the long run, to respond to the pandemic.

Therefore, overall group EBITDA increased to €624 compared to -€228 in the previous year. Moreover, EBIT amounted to €292, indicating an increase of €863, which was also influenced by lower D&A due to reassessments and adjustments made considering the useful life of assets.

The financial result slightly improved from companies' strong performance using the equity method such as Antalya and increased interest income due to the agreement reached with the German Federal Police concerning the takeover of security services. However, higher interest expenses offset these benefits due to the issuance of more debt facilities in 2021.

Group result elevated into positive territory, indicating a solid recovery thus far and increasing by €655 YTD.

Table 11: Key profitability figures 9M 2021 compared to 9M 2020

Key Figures	9M 2020	9M 2021	Delta	Delta %
Total Revenue	1,348.6	1,816.5	467.9	34.7
EBITDA	-227.7	623.9	851.6	–
EBIT	-571.0	292.2	863.2	–
EBT	-716.9	152.6	869.5	–
Group result	-537.2	118.0	655.2	–
Earnings per share (basic) (€)	-5.6	1.1	6.6	–
Average number of employees	21,532.0	18,611.0	-2,921.0	– 13.6

Source: Fraport Interim Release Q3/9M 2021

The balance sheet grew by 13.2% to €15,939, mainly due to an increase in PPE from the ongoing terminal 3 expansion project at the Frankfurt site and investments in airport operating

projects to construct the new terminal and runway at Lima airport. These CAPEX are financed by issuing new debt in 2021 and increasing the gearing ratio by 13.1%. Furthermore, liquidity is also affected by an increase of 57.9% YTD, resulting in €3,495.

Shareholders' equity increased by the group result of €118. However, the equity ratio declined from 25.7% to 23.5% due to the bond issue in quarter one of 2021 and the additions of long-term debt.

Table 12: Key balance sheet figures 9M 2021 compared to 9M 2020

Key Figures	9M 2020	9M 2021	Delta	Delta %
Total assets	14,081.2	15,938.9	1,857.7	13.2
Shareholders' equity	3,758.7	3,916.6	157.9	4.2
Shareholders' equity ratio (%)	25.7	23.5	-2.2 PP	–
Liquidity	2,213.7	3,495.1	1,281.4	57.9
Net financial debt	5,533.5	6,225.9	692.4	12.5

Source: Fraport Interim Release Q3/9M 2021

Finally, operating cash flow recovered from an outflow of €125 to an inflow of €219. Cash flow from investments maintained the previous year's figure of -€2.024. The increased CAPEX at Frankfurt and Lima site was offset by completing the modernization program at Fraport Greece and Brazil. In addition, cash flow from financing activities reached the previous year's figure. Free cash flow was -€633.5 compared to -€988 in 2020.

Table 13: Key cash flow figures 9M 2021 compared to 9M 2020

Key Figures	9M 2020	9M 2021	Delta	Delta %
Operating cash flow	-124.9	218.9	343.8	–
Cash flow from investing activities	-1,910.10	-2,024.40	-114.3	–
Cash flow from financing activities	1,860.90	1,891.60	30.7	1.6
Free cash flow	-987.7	-633.5	354.2	–

Source: Fraport Interim Release Q3/9M 2021

6 Financial Statement Forecast

The three financial statements are forecasted to model the expected impact of Covid-19 and apply the DCF analysis. The integrated model encompasses all years to 2030 for the TV to be used on an *FCFF* not affected by Covid-19. This chapter covers the required line items for the DCF methods. All information about the forecasting techniques of the three statements can be found *in Appendix 1*, *2*, *3*, *4*, *5*, and *8*. Numbers are again in millions.

6.1 Income Statement

The revenue forecast for each business segment is based on a fundamental growth analysis combining passenger recovery profiles and a revenue per passenger multiple. The growth rates for Europe are the average of ACI and IATA's estimates, while the growth rates for all other continents are only based on IATA's forecast, introduced in *Chapter 3.3*.

Table 14: Consensus passenger growth estimates as a percentage of 2019

Consensus	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Europe (ACI)	36%	68%	85%	95%	101%	104%				
Europe (IATA)	34%	73%	95%	103%	105%	108%	110%	113%	115%	118%
Europe (Average)	36%	71%	90%	99%	103%	106%	110%	113%	115%	118%
North America	60%	94%	105%	108%	110%	111%	113%	115%	116%	118%
South America	53%	95%	106%	111%	114%	117%	120%	123%	127%	130%
Africa	39%	76%	97%	106%	111%	117%	123%	129%	135%	142%
Middle East	39%	76%	97%	106%	111%	117%	123%	129%	135%	142%
Asia Pacific	53%	91%	111%	124%	131%	138%	145%	153%	161%	170%

Source: ACI (2021) and IATA (2021)

For the Frankfurt site, passengers are divided into departing regions and forecasted based on that continent's appropriate growth rate. Passengers are expected to reach pre-pandemic levels in 2024.

Table 15: Consensus passenger forecast at Frankfurt site

Frankfurt Site (mio.)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Germany	7.4	1.8	2.7	5.2	6.7	7.3	7.6	7.8	8.2	8.3	8.5	8.7
Europe	37.5	10.5	13.7	26.4	33.8	37.1	38.7	39.7	41.4	42.3	43.3	44.3
North America	9.1	2.0	5.5	8.6	9.6	9.8	10.0	10.1	10.3	10.4	10.6	10.7
South America	2.4	0.8	1.3	2.3	2.5	2.7	2.7	2.8	2.9	3.0	3.0	3.1
Africa	3.3	0.9	1.3	2.5	3.2	3.5	3.7	3.9	4.0	4.3	4.5	4.7
Middle East	3.7	1.0	1.4	2.8	3.6	3.9	4.1	4.3	4.5	4.8	5.0	5.3
Asia Pacific	7.1	1.6	3.8	6.5	7.9	8.8	9.3	9.8	10.3	10.9	11.5	12.1
Total	**70.5**	**18.6**	**29.6**	**54.3**	**67.2**	**73.2**	**76.1**	**78.4**	**81.6**	**83.9**	**86.4**	**88.9**
Percentage of 2019	*100%*	*26%*	*42%*	*77%*	*95%*	*104%*	*108%*	*111%*	*116%*	*119%*	*123%*	*126%*

Source: Own analysis

Fraport's international airports are forecasted using the same approach. The appropriate continent's growth rate of the respective airport is utilized. Due to the more vital growth rates for emerging markets, the recovery is expected to occur one year earlier in 2023.

Table 16: Consensus passenger forecast at international sites

International Sites (mio.)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Fully consolidated												
Fraport USA	87.8	17.7	52.7	82.5	92.2	94.8	96.2	97.7	99.2	100.6	102.2	103.7
Fraport Slovenija	1.7	0.3	0.6	1.2	1.5	1.7	1.8	1.8	1.9	1.9	2.0	2.0
Fraport Brasil	15.5	6.7	8.2	14.7	16.4	17.2	17.7	18.2	18.7	19.2	19.7	20.2
Lima	23.6	7.0	12.5	22.4	25.0	26.2	26.9	27.6	28.3	29.1	29.9	30.7
Fraport Greece	30.2	8.6	11.0	21.3	27.1	29.9	31.1	31.9	33.2	34.0	34.8	35.6
Twin Star	5.0	1.0	1.8	3.5	4.5	4.9	5.1	5.3	5.5	5.6	5.7	5.9
Accounted using equity-method												
Antalya	35.5	9.7	12.9	25.0	31.9	35.1	36.6	37.6	39.1	40.0	40.9	41.9
Pulkovo	19.6	10.9	11.7	18.4	20.6	21.1	21.5	21.8	22.1	22.4	22.8	23.1
Xi'an	47.2	31.1	25.0	43.0	52.4	58.6	61.7	65.0	68.6	72.3	76.2	80.3
Total	**266.0**	**93.1**	**136.5**	**232.0**	**271.7**	**289.5**	**298.6**	**306.9**	**316.6**	**325.2**	**334.1**	**343.4**
Percentage of 2019	*100%*	*35%*	*51%*	*87%*	*102%*	*109%*	*112%*	*115%*	*119%*	*122%*	*126%*	*129%*

Source: Own analysis

The total projected passenger numbers and y-o-y growth rates for the consensus scenario can be seen in *Figure 16* below.

Figure 16: Fraport total passenger forecast

Source: Own analysis

Revenue is forecasted using the projected passenger numbers and a revenue-per-passenger multiple. This multiple is based on the Frankfurt site's passenger numbers for Aviation, Retail, and Ground Handling segments. Real Estate is forecasted by using a revenue-per-square kilometer multiple. International Activities considers total passenger numbers outside Frankfurt and a revenue-per-passenger multiple.

Ground Handling could also be predicted using a revenue-per-aircraft movement multiple. However, since the bulk of the revenue is related to baggage handling services and the fact that there is a correlation between passenger and aircraft movements, the passenger multiple is appropriate.

The multiples are estimated based on historical performance. In 2020, however, the multiples overall increased due to Covid-19. Therefore, the revenue-per-passenger multiples are projected to reach 2019 amounts by 2025 and are assumed to remain constant in the future.

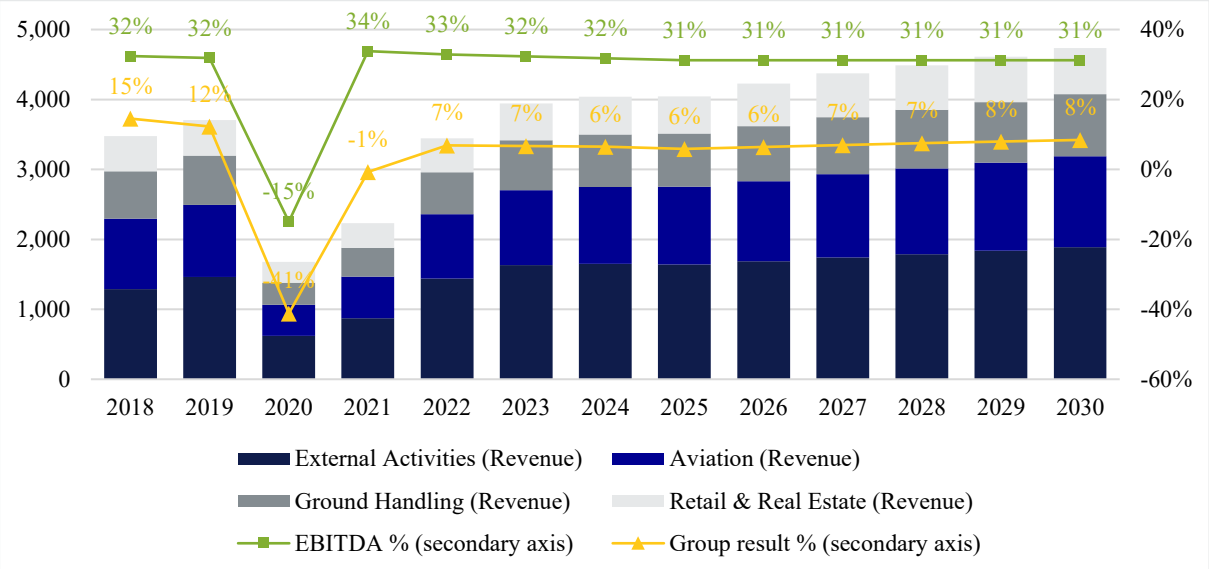
Table 17: Total revenue forecasting assumptions

Revenue Forecast (mio.)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Gross Floor Space (m²/1000)	904	904	904	920	920	920	920	920	920	920	920	920	1,320	1,320	1,320	1,320	1,320
Pax Frankfurt Site	59.6	61.0	60.8	64.5	69.5	70.5	18.6	29.6	54.3	67.2	73.2	76.1	78.4	81.6	83.9	86.4	88.9
Pax International Sites	92.3	96.3	94.1	139.2	169.3	266.0	93.1	136.5	232.0	271.7	289.5	298.6	306.9	316.6	325.2	334.1	343.4
Aviation Revenue	**884**	**927**	**910**	**954**	**1,006**	**1,027**	**441**	**592**	**923**	**1,075**	**1,098**	**1,111**	**1,145**	**1,191**	**1,225**	**1,261**	**1,298**
Revenue/ Pax	14.8x	15.2x	15.0x	14.8x	14.5x	14.6x	23.5x	20.0x	17.0x	16.0x	15.0x	14.6x	14.6x	14.6x	14.6x	14.6x	14.6x
Retail Revenue	**276**	**305**	**302**	**328**	**321**	**339**	**132**	**189**	**326**	**363**	**373**	**365**	**377**	**392**	**403**	**415**	**427**
Revenue/ Pax	4.6x	5.0x	5.0x	5.1x	4.6x	4.8x	7.0x	6.4x	6.0x	5.4x	5.1x	4.8x	4.8x	4.8x	4.8x	4.8x	4.8x
Real Estate Revenue	**179**	**184**	**192**	**194**	**187**	**169**	**163**	**163**	**163**	**163**	**163**	**163**	**234**	**234**	**234**	**234**	**234**
Revenue/ Square kilometer	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x
Ground Handling Revenue	**656**	**673**	**630**	**642**	**674**	**707**	**319**	**414**	**597**	**712**	**754**	**761**	**784**	**816**	**839**	**864**	**889**
Revenue/ Pax	11.0x	11.0x	10.4x	10.0x	9.7x	10.0x	17.0x	14.0x	11.0x	10.6x	10.3x	10.0x	10.0x	10.0x	10.0x	10.0x	10.0x
External Activities Revenue	**399**	**510**	**552**	**817**	**1,291**	**1,464**	**622**	**874**	**1,439**	**1,630**	**1,650**	**1,642**	**1,688**	**1,741**	**1,789**	**1,838**	**1,889**
Revenue/ Pax	4.3x	5.3x	5.9x	5.9x	7.6x	5.5x	6.7x	6.4x	6.2x	6.0x	5.7x	5.5x	5.5x	5.5x	5.5x	5.5x	5.5x
Segment Revenue	**2,395**	**2,599**	**2,586**	**2,935**	**3,478**	**3,706**	**1,677**	**2,232**	**3,447**	**3,943**	**4,038**	**4,043**	**4,228**	**4,373**	**4,490**	**4,611**	**4,736**
Other Operating Income	71.4	80.2	368.2	75.6	124.4	79.2	119.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Revenue	**2,466**	**2,679**	**2,954**	**3,010**	**3,603**	**3,785**	**1,797**	**2,232**	**3,447**	**3,943**	**4,038**	**4,043**	**4,228**	**4,373**	**4,490**	**4,611**	**4,736**

Source: Own estimate

Total revenues more than double from €1,797 in 2020 to €3,943 in 2023, reaching pre-pandemic figures. Revenues continue to grow at a CAGR of 2.7% after 2023. In the long run, profitability margins are expected to align towards 2019 levels with an average EBITDA and EAT margin of 31% and 7%, respectively. Furthermore, the profitability margins are expected to strengthen since the "Zukunft FRA – Relaunch 50" program is integrated into the model, reducing operating expenses. In addition, Fraport will face lower interest expenses from the debt repayment schedule. All forecasting assumptions are displayed in *Appendix 3*.

Figure 17: Forecasted revenue by segment in € million and margins



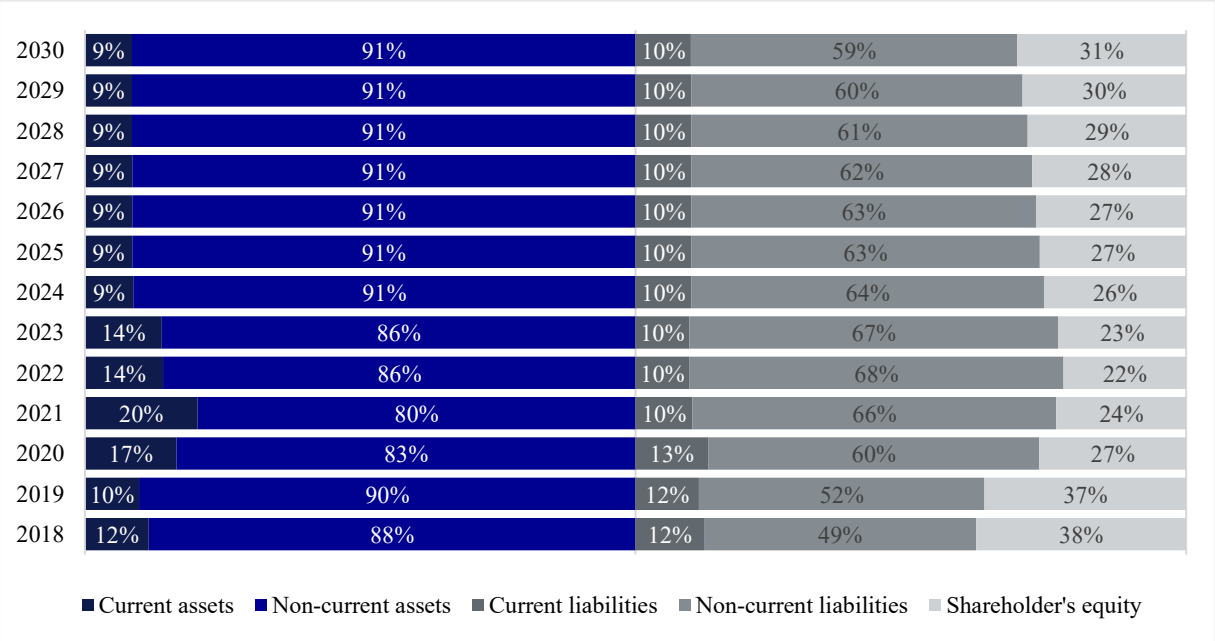
Source: Own estimate

6.2 Balance Sheet

In 2020 and 2021, Fraport raised a significant amount of debt to provide enough liquidity throughout the crisis. This issued debt led to increases in non-current liabilities from 52% in 2019 to 66% in 2021. The money is used to fund daily business operations and ongoing construction projects domestically and internationally. On the other hand, more money is held back, which increases cash & cash equivalents and, therefore, current assets from 10% in 2019 to 20% in 2021.

In the long run, the debt will be paid back, transforming the balance sheet to pre-Covid levels. Lastly, the issuance of new equity is not anticipated. However, shareholder's equity increases over time as debt will be repaid. The figure below provides a glimpse of how the forecasted line items impact major BS items. More information on the forecasting assumptions is in *Appendix 3* and *5*.

Figure 18: Forecasted balance sheet margins



Source: Own estimate

6.2.1 Net Operating Working Capital (NOWC)

NOWC is forecasted based on the projected revenue and cost of sales and using the DIO, DSO, and DPO techniques. The days outstanding are assumed to reverse to 2019 levels by 2025 and remain constant. NWC could have also been forecasted using CA and CL; however, the outcome would almost be identical.

Since Fraport provides infrastructure services to its customers, NOWC is low compared to manufacturing. Hence, inventory accounts for the smallest share. Payables outweigh receivables resulting in decreasing negative NOWC. As a result, changes in NOWC are negative, which increases FCF; however, only to an insignificant extent.

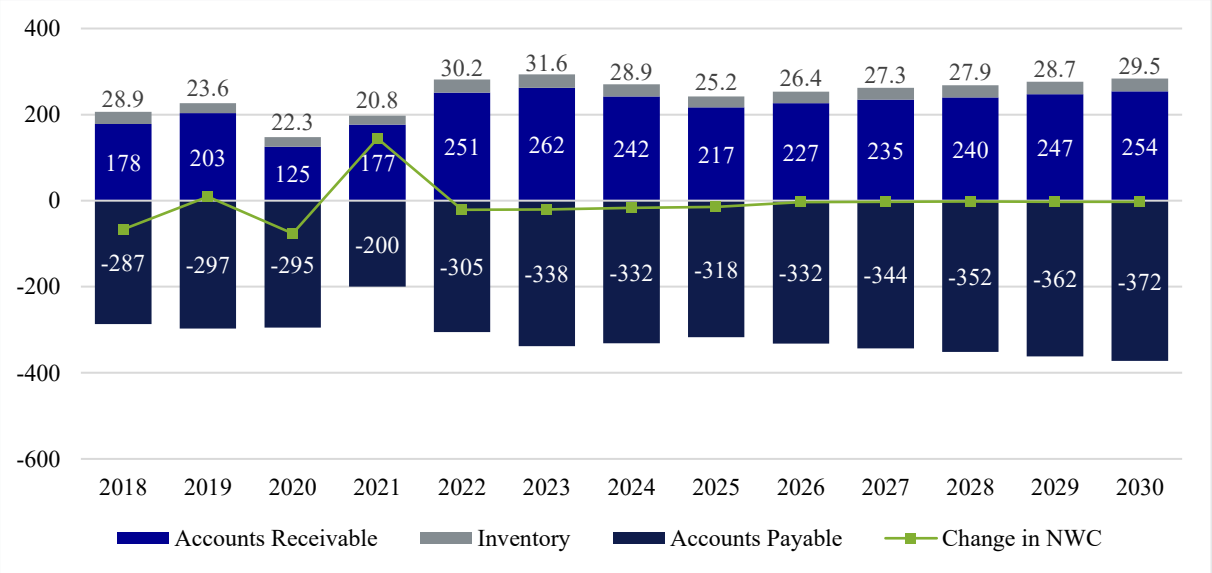
Table 18: NWC forecasting assumptions

NWC Forecast	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Days	365	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365
Revenue	2,466	2,679	2,954	3,010	3,603	3,785	1,797	2,232	3,447	3,943	4,038	4,043	4,228	4,373	4,490	4,611	4,736
Cost of Sales	533	610	622	720	1,089	1,197	689	594	969	1,155	1,230	1,279	1,338	1,384	1,420	1,459	1,498
DIO	29.9	25.6	22.3	14.8	9.7	7.2	11.9	12.8	11.4	10.0	8.6	7.2	7.2	7.2	7.2	7.2	7.2
DSO	25.9	21.0	16.1	17.4	18.0	19.6	25.5	28.9	26.6	24.3	21.9	19.6	19.6	19.6	19.6	19.6	19.6
DPO	92.1	85.6	86.3	94.2	96.0	90.6	156.6	122.9	114.9	106.8	98.7	90.6	90.6	90.6	90.6	90.6	90.6
Inventory	44	43	38	29	29	24	22	21	30	32	29	25	26	27	28	29	30
Accounts Receivable	175	154	130	144	178	203	125	177	251	262	242	217	227	235	240	247	254
Accounts Payable	135	143	147	186	287	297	295	200	305	338	332	318	332	344	352	362	372
NWC	**84**	**54**	**21**	**-13**	**-80**	**-71**	**-147**	**-2**	**-24**	**-44**	**-61**	**-75**	**-79**	**-82**	**-84**	**-86**	**-88**
Changes in NWC		**-30**	**-33**	**-34**	**-67**	**9**	**-76**	**145**	**-21**	**-21**	**-17**	**-14**	**-3**	**-3**	**-2**	**-2**	**-2**

Source: Own estimate

Receivables mainly include claims from the Federal Government to provide security services on their behalf. In contrast, payables are liabilities for environmental compensation, for example, due to the runway north-west and terminal 3 associated forest clearing program.

Figure 19: Forecasted NWC and changes in NWC



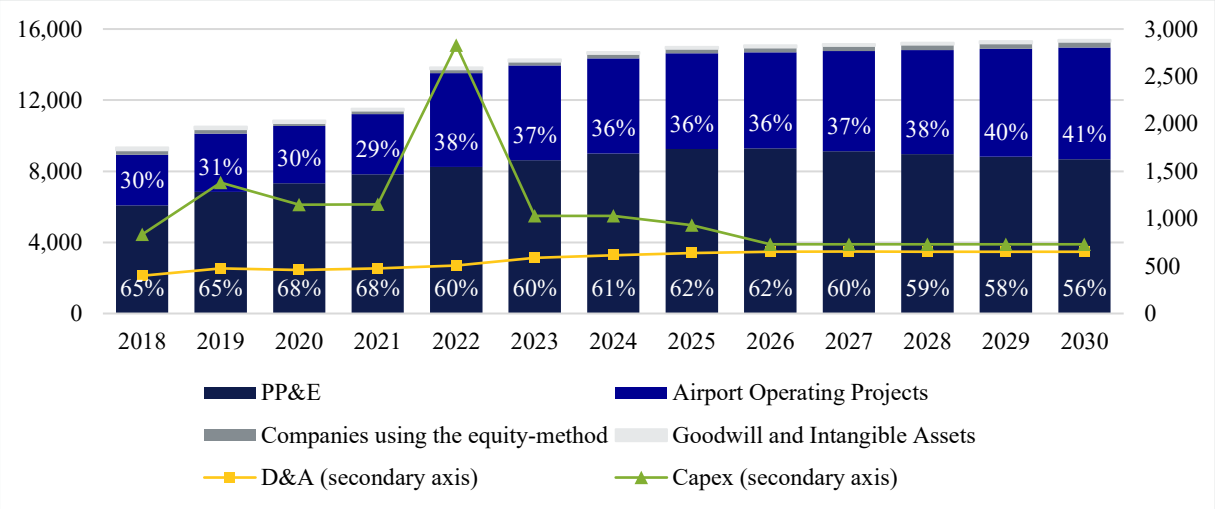
Source: Own estimate

6.2.2 Property Plant and Equipment (PP&E)

Due to projects terminal 3 in Frankfurt, the new terminal plus runway in Lima, and the extension of the Antalya concession agreement, total non-current assets (excluding others) will increase from €10,855 in 2020 to €15,392 in 2030. The increase represents a CAGR of 3.6%.

After completing all expansion projects, CAPEX is assumed to align towards D&A in the long run. However, due to the fixed concession installments for Antalya beginning in 2027, the CAPEX-to-D&A ratio is expected to stay above one. More information is provided in the following chapters.

Figure 20: Forecasted tangible assets (excluding others), D&A, and CAPEX



Source: Own estimate

6.2.2.1 Capital Expenditures (CAPEX)

All current and future CAPEX at the Frankfurt site and internationally was postponed or cut to a minimum. There are currently four expansion projects in progress: First, the construction of the new terminal 3 at the Frankfurt site, scheduled with an investment of €4,000 and planned completion in 2026 (considered in PP&E). Second, the Greek regional airport modernization and expansion program is expected to be completed by the end of 2021 with a total cost of €450. Third, the construction at Lima airport includes a second runway and new tower until the end of 2022. In addition, another terminal to be inaugurated by the end of 2024 with a combined cost of €402. Lastly, the final runway extension at Porto Alegre airport is on its final stretch with an overall investment of €500. Together, Fraport estimates total CAPEX for 2021 to be €1,100 to €1,200.

Moreover, Fraport announced its winning tender to continue the Fraport-TAV Antalya concession agreement for another 25 years that would have expired in 2026. The bid amounts to €7,250, of which 25% or €1,813 is due as an upfront payment in 2022. The remaining amount is due in fixed annual installments starting in 2027 *(Hulick, 2021)*. All CAPEX projects outside Frankfurt and fixed concession fees are considered as investments in airport operating projects. CAPEX estimates include a cushion and are rounded up to take a more conservative stance.

Table 19: Forecasted CAPEX schedule

CAPEX (absolute y-o-y change)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Airport Operating Projects	-13	-16	-32	-1,607	-344	-603	-267	-247	-2,000	-200	-200	-200	-200	-400	-400	-400	-400
PP&E	-252	-247	-267	-287	-472	-755	-837	-863	-800	-800	-800	-700	-500	-300	-300	-300	-300
Goodwill and Other Intangible Assets	-8	-16	-6	-9	-13	-15	-14	-3	-15	-15	-15	-15	-15	-15	-15	-15	-15
Investment Property	-19	-10	-1	0	-2	-6	-27	-11	-10	-10	-10	-10	-10	-10	-10	-10	-10
Companies using the equity-method	0	-2	0	-3	-4	-2	-2	-27	-5	-5	-5	-5	-5	-5	-5	-5	-5
Total	**-291**	**-291**	**-306**	**-1,906**	**-834**	**-1,381**	**-1,147**	**-1,151**	**-2,830**	**-1,030**	**-1,030**	**-930**	**-730**	**-730**	**-730**	**-730**	**-730**

Source: Own estimate

6.2.2.2 Depreciation and Amortization (D&A)

Following the decreasing D&A trend for airport operating projects and the completion for most expansion and modernization projects, D&A is assumed to increase to 3.2% by 2025 and remain constant after that. D&A for PP&E is expected to continue at 5%, while other intangible assets are assumed to reverse back to 2019 levels by 2025. Y-o-y changes in D&A for goodwill and investment property are kept at zero.

Table 20: Forecasting D&A assumptions

Depreciation (% of opening balance)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Airport Operating Projects		-5.4%	-5.2%	-10.9%	-3.0%	-2.9%	-2.8%	-2.8%	-2.9%	-3.0%	-3.1%	-3.2%	-3.2%	-3.2%	-3.2%	-3.2%	-3.2%
PP&E		-4.6%	-4.7%	-4.7%	-5.1%	-6.1%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%
Other intangible assets		-8.5%	-12.3%	-15.4%	-10.7%	-14.2%	-13.2%	-13.2%	-13.4%	-13.7%	-13.9%	-14.2%	-14.2%	-14.2%	-14.2%	-14.2%	-14.2%
Goodwill (y-o-y change)		0.0	-22.4	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment Property (y-o-y change)		-0.8	-0.1	0.0	0.1	0.0	-0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Own estimate

Finally, the absolute D&A is computed based on the opening balance sheet amounts.

Table 21: Forecasted D&A schedule

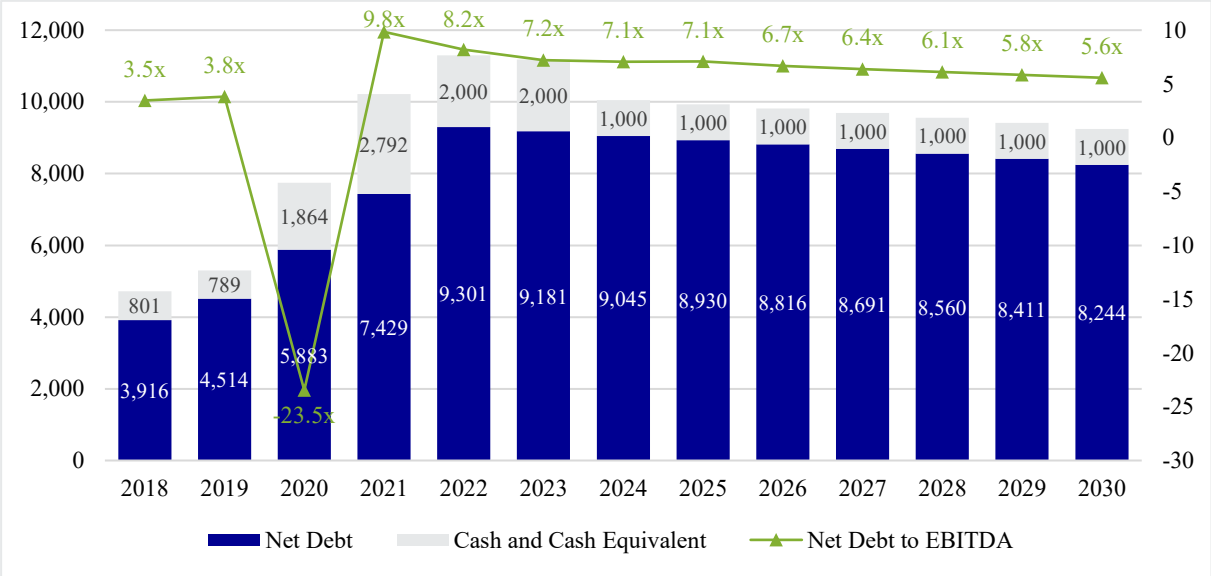
Depreciation (absolute)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Airport Operating Projects	-23	-26	-26	-56	-79	-82	-93	na	-98	-159	-165	-171	-172	-173	-180	-187	-194
PP&E	-271	-285	-286	-277	-302	-370	-344	na	-392	-412	-432	-450	-463	-464	-456	-448	-441
Other intangible assets	-12	-17	-25	-26	-16	-22	-20	na	-17	-17	-17	-17	-17	-16	-16	-16	-16
Goodwill	0	0	-22	0	0	0	0	na	0	0	0	0	0	0	0	0	0
Investment Property	0	-1	-1	-1	-1	-1	-1	na	0	0	0	0	0	0	0	0	0
Total D&A	**-307**	**-328**	**-360**	**-360**	**-399**	**-475**	**-458**	**-477**	**-507**	**-588**	**-613**	**-638**	**-651**	**-654**	**-653**	**-652**	**-651**
Capex-to-D&A	*0.9*	*0.9*	*0.8*	*5.3*	*2.1*	*2.9*	*2.5*	*2.4*	*5.6*	*1.8*	*1.7*	*1.5*	*1.1*	*1.1*	*1.1*	*1.1*	*1.1*

Source: Own estimate

6.2.3 Net Debt and Interest Expense

Since the Covid-19 pandemic, Fraport has issued €4,632 million additional debt, almost doubling the total debt outstanding from 2019 to 2021. Hence, Net Debt-to-EBITDA is expected to surge to 9.8 times in 2021, indicating solvency problems in the long run. However, debt is paid back in the subsequent years, lessening the ratio to 5.6 times in 2030. *Figure 21* illustrates the modeled repayment schedule of debt, consisting of short-term and long-term debt.

Figure 21: Forecasted net debt, cash balance, and gearing ratio



Source: Own estimate

Debt repayment is modeled to provide sufficient liquidity during the crisis, represented by the minimum cash balance of €2,000 for 2022 and 2023. After that, a minimum cash balance of €1,000 is assumed, reflecting historical amounts and including a safety cushion. The difference between CFO, CFI, and the minimum cash balance represents CFF. Dividend payments of 50% of the group result are assumed to take off by 2025. The remaining cash is used to repay any debt obligations, resulting in zero cash flow.

Table 22: Revolving debt facility schedule

Revolver Pay Down	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Opening Cash Balance		2,792	2,000	2,000	1,000	1,000	1,000	1,000	1,000	1,000
(+) Cash-Flow from Operating Activities		764	873	891	890	927	962	990	1,021	1,052
(+) Cash-Flow from Investing Activities		-2,636	-752	-756	-664	-686	-696	-702	-702	-701
(-) Minimum Cash Balance		-2,000	-2,000	-1,000	-1,000	-1,000	-1,000	-1,000	-1,000	-1,000
Cash-Flow from Financing Activities		**1,080**	**-121**	**-1,136**	**-226**	**-241**	**-267**	**-288**	**-320**	**-352**
(Thereof) Dividends paid		0	0	0	-111	-127	-142	-156	-171	-186
(Thereof) Debt Revolver		1,080	-121	-1,136	-115	-114	-124	-132	-149	-166
Total Cash Flow		-792	0	-1,000	0	0	0	0	0	0
Closing Cash Balance	**2,792**	**2,000**	**2,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**

Source: Own analysis

Elevated debt facilities lead to increased interest expense. Interest expenses are forecasted using the effective historical rate and a more conservative cushion, resulting in 3.2%. This approach is used since the cost of debt is calculated based on the synthetic interest coverage ratio method, requiring projected interest expenses.

In 2023, interest expense is expected to reach an all-time high of €333 due to the Antalya concession extension and the resulting issuance of more debt for 2022. In the long run, interest expense is expected to decrease.

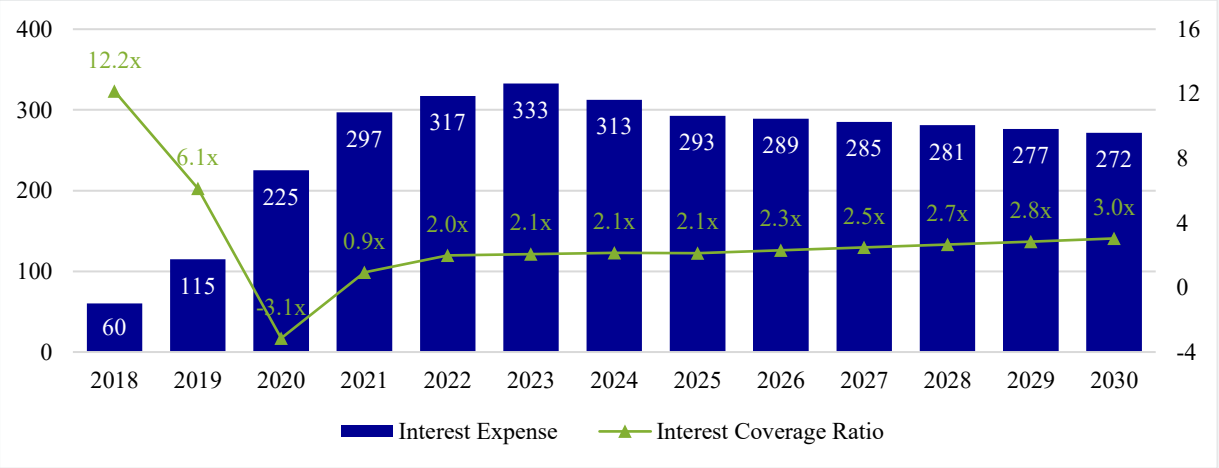
Table 23: Interest expense schedule

Interest Schedule	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Closing Debt Balance	3,874	3,274	3,237	3,956	4,100	4,747	6,937	9,379	10,459	10,338	9,203	9,088	8,974	8,849	8,718	8,569	8,402
Effective Interest Rate		2.4%	3.4%	3.8%	1.5%	2.6%	3.9%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%
Interest expense	**-108**	**-87**	**-112**	**-137**	**-60**	**-115**	**-225**	**-297**	**-317**	**-333**	**-313**	**-293**	**-289**	**-285**	**-281**	**-277**	**-272**

Source: Own analysis

The resulting interest schedule and ICR are illustrated below.

Figure 22: Forecasted interest expense and interest coverage ratio



Source: Own estimate

6.2.4 Minority interest

Non-controlling interest is projected as a percentage of the group result. For the forecasted period, 7% of the group result is attributable to non-controlling interest, representing the historical average. This amount is then added to the balance sheet item.

Table 24: Forecasted non-controlling interest

Minority Interest Schedule	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Group result	**252**	**297**	**400**	**360**	**506**	**454**	**-690**	**-15**	**236**	**265**	**261**	**238**	**272**	**306**	**336**	**367**	**399**
Attributable to minorities	7%	7%	6%	8%	6%	7%	5%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Attributable to shareholders	93%	93%	94%	92%	94%	93%	95%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%
EAT (minorities)	17	21	25	30	32	34	-33	-1	16	18	18	17	19	21	23	26	28
EAT (shareholders)	235	277	375	330	474	421	-658	-14	219	246	243	221	253	285	312	341	371
Non-Controlling Interest (BS)	**65**	**74**	**101**	**161**	**188**	**180**	**140**	**139**	**155**	**174**	**192**	**208**	**227**	**249**	**272**	**298**	**325**

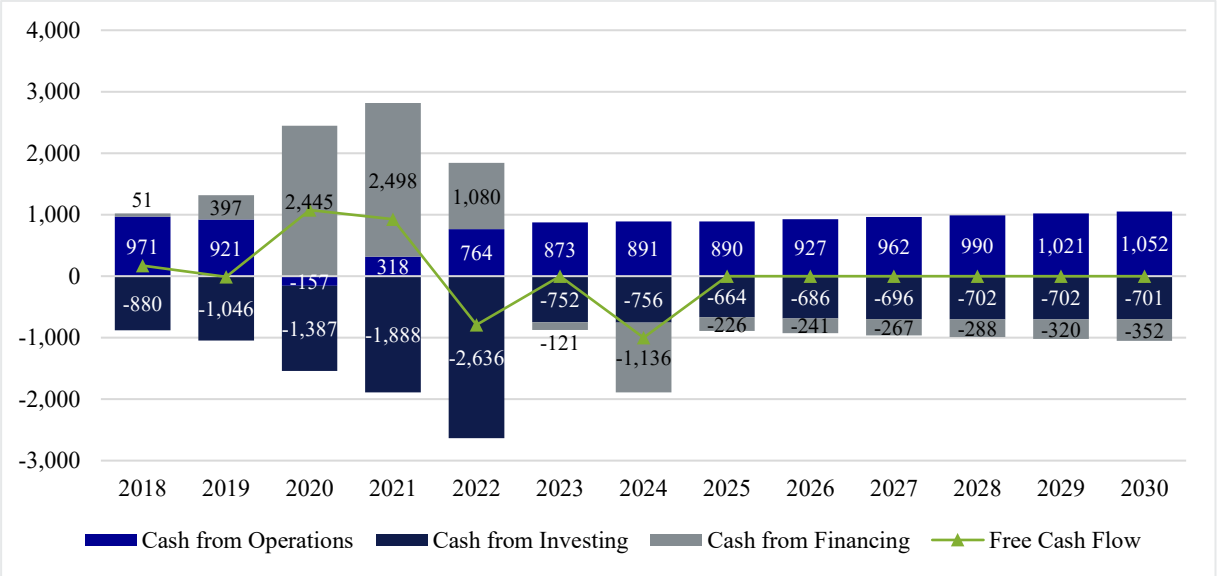
Source: Own estimate

6.3 Cash Flow Statement

The pandemic significantly impacted the cash flow, especially considering CFO, which was negative in 2020 and recovered in 2021. As soon as air travel gains momentum, CFO is expected to increase. The beforementioned increase in debt led to significant cash inflows from

CFF of €2,445 in 2020, €2,498 in 2021, and €1,080 in 2022. In 2022 the upfront installment of €1,813 for the Antalya concession extension is modeled to be partly paid in cash, CFO, and new debt. According to the repayment schedule, CFF is expected to be negative. In the long run, Fraport is anticipated to pay for their investing and financing activities from their operating activities, as predicting new debt and equity issuances for new projects is inaccurate.

Figure 23: Forecasted cash flow statement and free cash flow



Source: Own estimate

7 Valuation and Sensitivity Analysis

This chapter introduces the share prices derived from the DCF and relative valuation based on the financial forecast. In addition, recommendations on the possible price range are made when introducing different scenarios or stretching certain variables. Finally, the price is compared to the AlsterResearch AG recommendation.

7.1 Discounted Cash-Flow Analysis

The DCF is computed for three different methods being the *FCFF*, *TCFF*, and *APV*, which are introduced in the literature review and are based on the forecasted financial model.

The year-end share prices of the DCF methods can be seen in *Table 25* below. As of December 31, 2021, the average intrinsic value per share is €65.54, representing an upside potential of 10.7% compared to the share price of €59.18.

Aviation share prices are still trading below pre-Covid levels and were recently struck by the announcement of Omicron. With the estimated recovery and growth profile, the share price is expected to grow at a CAGR of 5.7% until 2030.

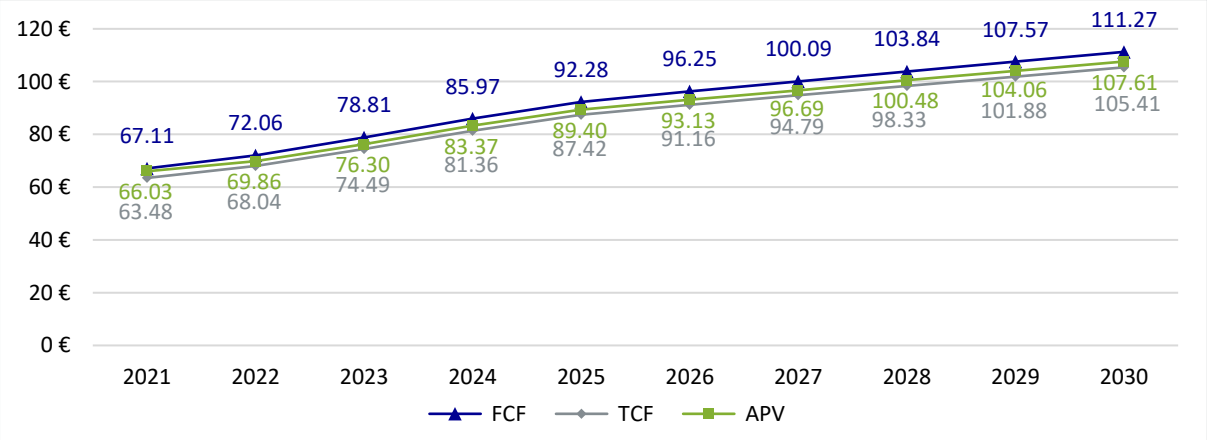
Table 25: DCF method's share price development

Share Price	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
FCF	67.11	72.06	78.81	85.97	92.28	96.25	100.09	103.84	107.57	111.27
TCF	63.48	68.04	74.49	81.36	87.42	91.16	94.79	98.33	101.88	105.41
APV	66.03	69.86	76.30	83.37	89.40	93.13	96.69	100.48	104.06	107.61
Average Share Price	**65.54**	**69.99**	**76.53**	**83.56**	**89.70**	**93.51**	**97.19**	**100.89**	**104.50**	**108.09**

Source: Own analysis

A graphical representation can be seen in *Figure 24* below. More information on the method's calculation follows in the following chapters.

Figure 24: DCF method's share price development illustration



Source: Own analysis

7.1.1 Weighted Average Cost of Capital

As introduced in equation *(10)*, the WACC requires three variables: MV of equity and debt, cost of equity, and debt. Depending on the first two DCF methods, *FCFF* and *TCFF*, a before-tax WACC or an after-tax WACC are required.

The MV of equity is derived by first computing the expected EV of the company, using the forecasted EBITDA and forward EV-to-EBITDA multiples retrieved from Refinitiv Eikon. Second, the MV of debt is calculated and subtracted from the EV to arrive at MV of equity.

Analysts' mean EBITDA and EV forecasts for Fraport for 2021, 2022, and 2023 are extracted from Refinitiv Eikon and converted into multiples. The 2023 forward multiple is used until 2030 to assure an unbiased portrait of the economy without the impact of Covid-19.

Table 26: Gearing ratio calculation: EV

Gearing (EV)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EBITDA	755	1,134	1,275	1,282	1,261	1,318	1,364	1,400	1,438	1,477
Forward EV/EBITDA	18.4x	13.1x	10.7x	10.7x	10.7x	10.7x	10.7x	10.7x	10.7x	10.7x
EV	**13,905**	**14,812**	**13,628**	**13,706**	**13,475**	**14,092**	**14,576**	**14,965**	**15,368**	**15,785**

Source: Own estimate, Refinitiv Eikon

Next, the MV of debt is calculated. The long-term BV of debt, which is not part of the bonds, is converted into MV using the bond pricing formula by Damodaran *(11)*. In addition, the amount of outstanding bonds is added. Lastly, the BV of short-term debt is assumed to be MV and, therefore, added.

Table 27: Gearing ratio calculation: MV of debt

MV Debt	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
BV LT Debt	7,274	8,354	8,233	7,103	6,988	6,874	7,399	7,768	8,419	8,402
Interest expense	297	317	333	313	293	289	285	281	277	272
Cost of debt	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%
Weighted avg. maturity	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
MV LT Debt	**7,684**	**8,662**	**8,659**	**7,627**	**7,412**	**7,298**	**7,697**	**7,967**	**8,463**	**8,419**
(+) Bonds	2,105	2,105	2,105	2,100	2,100	2,100	1,450	950	150	0
(+) BV ST Debt	842	842	842	842	842	842	842	842	842	842
MV of Debt	**10,631**	**11,609**	**11,606**	**10,569**	**10,354**	**10,240**	**9,989**	**9,759**	**9,455**	**9,261**

Source: Own estimate, Refinitiv Eikon

Finally, the MV of equity represents the difference between the EV and the MV of debt.

Table 28: Gearing ratio calculation: MV of equity

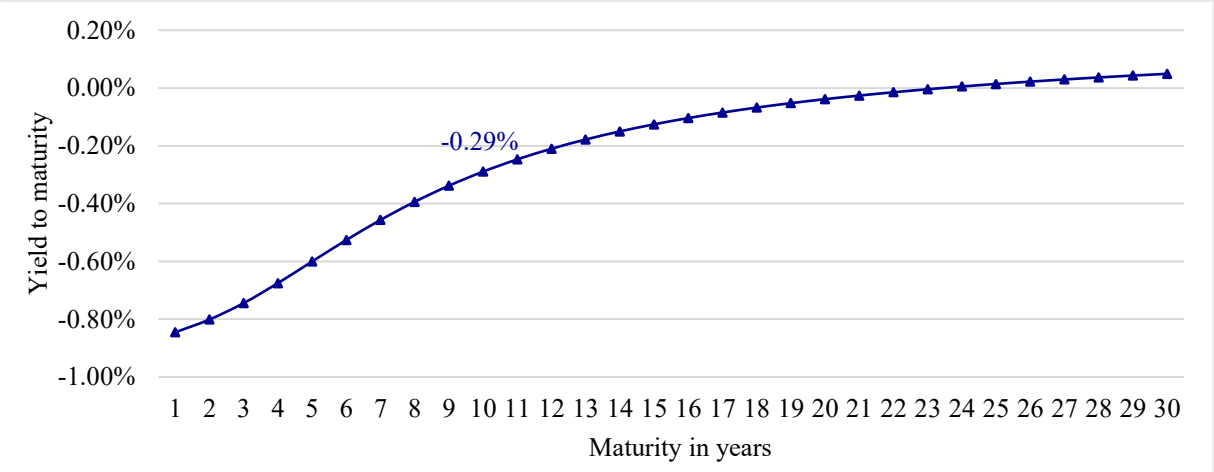
Gearing (Market Cap.)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EV	13,905	14,812	13,628	13,706	13,475	14,092	14,576	14,965	15,368	15,785
MV Debt	10,631	11,609	11,606	10,569	10,354	10,240	9,989	9,759	9,455	9,261
MV Equity	**3,274**	**3,203**	**2,022**	**3,137**	**3,122**	**3,852**	**4,588**	**5,206**	**5,913**	**6,524**

Source: Own estimate, Refinitiv Eikon

The cost of equity is determined applying the CAPM, see equation *(12)*. First, the risk-free rate is calculated using the Svensson formula *(14)*, based on the published parameters by the

ECB for zero-coupon bonds with no credit default risk (AAA-rated) as of November 29, 2021 *(ECB, 2021b)*. The yield curve represents the correlation between interest rate and maturity, as shown in *Figure 25* below. Airport investments are always long-term oriented. Furthermore, the assumption of an infinite investment period seems appropriate. Therefore, a uniform present value equivalent risk-free rate of -0.29% or the 10-year risk-free rate is chosen.

Figure 25: ECB yield-curve for AAA-rated (German) bonds using Svensson method



Source: European Central Bank

Second, the CAPM requires a measure of company risk based on a market portfolio comprising all risky assets. However, such a portfolio only exists in theory and is not observable in practice. Hence, the levered beta is computed as an average of a local and a global index. The local index is represented by the DAX and the global index by the MSCI World. Both indices have their advantages and disadvantages.

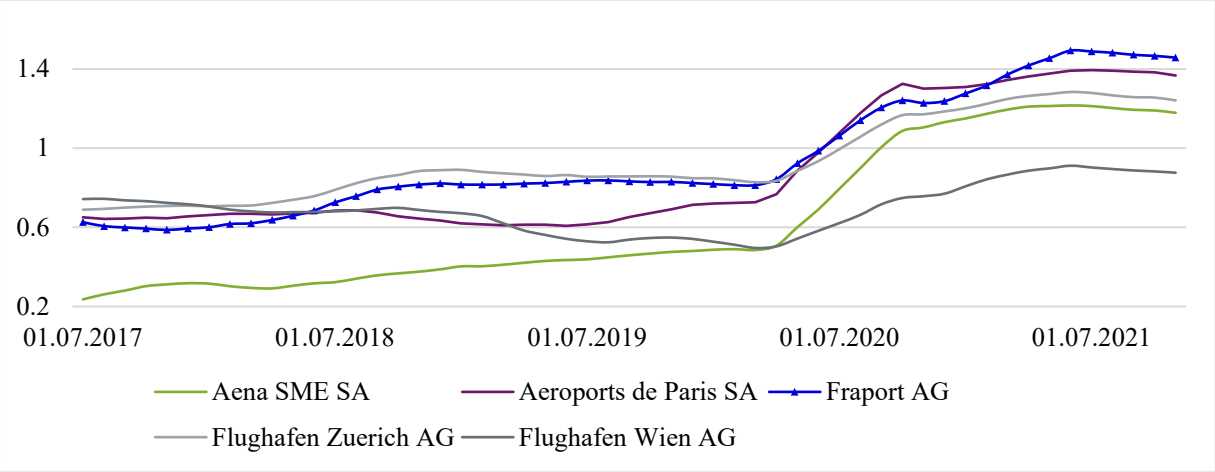
On the one hand, local indices are not prone to currency exchange rate effects or the "home bias" effect, which includes the tendency of investors to favor domestic equities in their portfolios. On the other hand, global indices reflect worldwide diversification and are preferred by the CAPM. Fraport has a significant number of international shareholders and holds worldwide concession agreements. Therefore, the levered beta is derived on both a national and global index to support both perspectives.

Moreover, different intervals need to be considered. Larger observations increase the sample size and ultimately enhance statistical significance. Though, possible breaks or changes in the business model could distort the bigger picture. The drawback of using daily observations could result in illiquid stocks causing the "intervalling-effect" bias (delayed price adjustments to new information). Hence, a sufficient sample size for the interval must be considered. In this case,

a combination of the two-year, weekly (104 data points), and five-year, monthly (60 data points) interval is used.

The average levered beta for airport companies was around 0.6 pre-Covid. However, due to the increased volatility during the pandemic, especially for companies operating in the tourism industry, levered betas overall increased to an average of 1.3 as the pandemic struck the sector in March 2020, see *Figure 26*.

Figure 26: Six-month rolling levered regression beta overview (monthly, 5years, global)



Source: Own Analysis, Refinitiv Eikon

Covid-19 is considered a "black swan" event, and the industry is soon expected to recover from this shock. Increased levered betas do not reflect the actual company-specific risk in the long run. Therefore, winsorization is applied to limit significant company and market return outliers to two standard deviations.

In terms of winsorization, most adjustments occurred for the two-year weekly observations. All levered betas are statistically significant at a 95% confidence level. The levered beta used for 2022 is the average of all winsorized betas: 0.97.

The following table compares levered beta excluding and including winsorization. The corresponding regression analyses can be seen in *Appendix 9*.

Table 29: Levered regression beta summary raw vs. winsorized

	Raw Beta				Winsorized Beta			
Fraport AG	2Y (weekly)		5Y (monthly)		2Y (weekly)		5Y (monthly)	
	Global	Local	Global	Local	Global	Local	Global	Local
Beta (Levered)	**1.76**	**1.85**	**1.43**	**1.34**	**0.69**	**0.97**	**1.17**	**1.05**
S.E.	0.22	0.15	0.20	0.20	0.18	0.14	0.21	0.20
T-Stat	7.96	12.36	7.16	6.88	3.79	6.95	5.47	5.36

Source: Own Analysis, Refinitiv Eikon

Besides winsorization, the Vasicek adjustment is used for the long-run beta see *(17)*. The required sample variance is based on a sample group of airports that fulfill the following liquidity constraints: 1) bid-ask spread must not exceed 1.5%, 2) free float percentage must not be less than 5%, 3) trading volume must not be less than 0.05%. This adjustment calculates a long-run beta of 0.98.

In conclusion, the adjusted levered beta in 2022 is 0.97 and reverses to 0.98 in 2030 with an equally increasing amount per year. However, this adjustment has no significant impact on the cost of equity.

Table 30: Levered regression beta Vasicek adjustment

	FRA	AOT	AENA	SYD	ADP	AIA	FHZN	GAPB	JAT	BCIA	TAVHL	OMAB	$\bar{\beta}_1$	$\sigma^2_{\bar{\beta}_1}$
β_{i1}	0.97	0.88	0.97	0.29	0.80	0.89	0.73	1.31	1.26	0.74	0.86	1.25	1.00	0.0788
$\sigma^2_{\beta_{i1}}$	0.0333	0.0312	0.0255	0.0371	0.0292	0.0544	0.0417	0.0530	0.0762	0.0716	0.0628	0.0571		
Weight 1	70%	72%	76%	68%	73%	59%	65%	60%	51%	52%	56%	58%		
Weight 2	30%	28%	24%	32%	27%	41%	35%	40%	49%	48%	44%	42%		
Sum Weight	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
$\beta_{iadjusted}$	**0.98**	**0.92**	**0.98**	**0.52**	**0.86**	**0.93**	**0.82**	**1.19**	**1.13**	**0.87**	**0.92**	**1.15**		

Source: Own Analysis, Refinitiv Eikon, Vasicek (1973)

The MRP is based on the recommendation of the FAUB, which elevated its target from 5.50-7.00% to 6.00-8.00% in October 2019. According to FAUB, the update became necessary since the yields of German coupon bonds hit negative territory for almost all maturities when using the Svensson method. Hence, the MRP is set to 7% to be on the safe side.

The cost of equity for the respective years can be seen in *Table 31* below. The unlevered cost of equity is calculated using IDW's formula *(13)*, using the after-tax WACC.

Table 31: Cost of equity (CAPM) calculation

CAPM	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
RF	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%
ß (L)	0.97	0.97	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
MRP	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
RE (U)	**5.0%**	**5.0%**	**4.2%**	**3.9%**	**3.9%**	**4.1%**	**4.4%**	**4.3%**	**4.5%**	**4.6%**
RE (L)	**6.5%**	**6.5%**	**6.5%**	**6.5%**	**6.6%**	**6.6%**	**6.6%**	**6.6%**	**6.6%**	**6.6%**

Source: Own estimate

The cost of debt is calculated based on a weighted average of the YTM of the public bonds and Damodaran's synthetic accounting-based spread approach applied for the private debt. Approximately 25% of all debt on the BS comprises five public bonds that mature until 2030. The respective bond yields are computed as a weighted average of the amount outstanding and the provided yields per annum. For simplicity, current YTMs of the bonds are chosen, which might change in the future. However, the impact of the YTM of the bonds decreases over time as bonds mature. Bond information is provided in *Appendix 9*.

Table 32: Weighted average YTM of outstanding bonds

YTM	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Bonds	2,105	2,105	2,105	2,100	2,100	2,100	1,450	950	150	0
Weighted Yield	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.2%	1.2%	1.4%	0.0%

Source: Own Analysis, Refinitiv Eikon

The synthetic accounting-based method is the average spread derived from the ICR and Total Debt-to-Capital ratios. The ICR is obtained by dividing EBITDA by all private debt interest expenses. Based on the ratios, the rating is drawn from an average rating table for industrial and utility companies from S&P. The respective spread for each rating is extracted from Damodaran's Moody's/ S&P default spread table. Lastly, the risk-free rate is added, resulting in the cost of private debt. The conversion tables can also be found in *Appendix 9*.

Table 33: Synthetic accounting-based spread approach by Moody's/ S&P

Synthetic Accounting based PD	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
EBITDA	755	1,134	1,275	1,282	1,261	1,318	1,364	1,400	1,438	1,477
Interest Expense	297	317	333	313	293	289	285	281	277	272
EBITDA Interest Coverage Ratio	2.5x	3.5x	3.6x	4.0x	4.2x	4.5x	4.8x	5.0x	5.2x	5.4x
S&P Rating	B	B	B+	BB-	BB-	BB-	BB	BB	BB	BB
Total Debt	10,221	11,301	11,180	10,045	9,930	9,816	9,691	9,560	9,411	9,244
Total Capital	15,872	17,858	18,266	17,430	17,430	17,562	17,680	17,791	17,905	18,020
Debt / Total Capital	64.4%	63.3%	61.2%	57.6%	57.0%	55.9%	54.8%	53.7%	52.6%	51.3%
S&P Rating	B+	B+	BB-	BB-	BB-	BB-	BB-	BB	BB	BB
Minimum Rating (Conservative)	**B**	**B**	**B+**	**BB-**	**BB-**	**BB-**	**BB-**	**BB**	**BB**	**BB**
Moody's/ S&P Implied PD	**5.5%**	**5.5%**	**4.5%**	**3.6%**	**3.6%**	**3.6%**	**3.6%**	**3.0%**	**3.0%**	**3.0%**

Source: Moody's and S&P

Finally, the cost of debt is the weighted average of all public and private debt, see *Table 34*.

Table 34: Cost of debt calculation

Cost of Debt	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Bonds Outstanding (Weight)	21%	19%	19%	21%	21%	21%	15%	10%	2%	0%
Bonds Average Weighted YTM	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.2%	1.2%	1.4%	0.0%
Remaining Debt Outstanding (Weight)	79%	81%	81%	79%	79%	79%	85%	90%	98%	100%
Damodaran's Implied PD	5.5%	5.5%	4.5%	3.6%	3.6%	3.6%	3.6%	3.0%	3.0%	3.0%
Risk-Free Rate	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%
Weighted Cost of Debt (RD)	**4.3%**	**4.4%**	**3.6%**	**2.8%**	**2.8%**	**2.8%**	**3.0%**	**2.6%**	**2.7%**	**2.7%**

Source: Own estimate, Refinitiv Eikon, Damodaran (2019)

The WACC results from the cost of equity and debt and the respective proportions in market values. Over the years, the WACC changed due to different gearings and changes in the cost of debt. The after-tax and before-tax WACC are the discount rates for the *FCFF,* and *TCFF* approaches, respectively. For the *APV* approach, the unlevered cost of equity is the discount rate for the value of the unlevered firm and the before-tax cost of debt, the discount rate for the ITS, see *Table 35*.

Table 35: Weighted average cost of capital (WACC)

WACC	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Gearing:										
MV Equity	24%	22%	15%	23%	23%	27%	31%	35%	38%	41%
MV Debt	76%	78%	85%	77%	77%	73%	69%	65%	62%	59%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
CAPM:										
RF	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%	-0.29%
ß (L)	0.97	0.97	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
MRP	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
RE (U)	**5.0%**	**5.0%**	**4.2%**	**3.9%**	**3.9%**	**4.1%**	**4.4%**	**4.3%**	**4.5%**	**4.6%**
RE (L)	**6.5%**	**6.5%**	**6.5%**	**6.5%**	**6.6%**	**6.6%**	**6.6%**	**6.6%**	**6.6%**	**6.6%**
Cost of Debt:										
RD	4.3%	4.4%	3.6%	2.8%	2.8%	2.8%	3.0%	2.6%	2.7%	2.7%
T	22.7%	24.0%	25.3%	26.7%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%
RD (1-T)	**3.4%**	**3.4%**	**2.7%**	**2.1%**	**2.0%**	**2.0%**	**2.2%**	**1.8%**	**1.9%**	**2.0%**
WACC (1-T)	**4.1%**	**4.0%**	**3.3%**	**3.1%**	**3.1%**	**3.3%**	**3.5%**	**3.5%**	**3.7%**	**3.9%**
WACC	**4.9%**	**4.9%**	**4.0%**	**3.7%**	**3.7%**	**3.8%**	**4.1%**	**4.0%**	**4.2%**	**4.3%**

Source: Own estimate

7.1.2 Terminal Value

This chapter describes how the terminal value for the three different DCF methods is derived. It is divided into two parts. First, the perpetuity growth rate is elaborated. Second, the cost of all concession agreements is introduced since, for simplicity reasons, all concession agreements are considered to last into infinity.

7.1.2.1 Perpetuity Growth Rate

The perpetuity is a weighted average CAGR O&D passenger growth rate between 2018 and 2038 of the forecasted passengers per continent. The continent specific CAGRs are published by Airbus "Global Market Forecast" 2019 traffic forecast. The GMF from 2019 is selected, not incorporating Covid-19 to be more conservative in the CAGR *(Airbus, 2019)*.

The weight of the perpetuity is attributable to EMEA (0.7%), America (0.9%), and Asia Pacific (1.0%), indicating a perpetuity growth rate of 2.6%, as shown in *Table 36*.

Table 36: Perpetuity growth rate calculation

Perpetuity Growth Rate	Pax 2030	Pax Share	Continent	O&D growth 2038	Weight
Germany	8.7	2.0%	Europe	1.8%	0.0%
Europe	44.3	10.2%	Europe	1.8%	0.2%
North America	10.7	2.5%	North America	2.0%	0.0%
Latin America	3.1	0.7%	South America	3.0%	0.0%
Africa	4.7	1.1%	Africa	3.0%	0.0%
Middle East	5.3	1.2%	Middle East	3.0%	0.0%
Far East	12.1	2.8%	Asia-Pacific	4.5%	0.1%
Frankfurt Site	**88.9**	**20.6%**			**0.5%**
Fraport USA	103.7	24.0%	North America	2.0%	0.5%
Xi'an	80.3	18.6%	Asia-Pacific	4.5%	0.8%
Antalya	41.9	9.7%	Europe	1.8%	0.2%
Fraport Greece	35.6	8.2%	Europe	1.8%	0.1%
Lima	30.7	7.1%	South America	3.0%	0.2%
Pulkovo	23.1	5.3%	Europe	1.8%	0.1%
Fraport Brasil	20.2	4.7%	South America	3.0%	0.1%
Twin Star	5.9	1.4%	Europe	1.8%	0.0%
Fraport Slovenija	2.0	0.5%	Europe	1.8%	0.0%
Weighted Average	**432.3**	**100%**			**2.6%**

Source: Airbus GMF 2019

7.1.2.2 Cost of Concession Agreements

Around half of Fraport's profit is generated outside Frankfurt airport through its international concession agreements. The concession agreements are long-term oriented, with the first concession agreement expiring in 2036.

At the beginning of December 2021, Fraport was able to win the bid for the Antalya concession, extending its duration for another 25 years. Since the detailed-planning period in this model goes until 2030, the value of Fraport's concession agreements is reflected in the TV. Therefore, all concession agreements are assumed to be infinite. This strong assumption is reasonable since the group's focus is to expand its business operations internationally. Growth opportunities at Frankfurt airport are constrained. Therefore, expired concession agreements will either be extended, renewed, or replaced. Also, new concession agreements are expected in the future. However, predicting new transactions is impossible and thus, not considered in this model. Since concessions are assumed to be infinite and reflected in the TV, the cost of the concession agreements must be considered in the unlevered free cash flow in the year 2030.

Concession agreements typically have at least one if not a combination of different types of cost associated with it: An upfront payment, fixed annual installments, and a performance-related fee that is either tied to revenue or EBITDA. The concession cost for 2030 is calculated as follows:

First, the total fixed payment is discounted based on the discount rate for 2030 and the remaining duration. Second, the annuity for the same NPV of the total fixed payment is computed. Lastly, the performance-based fee for 2030 is added to the annuity. The PV of the total annual payment for the *FCFF* method amounts to €238. The tables for the *TCFF* and *APV* methods are in *Appendix 12*.

Table 37: Total annual concession fee calculation (FCFF method)

TV Concession Payments (FCF)	AYT	GRC	LIM	FOR	POA	BGR	LED	Sum
Beginning Year	2027	2017	2001	2017	2017	2006	2010	
Ending Year	2052	2057	2041	2047	2042	2041	2040	
Duration (after 2030)	**22**	**27**	**11**	**17**	**12**	**11**	**10**	
Upfront Payment	1,813	1,234	233	190	120	3	0	
Fixed Payment (annual)	73	0	0	0	0	0	1	
Total Fixed Payment	**1,885**	**1,234**	**233**	**190**	**120**	**3**	**1**	
WACC 2030 (FCF)	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	
PV Total Fixed Payment	825	448	154	100	77	2	1	
Annuity (Annual Concession Cost)	**55**	**26**	**17**	**8**	**8**	**0**	**0**	**115**
Revenue 2030	0	69.9	165.0	54.3	54.3	31.4	126.0	
Perfomance Fee (% of Revenue)	0.0%	29.0%	46.5%	5.0%	5.0%	19.0%	12.0%	
Variable Fee (annual)	**0**	**20**	**77**	**3**	**3**	**6**	**15**	**123**
Total Payment (annual)	**55**	**46**	**94**	**11**	**11**	**6**	**15**	**238**

Source: Own estimate, Fraport Visual Fact Book 2020

Finally, the PV of the total annual payment for the respective method is subtracted from the unlevered free cash flow in 2030. The TV of the growth perpetuity is calculated based on this adjusted cash flow. The final TV reflects the average of the growth perpetuity and exit multiple approaches (see *Table 38*). More information on the exit multiple is provided in *Chapter 7.6*.

Table 38: Terminal value calculation per DCF method

Average Terminal Value	FCF	TCF	APV
Unlevered FCFF 2030	508	584	508
Total Annual Concession Fee	238	233	229
Adjusted FCFF 2030	**270**	**351**	**278**
Discount Rate	3.8%	4.3%	4.6%
Perpetual Growth	2.6%	2.6%	2.6%
Terminal Value (Growth Perpetuity)	**22,688**	**21,581**	**14,383**
Exit Multiple 2023	10.1x	10.1x	10.1x
EBITDA 2030	1,463	1,463	1,463
Terminal Value (Exit Multiple)	**14,802**	**14,802**	**14,802**
Average Terminal Value	**18,745**	**18,192**	**14,593**

Source: Own estimate

7.1.3 Free Cash Flow to the Firm (FCFF)

The *FCFF* method uses unlevered free cash flows, which do not account for the potential tax benefit but the after-tax discount rate. Considering the forecasted line-items, discount rates, and TV, the *FCFF* method yields a share price of €67.11. The intrinsic share price offers an upside potential of 13.4% compared to €59.18.

Table 39: Free cash flow to the firm (FCFF) calculation

FCFF	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Exit
Date	31.12.2021	31.12.2022	31.12.2023	31.12.2024	31.12.2025	31.12.2026	31.12.2027	31.12.2028	31.12.2029	31.12.2030	31.12.2030
Period		1	2	3	4	5	6	7	8	9	9
EBIT		628	687	669	623	667	710	747	786	826	
(-) Taxes		(151)	(174)	(178)	(174)	(187)	(199)	(209)	(220)	(231)	
(+) D&A		507	588	613	638	651	654	653	652	651	
(-) CAPEX		(2,830)	(1,030)	(1,030)	(930)	(730)	(730)	(730)	(730)	(730)	
(-) Change NWC		21	21	17	14	3	3	2	2	2	
Unlevered FCF		**(1,825)**	**92**	**91**	**171**	**405**	**438**	**463**	**490**	**518**	**18,889**
WACC (1-T)		4.0%	3.3%	3.1%	3.1%	3.3%	3.5%	3.5%	3.7%	3.9%	3.9%
Discount factor		0.96	0.94	0.91	0.89	0.85	0.81	0.79	0.75	0.71	0.71
PV FCF		**(1,754)**	**86**	**83**	**151**	**345**	**355**	**364**	**366**	**368**	**13,427**
Rolling EV	**13,792**	**16,139**	**16,663**	**17,209**	**17,697**	**17,970**	**18,223**	**18,462**	**18,685**	**18,889**	
(+) Cash	2,792	2,000	2,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
(-) Debt	(10,221)	(11,301)	(11,180)	(10,045)	(9,930)	(9,816)	(9,691)	(9,560)	(9,411)	(9,244)	
(-) Minorities	(139)	(155)	(174)	(192)	(208)	(227)	(249)	(272)	(298)	(325)	
Market Cap	**6,224**	**6,683**	**7,309**	**7,973**	**8,558**	**8,927**	**9,283**	**9,630**	**9,976**	**10,319**	
Diluted Shares	92.741	92.741	92.741	92.741	92.741	92.741	92.741	92.741	92.741	92.741	
Share Price	**67.11**	**72.06**	**78.81**	**85.97**	**92.28**	**96.25**	**100.09**	**103.84**	**107.57**	**111.27**	
Y-o-Y Growth		7.4%	9.4%	9.1%	7.3%	4.3%	4.0%	3.7%	3.6%	3.4%	

Source: Own analysis

7.1.4 Total Cash Flow to the Firm (TCFF)

In contrast to the *FCFF* method, this method accounts for the tax benefit by using levered free cash flows. Therefore, the discount rate is before-tax. For the year-end, the TCFF method returns a share price of €63.48, suggesting an upside potential of 7.3%.

Table 40: Total cash flow to the firm (TCFF) calculation

TCFF	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Exit
Date	31.12.2021	31.12.2022	31.12.2023	31.12.2024	31.12.2025	31.12.2026	31.12.2027	31.12.2028	31.12.2029	31.12.2030	31.12.2030
Period	0	1	2	3	4	5	6	7	8	9	9
EBIT		628	687	669	623	667	710	747	786	826	
(-) Taxes		(74)	(90)	(95)	(92)	(106)	(119)	(131)	(143)	(155)	
(+) D&A		507	588	613	638	651	654	653	652	651	
(-) CAPEX		(2,830)	(1,030)	(1,030)	(930)	(730)	(730)	(730)	(730)	(730)	
(-) Change NWC		21	21	17	14	3	3	2	2	2	
Levered TCF		**(1,749)**	**176**	**174**	**253**	**486**	**518**	**542**	**568**	**594**	**18,345**
WACC		4.9%	4.0%	3.7%	3.7%	3.8%	4.1%	4.0%	4.2%	4.3%	4.3%
Discount factor		0.95	0.92	0.90	0.87	0.83	0.79	0.76	0.72	0.68	0.68
PV TCF		**(1,667)**	**162**	**156**	**219**	**403**	**406**	**413**	**409**	**406**	**12,548**
Rolling EV	**13,455**	**15,767**	**16,263**	**16,782**	**17,246**	**17,498**	**17,731**	**17,951**	**18,157**	**18,345**	
(+) Cash	2,792	2,000	2,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
(-) Debt	(10,221)	(11,301)	(11,180)	(10,045)	(9,930)	(9,816)	(9,691)	(9,560)	(9,411)	(9,244)	
(-) Minorities	(139)	(155)	(174)	(192)	(208)	(227)	(249)	(272)	(298)	(325)	
Market Cap	**5,887**	**6,310**	**6,909**	**7,545**	**8,108**	**8,454**	**8,791**	**9,119**	**9,448**	**9,775**	
Diluted Shares	92.741	92.741	92.741	92.741	92.741	92.741	92.741	92.741	92.741	92.741	
Share Price	**63.48**	**68.04**	**74.49**	**81.36**	**87.42**	**91.16**	**94.79**	**98.33**	**101.88**	**105.41**	
Y-o-Y Growth		7.2%	9.5%	9.2%	7.5%	4.3%	4.0%	3.7%	3.6%	3.5%	

Source: Own analysis

7.1.5 Adjusted Present Value (APV)

The *APV* method values the company as if it was unlevered using the unlevered cost of equity as a discount rate and adds the PV of ITS, which is discounted at the cost of debt and further

subtracts expected distress costs. The ITS is calculated by multiplying the average outstanding debt by the cost of debt and the effective tax rate.

Table 41: Interest tax shield (ITS) calculation

Tax Shield	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Debt	10,221	11,301	11,180	10,045	9,930	9,816	9,691	9,560	9,411	9,244
Cost of Debt	4.3%	4.4%	3.6%	2.8%	2.8%	2.8%	3.0%	2.6%	2.7%	2.7%
Tax Rate	22.7%	24.0%	25.3%	26.7%	28.0%	28.0%	28.0%	28.0%	28.0%	28.0%
Tax Shield	**88**	**114**	**102**	**80**	**79**	**78**	**82**	**69**	**71**	**71**

Source: Own analysis

The PV of the TV of the ITS amounts to €3,008 and results from a growth perpetuity of 0.86%. This growth perpetuity represents one-third of the weighted average growth perpetuity of 2.6%. The model assumes that debt will grow at a lower rate as equity grows since Fraport's debt levels are still above pandemic levels in 2030. In addition, Fraport's liquidity and solvency ratios are worse than its peers, so further deleveraging will happen.

The cost of bankruptcy is the product of the respective unlevered value of the company in this year, the PD, and the bankruptcy cost. The bankruptcy cost is set at 20% of each of the years. As revealed in the literature, studies found bankruptcy costs to average between 25% and 30%. However, since Fraport is a large and heavily tangible asset-based company, the bankruptcy cost of 20% is assumed to be reasonable.

To conclude, the *APV* method yields a share price of €66.03, indicating an upside potential of 11.6%.

Table 42: Adjusted present value (APV) calculation

APV	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Exit
Date	31.12.2021	31.12.2022	31.12.2023	31.12.2024	31.12.2025	31.12.2026	31.12.2027	31.12.2028	31.12.2029	31.12.2030	31.12.2030
Period	0	1	2	3	4	5	6	7	8	9	9
EBIT		628	687	669	623	667	710	747	786	826	
(-) Taxes		(151)	(174)	(178)	(174)	(187)	(199)	(209)	(220)	(231)	
(+) D&A		507	588	613	638	651	654	653	652	651	
(-) CAPEX		(2,830)	(1,030)	(1,030)	(930)	(730)	(730)	(730)	(730)	(730)	
(-) Change NWC		21	21	17	14	3	3	2	2	2	
Unlevered FCF		**(1,825)**	**92**	**91**	**171**	**405**	**438**	**463**	**490**	**518**	**14,812**
RE(U)		5.0%	4.2%	3.9%	3.9%	4.1%	4.4%	4.3%	4.5%	4.6%	4.6%
Discount factor		0.95	0.92	0.89	0.86	0.82	0.77	0.75	0.70	0.67	0.67
PV FCF		**(1,738)**	**84**	**81**	**147**	**331**	**338**	**345**	**345**	**345**	**9,861**
Rolling EV (U)	**10,139**	**12,421**	**12,897**	**13,396**	**13,839**	**14,069**	**14,279**	**14,474**	**14,653**	**14,812**	
ITS		114	102	80	79	78	82	69	71	71	3,826
RD		4.4%	3.6%	2.8%	2.8%	2.8%	3.0%	2.6%	2.7%	2.7%	2.7%
Discount factor		0.96	0.93	0.92	0.89	0.87	0.84	0.84	0.81	0.79	0.79
PV ITS		**109**	**95**	**73**	**70**	**68**	**68**	**58**	**58**	**56**	**3,008**
Rolling ITS	**3,664**	**3,652**	**3,650**	**3,669**	**3,690**	**3,713**	**3,732**	**3,764**	**3,794**	**3,826**	
Rolling EV (U)	**10,139**	**12,421**	**12,897**	**13,396**	**13,839**	**14,069**	**14,279**	**14,474**	**14,653**	**14,812**	
PD	5.5%	5.5%	4.5%	3.6%	3.6%	3.6%	3.6%	3.0%	3.0%	3.0%	
BK cost	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	
Rolling BK cost	**112**	**137**	**116**	**96**	**100**	**101**	**103**	**87**	**88**	**89**	
Rolling EV (L)	**13,691**	**15,936**	**16,430**	**16,969**	**17,429**	**17,680**	**17,908**	**18,151**	**18,359**	**18,550**	
(+) Cash	2,792	2,000	2,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
(-) Debt	(10,221)	(11,301)	(11,180)	(10,045)	(9,930)	(9,816)	(9,691)	(9,560)	(9,411)	(9,244)	
(-) Minorities	(139)	(155)	(174)	(192)	(208)	(227)	(249)	(272)	(298)	(325)	
Market Cap	**6,123**	**6,479**	**7,076**	**7,732**	**8,291**	**8,637**	**8,967**	**9,319**	**9,651**	**9,980**	
Diluted Shares	92.741	92.741	92.741	92.741	92.741	92.741	92.741	92.741	92.741	92.741	
Share Price	**66.03**	**69.86**	**76.30**	**83.37**	**89.40**	**93.13**	**96.69**	**100.48**	**104.06**	**107.61**	
Y-o-Y Growth		5.8%	9.2%	9.3%	7.2%	4.2%	3.8%	3.9%	3.6%	3.4%	

Source: Own analysis

7.2 Scenario Analysis

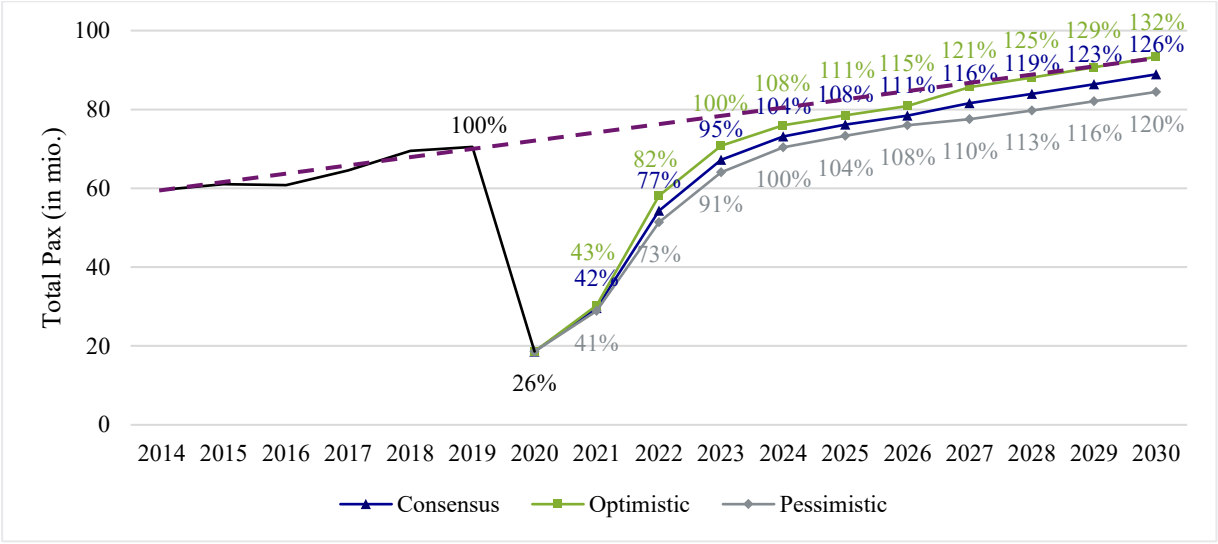
The expected recovery profile of Covid-19 and the resulting growth rates impact the share price significantly. Hence, the scenario analysis investigates how the share price development changes for different recovery profiles and growth rate assumptions and is divided into three scenarios: consensus, optimistic, and pessimistic.

Optimistic scenario: European passengers are expected to reach pre-Covid-19 levels one year earlier in 2024 (*Figure 7*). Furthermore, consensus growth estimates for non-European continents are increased by 5% throughout the forecasting horizon. For Europe, growth rates are increased by 5% between 2027 and 2030. For the pessimistic scenario, European passengers reach pre-pandemic figures one year later in 2026, while the other growth rates are decreased by 5% for the same periods.

The growth rates can be seen in *Appendix 1*. The passenger development at the Frankfurt site can be seen below. In the consensus scenario, it is assumed that due to the Covid-19 crisis, 7% of domestic passenger volumes are permanently lost. For example, business travel in Germany will never reach its pre-levels again due to digitalization and environmental concerns, shifting

passengers to rail travel or no travel at all. However, the optimistic scenario assumes full recovery.

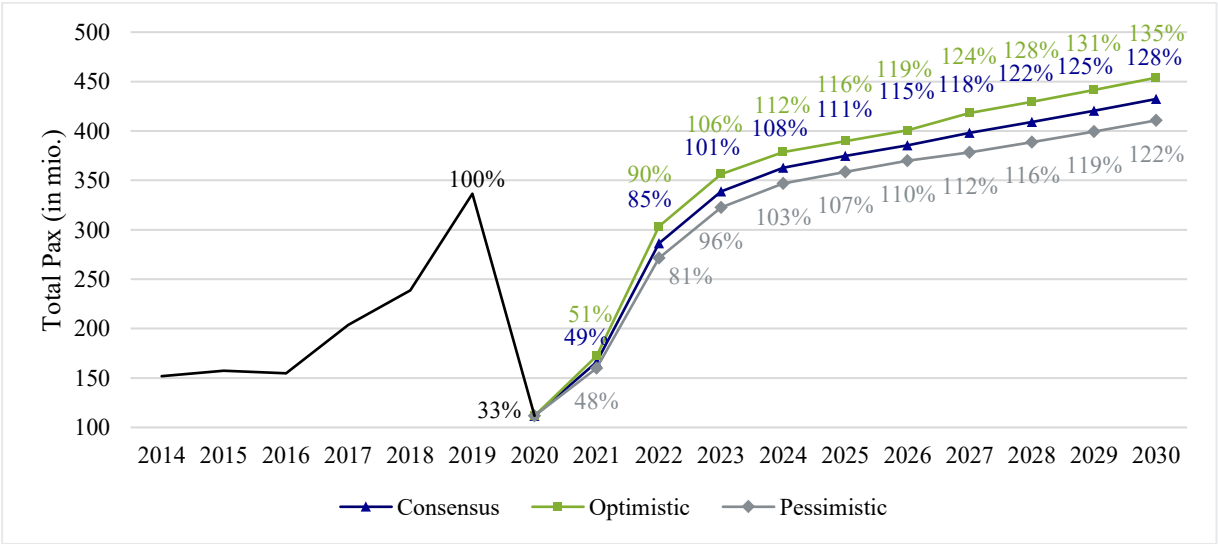
Figure 27: Frankfurt site passenger recovery and growth scenarios



Source: ACI (2021), IATA (2021), Own Estimate

The total passenger growth rates for the Frankfurt and international sites are portrayed below.

Figure 28: Group's passenger recovery and growth scenarios

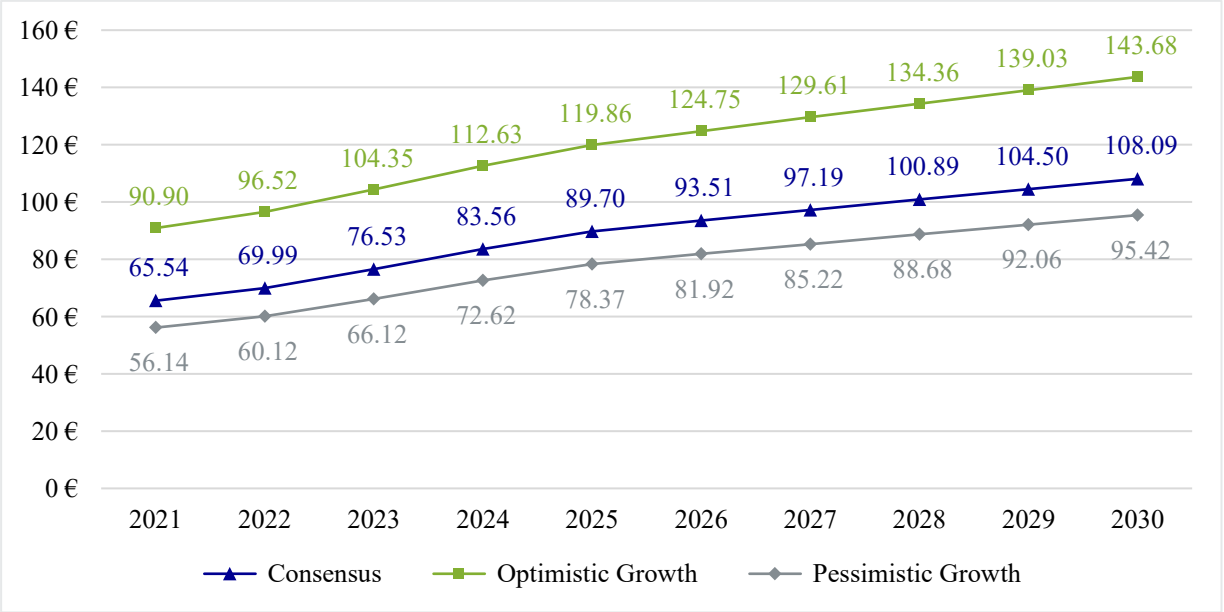


Source: ACI (2021), IATA (2021), Own Estimate

Detailed tables of the passenger developments on both sites are provided in *Appendix 14*.

The share prices for each scenario are the average of the *FCFF*, *TCFF*, and *APV* methods. As a result, the end-of-year 2021 share price in the optimistic scenario yields €90.90, whereas, for the pessimistic scenario, €56.14.

Figure 29: Share price development per scenario



Source: Own Estimate

7.3 Sensitivity Analysis

The sensitivity analysis aims to identify the impact on the share price as of December 31, 2021, when flexing the discount rate and the perpetuity growth rate and exit multiple assumptions for the TV since they may differ among analysts' perceptions. Remember that the TV is the average of the growth perpetuity and the exit multiple.

The table below compares the changes in the respective discount rates for the year 2030, for each of the methods: *FCFF*, *TCFF*, and *APV*, to the exit multiple and indicates the average share prices. The share price is sensitive to small changes in the variables and suggests a possible share price range between €49.00 and €89.05.

Table 43: Discount rate and exit multiple sensitivity analysis

		Discount Rate 2030 % Change										
		0.5%	0.4%	0.3%	0.2%	0.1%	0.0%	-0.1%	-0.2%	-0.3%	-0.4%	-0.5%
EV/EBITDA Exit Multiple	9.6x	40.29	43.93	47.94	52.36	57.29	62.81	69.08	76.25	84.58	94.40	106.22
	9.7x	40.81	44.46	48.47	52.90	57.83	63.36	69.63	76.80	85.14	94.96	106.79
	9.8x	41.33	44.99	49.00	53.43	58.37	63.90	70.18	77.36	85.70	95.53	107.36
	9.9x	41.85	45.51	49.53	53.97	58.91	64.45	70.72	77.91	86.25	96.09	107.93
	10.0x	42.37	46.04	50.06	54.50	59.45	64.99	71.27	78.47	86.81	96.66	108.50
	10.1x	42.90	46.57	50.59	55.04	59.99	65.54	71.82	79.02	87.37	97.22	109.07
	10.2x	43.42	47.09	51.12	55.58	60.53	66.08	72.37	79.58	87.93	97.79	109.64
	10.3x	43.94	47.62	51.65	56.11	61.07	66.63	72.92	80.13	88.49	98.35	110.21
	10.4x	44.46	48.15	52.19	56.65	61.61	67.17	73.47	80.68	89.05	98.91	110.77
	10.5x	44.98	48.67	52.72	57.18	62.15	67.72	74.02	81.24	89.61	99.48	111.34
	10.6x	45.51	49.20	53.25	57.72	62.69	68.26	74.57	81.79	90.17	100.04	111.91

Source: Own Analysis

Lastly, the respective discount rate for 2030 and the growth perpetuity are manipulated, and the average share prices of the three methods are displayed in the table below. This example results in a possible share price range of €42.16 and €119.15.

Table 44: Discount rate and perpetuity growth sensitivity analysis

		Discount Rate 2030 % Change										
		0.5%	0.4%	0.3%	0.2%	0.1%	0.0%	-0.1%	-0.2%	-0.3%	-0.4%	-0.5%
Perpetuity Growth Rate	2.1%	32.39	34.98	37.75	40.73	43.96	47.46	51.28	55.47	60.10	65.25	71.02
	2.2%	34.15	36.90	39.86	43.06	46.53	50.32	54.48	59.07	64.18	69.91	76.39
	2.3%	36.05	38.99	42.16	45.61	49.37	53.49	58.05	63.12	68.80	75.24	82.61
	2.4%	38.13	41.28	44.70	48.42	52.52	57.04	62.06	67.70	74.09	81.40	89.89
	2.5%	40.40	43.79	47.49	51.55	56.03	61.02	66.62	72.95	80.21	88.62	98.55
	2.6%	42.90	46.57	50.59	55.04	59.99	65.54	71.82	79.02	87.37	97.22	109.07
	2.7%	45.65	49.64	54.06	58.97	64.47	70.71	77.85	86.13	95.90	107.66	122.16
	2.8%	48.70	53.08	57.95	63.41	69.60	76.69	84.91	94.60	106.26	120.65	139.01
	2.9%	52.11	56.95	62.37	68.50	75.53	83.69	93.31	104.88	119.15	137.37	161.75
	3.0%	55.95	61.33	67.42	74.39	82.48	92.03	103.51	117.67	135.75	159.93	194.67
	3.1%	60.30	66.34	73.26	81.29	90.76	102.15	116.20	134.14	158.14	192.60	248.29

Source: Own Analysis

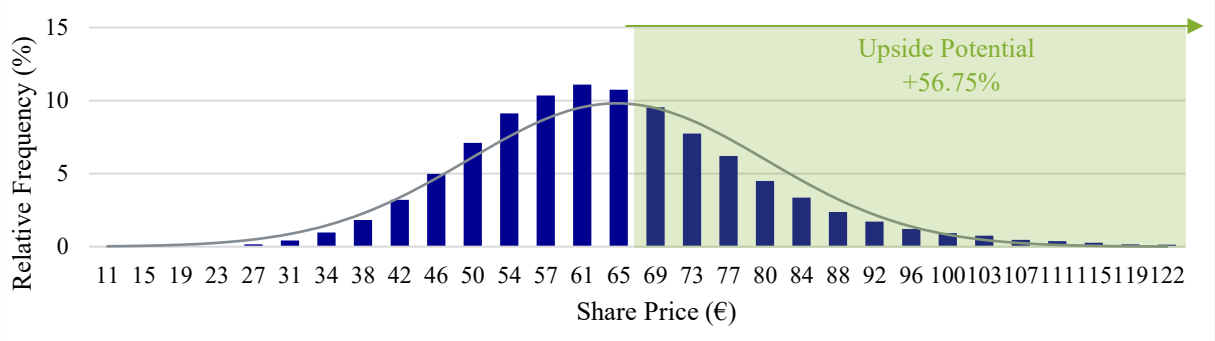
The respective sensitivity tables for each DCF method are attached in *Appendix 15*.

7.4 Monte Carlo Simulation

Lastly, a Monte Carlo simulation for the TCFF method is performed since its 2021 share price is €63.48, the most conservative. One hundred thousand trials stretch critical variables for each forecasted year, such as the FCFs, D/E ratios, levered betas, MRPs, growth perpetuity, and exit multiple. Depending on the variable, different distributions are selected. More information can be found in *Appendix 16*.

The simulation supports a price range between €40.43 and €90.85 for the 5% and 95% confidence levels and an average share price of €62.96. In addition, the probability of upside potential is 56.75% compared to the closing price of €59.18. The simulation's relative frequency and normal distribution can be seen in *Figure 30* below.

Figure 30: Monte Carlo share price simulation as of December 31, 2021



Source: Own Analysis

7.5 DCF Comparison to AlsterResearch AG

This final sub-chapter compares the DCF valuation to AlsterResearch. Alster is a german based equity research house covering micro to large caps in different industries.

On June 15, 2021, Dr. Oliver Wojahn (CFA) initiated coverage for Fraport AG, issuing a buy recommendation on a target price of €74.79, indicating an upside potential of 26.4% *(Wojhan, 2021)*.

Table 45: AlsterResearch AG DCF analysis for Fraport AG as of June 15, 2021

DCF (EUR m)	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	TV
NOPAT	-58	327	486	533	564	604	644	685	
D&A	476	501	524	543	553	553	553	555	
Changes in WC	84	-36	-114	-64	21	22	23	24	
Changes in LT Provisions	45	91	51	70	26	26	26	25	
CAPEX	-943	-955	-915	-735	-546	-567	-590	-556	
Cash Flow	**-396**	**-71**	**32**	**349**	**619**	**637**	**655**	**732**	**16,191**
WACC	6.60%	6.70%	6.70%	6.70%	6.70%	6.70%	6.70%	6.60%	6.60%
PV Cash Flow	**-382**	**-64**	**27**	**277**	**461**	**445**	**430**	**451**	**9,987**

DCF per Share derived form:	
Total PV	11,631
Mid-Year adj. Total PV	12,012
Net Debt/ Cash at Start of Year	6,104
Financial Assets	1,048
Provisions and Off-BS Debt	47
Equity Value	6,910
No. Of Sahres Outstanding	92.4
DCF per Share	**74.79**

Source: SRH Alster Research AG

The *TCFF* method is compared to Alster's DCF method since it is the most conservative. There is a significant difference between the two share prices. However, since the issuance of Alster in the summer of 2021, market conditions have changed. First, the Covid-19 situation has worsened, with more countries in lockdown during the winter break since the announcement of the Omicron variant. Second, Fraport's recent statement of the winning tender for the extension of the Antalya concession agreement is not considered.

Moreover, differences in the discount factor and growth perpetuity rates exist. Alster used a positive risk-free rate of 2% and calculated a higher levered beta. Consequently, the cost of equity is more elevated. In addition, the cost of debt is set at a higher rate, ultimately increasing the WACC. Furthermore, Alster's growth perpetuity is set far below the historical long-term air travel growth rate to reflect conservative factors such as regulatory and environmental challenges.

Even though Alster employs a higher discount and a lower growth rate, the main factor that elevates their share price is their increased expected free cash flow considered for the TV.

Table 46: DCF assumption comparison

Assumptions	Thesis (TCF)	Alster Research
Planning Horizon Revenue CAGR (2021-2028)	10.5%	10.0%
Free Cash-Flow for Terminal Value	594	732
Terminal Value Perpetuity Growth Rate	2.6%	2.0%
Terminal Value Absolute	18,345	16,191
Cost of Debt	2.7%	5.0%
LT Tax Rate	28.0%	25.0%
Unlevered Beta	0.49	0.70
Target D/E	1.42	1.30
Relevered Beta	0.98	1.39
Risk-Free Rate	-0.29%	2.0%
Equity Risk Premium	7.0%	6.0%
Cost of Equity	6.6%	10.3%
Terminal Value Year WACC	4.3%	6.6%
DCF Intrinsic Value	**63.48**	**74.79**

Source: Own Analysis, SRH Alster Research AG

7.6 Relative Valuation Analysis (Comps)

Relative valuation is carried out primarily to justify and validate the results obtained from the DCF analysis. EV multiples are derived based on comparable companies and historical transactions.

The share price is based on the weighted average 2024 forward EV-to-EBITDA multiple of Fraport's identified peers. Forward multiples are chosen to lessen the impact of Covid-19 on the valuation. The share price is calculated using the weighted average multiple. Furthermore, the EV is the product of this multiple and the forecasted EBITDA of €1,282 in 2024. Lastly, the EV is transferred back to the market capitalization by subtracting net debt and minorities.

The average share price of the weighted and median multiples amounts to €58.03, as shown in *Table 47*.

Table 47: Comparable company analysis

		Market Data					Valuation Multiples Reuters (2024)			
Company Name	Symbol	Price (€)	Shares (m)	Market Capitalization (m)	Net Debt and Minorities (m)	Enterprise Value (m)	EV/ Sales	EV/ EBITDA	EV/ EBIT	Weight
Fraport AG	FRAG.DE	62.54	92.5	5,783 €	7,568 €	13,351 €	3.8x	10.7x	17.9x	0%
Aeroports de Paris SA	ADP.PA	144.00	150.0	21,600 €	7,421 €	29,021 €	4.0x	11.0x	21.1x	40%
Aena SME SA	AENA.MC	116.20	99.0	11,499 €	8,389 €	19,888 €	5.8x	9.8x	14.6x	40%
Flughafen Zuerich AG	FHZN.S	154.53	30.7	4,744 €	1,215 €	5,959 €	5.5x	10.3x	18.1x	10%
Flughafen Wien AG	VIEV.VI	28.75	84.0	2,415 €	343 €	2,758 €	3.3x	7.6x	12.6x	10%
Weighted Mean				10,065 €	4,342 €	14,407 €	4.8x	10.1x	17.3x	
Median				8,122 €	4,318 €	12,924 €	4.8x	10.1x	16.3x	
Fraport (average)		**58.03 €**	92.5	**5,366 €**	7,568 €	**12,934 €**		**1,282 €**		
Fraport (min)		**57.56 €**	92.5	**5,322 €**	7,568 €	12,890 €				
Fraport (max)		**58.51 €**	92.5	**5,410 €**	7,568 €	12,978 €				

Source: Own analysis, Refinitiv Eikon

In total, four comparable companies are identified, namely: Aeroports de Paris SA, Aena SME SA, Flughafen Zuerich AG, and Flughafen Wien AG. The peers are selected based on the following criteria: 1) geographical location/ regulatory environment, 2) business model, 3) size (revenue, assets, employees), 4) growth rates, and 5) margins and profitability.

Especially, ADP and Aena are recognized to reflect Fraport, given their international airport operations, revenue and total assets size, and profitability and gearing. Therefore, 40% of the weight of the multiples is allocated towards ADP and Aena, respectively.

On the other hand, Zuerich and Wien are recognized as less comparable mainly due to the smaller size and a gearing favoring less leverage. In addition, Zuerich emphasizes the retail business, which profits from higher retail revenue-per-passenger. Therefore, both receive only 10% weight. Key KPIs are compared in *Table 48* below. More information about the peer airports is provided in *Appendix 17*.

Table 48: Peer group KPI comparison as of 2019

2019 KPIs	Fraport AG	ADP SA	Aena SME SA	Zuerich AG	Wien AG
Number of Airports Participations	31	22	23	9	3
Number of Continent Particiation	3	4	3	3	1
Market Capitalization	5,783	21,600	11,499	4,744	2,415
Levered Beta (monthly, MSCI World)	1.43	1.28	1.11	1.16	0.84
Revenue	3,706	4,700	4,444	1,210	749
Revenue CAGR 2016-2019	12.7%	16.8%	6.2%	6.1%	5.0%
Gross Margin	86.8%	88.9%	96.3%	86.1%	96.1%
EBITDA Margin	31.8%	39.1%	62.5%	53.1%	44.2%
EBITDA CAGR 2016-2019	3.7%	14.9%	6.5%	3.5%	4.9%
EAT Margin	12.3%	12.4%	32.5%	25.5%	20.5%
Current Ratio	0.9	1.1	0.4	0.7	0.9
Total Assets	12,627	16,793	14,891	4,594	2,301
Debt-to-Equity	1.3	1.4	1.1	0.5	0.3
ESG Score (Refinitiv Eikon)	A-	B+	B+	C	B-

Source: Own analysis, Refinitiv Eikon

Finally, precedent M&A analysis is conducted in *Appendix 18*. However, the result is not considered due to a lack of public information.

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Appendices

Appendix 1 - Passenger Forecast

Appendix Figure 1: Passenger growth rates by continent

Consensus Passenger Growth	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Europe	36%	71%	90%	99%	103%	106%	110%	113%	115%	118%
Asia Pacific	53%	91%	111%	124%	131%	138%	145%	153%	161%	170%
Africa	39%	76%	97%	106%	111%	117%	123%	129%	135%	142%
Middle East	39%	76%	97%	106%	111%	117%	123%	129%	135%	142%
South America	53%	95%	106%	111%	114%	117%	120%	123%	127%	130%
North America	60%	94%	105%	108%	110%	111%	113%	115%	116%	118%

Optimistic Case	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Europe	36%	77%	95%	102%	105%	108%	116%	118%	121%	124%
Asia Pacific	56%	96%	117%	130%	137%	145%	152%	161%	169%	179%
Africa	41%	80%	102%	111%	117%	123%	129%	135%	142%	149%
Middle East	41%	80%	102%	111%	117%	123%	129%	135%	142%	149%
South America	56%	100%	111%	117%	120%	123%	126%	130%	133%	137%
North America	63%	99%	110%	113%	115%	117%	119%	120%	122%	124%

Pessimistic Case	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Europe	36%	67%	86%	96%	100%	104%	105%	107%	110%	112%
Asia Pacific	50%	86%	105%	118%	124%	131%	138%	145%	153%	162%
Africa	37%	72%	92%	101%	106%	111%	117%	122%	129%	135%
Middle East	37%	72%	92%	101%	106%	111%	117%	122%	129%	135%
South America	50%	90%	101%	105%	108%	111%	114%	117%	120%	124%
North America	57%	89%	100%	103%	104%	106%	107%	109%	111%	112%

Source: ACI (2021) and IATA (2021)

Appendix Figure 2: Frankfurt site passenger forecast

Frankfurt Pax by Continent	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Germany	7.4	1.8	2.7	5.2	6.7	7.3	7.6	7.8	8.2	8.3	8.5	8.7
Europe	37.5	10.5	13.7	26.4	33.8	37.1	38.7	39.7	41.4	42.3	43.3	44.3
North America	9.1	2.0	5.5	8.6	9.6	9.8	10.0	10.1	10.3	10.4	10.6	10.7
Latin America	2.4	0.8	1.3	2.3	2.5	2.7	2.7	2.8	2.9	3.0	3.0	3.1
Africa	3.3	0.9	1.3	2.5	3.2	3.5	3.7	3.9	4.0	4.3	4.5	4.7
Middle East	3.7	1.0	1.4	2.8	3.6	3.9	4.1	4.3	4.5	4.8	5.0	5.3
Far East	7.1	1.6	3.8	6.5	7.9	8.8	9.3	9.8	10.3	10.9	11.5	12.1
Total	**70.5**	**18.6**	**29.6**	**54.3**	**67.2**	**73.2**	**76.1**	**78.4**	**81.6**	**83.9**	**86.4**	**88.9**

Frankfurt Pax (Y-o-Y Growth)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Germany		-75.7%	49.7%	93.6%	27.7%	10.0%	4.2%	2.6%	4.1%	2.3%	2.3%	2.3%
Europe		-72.0%	30.1%	93.6%	27.7%	10.0%	4.2%	2.6%	4.1%	2.3%	2.3%	2.3%
North America		-78.0%	173.0%	56.7%	11.7%	2.9%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Latin America		-66.7%	59.0%	79.2%	11.6%	4.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%
Africa		-72.7%	43.0%	94.9%	27.6%	9.3%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Middle East		-73.0%	44.3%	94.9%	27.6%	9.3%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Far East		-77.5%	135.2%	71.7%	22.0%	11.7%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%
Total	**1.4%**	**-73.6%**	**59.0%**	**83.5%**	**23.8%**	**8.9%**	**4.0%**	**3.1%**	**4.0%**	**2.9%**	**2.9%**	**2.9%**

Frankfurt Pax (Share of Total)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Germany	10.5%	9.7%	9.1%	9.6%	9.9%	10.0%	10.0%	10.0%	10.0%	9.9%	9.9%	9.8%
Europe	53.2%	56.5%	46.2%	48.7%	50.2%	50.7%	50.8%	50.6%	50.7%	50.4%	50.1%	49.8%
North America	12.9%	10.8%	18.5%	15.8%	14.2%	13.4%	13.1%	12.9%	12.6%	12.4%	12.3%	12.1%
Latin America	3.4%	4.3%	4.3%	4.2%	3.8%	3.6%	3.6%	3.6%	3.5%	3.5%	3.5%	3.5%
Africa	4.7%	4.8%	4.4%	4.6%	4.8%	4.8%	4.8%	4.9%	5.0%	5.1%	5.2%	5.3%
Middle East	5.2%	5.4%	4.9%	5.2%	5.3%	5.4%	5.4%	5.5%	5.6%	5.7%	5.8%	5.9%
Far East	10.1%	8.6%	12.7%	11.9%	11.7%	12.0%	12.2%	12.5%	12.6%	12.9%	13.3%	13.6%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Annual Report, Own Analysis

Appendix Figure 3: International site passenger forecast

Intl. Pax by Continent	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Fully consolidated												
Fraport USA	87.8	17.7	52.7	82.5	92.2	94.8	96.2	97.7	99.2	100.6	102.2	103.7
Fraport Slovenija	1.7	0.3	0.6	1.2	1.5	1.7	1.8	1.8	1.9	1.9	2.0	2.0
Fraport Brasil	15.5	6.7	8.2	14.7	16.4	17.2	17.7	18.2	18.7	19.2	19.7	20.2
Lima	23.6	7.0	12.5	22.4	25.0	26.2	26.9	27.6	28.3	29.1	29.9	30.7
Fraport Greece	30.2	8.6	11.0	21.3	27.1	29.9	31.1	31.9	33.2	34.0	34.8	35.6
Twin Star	5.0	1.0	1.8	3.5	4.5	4.9	5.1	5.3	5.5	5.6	5.7	5.9
Accounted using equity-method												
Antalya	35.5	9.7	12.9	25.0	31.9	35.1	36.6	37.6	39.1	40.0	40.9	41.9
Pulkovo	19.6	10.9	11.7	18.4	20.6	21.1	21.5	21.8	22.1	22.4	22.8	23.1
Xi'an	47.2	31.1	25.0	43.0	52.4	58.6	61.7	65.0	68.6	72.3	76.2	80.3
Total	**266.0**	**93.1**	**136.5**	**232.0**	**271.7**	**289.5**	**298.6**	**306.9**	**316.6**	**325.2**	**334.1**	**343.4**

Intl. Pax (Y-o-Y Growth)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Fully consolidated												
Fraport USA		-79.8%	197.6%	56.7%	11.7%	2.9%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Fraport Slovenija	-5.0%	-83.3%	117.5%	93.6%	27.7%	10.0%	4.2%	2.6%	4.1%	2.3%	2.3%	2.3%
Fraport Brasil	4.0%	-56.7%	22.4%	79.2%	11.6%	4.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%
Lima	6.6%	-70.2%	78.1%	79.2%	11.6%	4.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%
Fraport Greece	0.9%	-71.4%	27.5%	93.6%	27.7%	10.0%	4.2%	2.6%	4.1%	2.3%	2.3%	2.3%
Twin Star	-10.6%	-78.9%	73.0%	93.6%	27.7%	10.0%	4.2%	2.6%	4.1%	2.3%	2.3%	2.3%
Accounted using equity-method												
Antalya	10.0%	-72.6%	33.0%	93.6%	27.7%	10.0%	4.2%	2.6%	4.1%	2.3%	2.3%	2.3%
Pulkovo	8.1%	-44.1%	7.3%	56.7%	11.7%	2.9%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Xi'an	5.7%	-34.2%	-19.5%	71.7%	22.0%	11.7%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%
Total	**57.1%**	**-65.0%**	**46.6%**	**70.0%**	**17.1%**	**6.6%**	**3.1%**	**2.8%**	**3.2%**	**2.7%**	**2.7%**	**2.8%**

Intl. Pax (Share of Total)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Fully consolidated												
Fraport USA	33.0%	19.0%	38.6%	35.6%	33.9%	32.8%	32.2%	31.8%	31.3%	30.9%	30.6%	30.2%
Fraport Slovenija	0.6%	0.3%	0.5%	0.5%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
Fraport Brasil	5.8%	7.2%	6.0%	6.4%	6.1%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%
Lima	8.9%	7.5%	9.2%	9.7%	9.2%	9.0%	9.0%	9.0%	9.0%	9.0%	8.9%	8.9%
Fraport Greece	11.3%	9.2%	8.0%	9.2%	10.0%	10.3%	10.4%	10.4%	10.5%	10.5%	10.4%	10.4%
Twin Star	1.9%	1.1%	1.3%	1.5%	1.6%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
Accounted using equity-method												
Antalya	13.3%	10.4%	9.5%	10.8%	11.8%	12.1%	12.3%	12.2%	12.4%	12.3%	12.3%	12.2%
Pulkovo	7.4%	11.8%	8.6%	7.9%	7.6%	7.3%	7.2%	7.1%	7.0%	6.9%	6.8%	6.7%
Xi'an	17.8%	33.4%	18.3%	18.5%	19.3%	20.2%	20.7%	21.2%	21.7%	22.2%	22.8%	23.4%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Annual Report, Own Analysis

Appendix 2 – Revenue Forecast

Appendix Figure 4: Fraport group revenue forecast by segment

Revenue Forecast (mio.)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Gross Floor Space (m²/1000)	904.0	904.0	904.0	920.0	920.0	920.0	920.0	920.0	920.0	920.0	920.0	920.0	1320.0	1320.0	1320.0	1320.0	1320.0
Pax Frankfurt Site	59.6	61.0	60.8	64.5	69.5	70.5	18.6	29.6	54.3	67.2	73.2	76.1	78.4	81.6	83.9	86.4	88.9
Pax International Sites	92.3	96.3	94.1	139.2	169.3	266.0	93.1	136.5	232.0	271.7	289.5	298.6	306.9	316.6	325.2	334.1	343.4
Aviation Revenue	**884**	**927**	**910**	**954**	**1,006**	**1,027**	**441**	**592**	**923**	**1,075**	**1,098**	**1,111**	**1,145**	**1,191**	**1,225**	**1,261**	**1,298**
Revenue/ Pax	14.8x	15.2x	15.0x	14.8x	14.5x	14.6x	23.5x	20.0x	17.0x	16.0x	15.0x	14.6x	14.6x	14.6x	14.6x	14.6x	14.6x
Retail Revenue	**276**	**305**	**302**	**328**	**321**	**339**	**132**	**189**	**326**	**363**	**373**	**365**	**377**	**392**	**403**	**415**	**427**
Revenue/ Pax	4.6x	5.0x	5.0x	5.1x	4.6x	4.8x	7.0x	6.4x	6.0x	5.4x	5.1x	4.8x	4.8x	4.8x	4.8x	4.8x	4.8x
Real Estate Revenue	**179**	**184**	**192**	**194**	**187**	**169**	**163**	**163**	**163**	**163**	**163**	**163**	**234**	**234**	**234**	**234**	**234**
Revenue/ Square kilometer	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x	0.2x
Ground Handling Revenue	**656**	**673**	**630**	**642**	**674**	**707**	**319**	**414**	**597**	**712**	**754**	**761**	**784**	**816**	**839**	**864**	**889**
Revenue/ Pax	11.0x	11.0x	10.4x	10.0x	9.7x	10.0x	17.0x	14.0x	11.0x	10.6x	10.3x	10.0x	10.0x	10.0x	10.0x	10.0x	10.0x
External Activities Revenue	**399**	**510**	**552**	**817**	**1,291**	**1,464**	**622**	**874**	**1,439**	**1,630**	**1,650**	**1,642**	**1,688**	**1,741**	**1,789**	**1,838**	**1,889**
Revenue/ Pax	4.3x	5.3x	5.9x	5.9x	7.6x	5.5x	6.7x	6.4x	6.2x	6.0x	5.7x	5.5x	5.5x	5.5x	5.5x	5.5x	5.5x
Segment Revenue	**2,395**	**2,599**	**2,586**	**2,935**	**3,478**	**3,706**	**1,677**	**2,232**	**3,447**	**3,943**	**4,038**	**4,043**	**4,228**	**4,373**	**4,490**	**4,611**	**4,736**
Other Operating Income	71.4	80.2	368.2	75.6	124.4	79.2	119.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Revenue	**2,466**	**2,679**	**2,954**	**3,010**	**3,603**	**3,785**	**1,797**	**2,232**	**3,447**	**3,943**	**4,038**	**4,043**	**4,228**	**4,373**	**4,490**	**4,611**	**4,736**

Revenue Y-o-Y Growth	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Aviation		4.9%	-1.8%	4.8%	5.5%	2.0%	-57.1%	34.2%	56.0%	16.5%	2.1%	1.3%	3.1%	4.0%	2.9%	2.9%	2.9%
Retail & Real Estate		7.1%	1.2%	5.6%	-2.8%	0.1%	-42.0%	19.6%	38.7%	7.6%	2.0%	-1.5%	15.5%	2.5%	1.8%	1.8%	1.9%
Ground Handling		2.6%	-6.3%	1.8%	5.0%	4.9%	-54.9%	29.7%	44.2%	19.3%	5.8%	1.0%	3.1%	4.0%	2.9%	2.9%	2.9%
External Activities		28.1%	8.1%	48.1%	58.0%	13.4%	-57.5%	40.4%	64.7%	13.3%	1.2%	-0.5%	2.8%	3.2%	2.7%	2.7%	2.8%
Segment Revenue		**8.5%**	**-0.5%**	**13.5%**	**18.5%**	**6.5%**	**-54.7%**	**33.1%**	**54.4%**	**14.4%**	**2.4%**	**0.1%**	**4.6%**	**3.4%**	**2.7%**	**2.7%**	**2.7%**
Other operating income		12.3%	359.1%	-79.5%	64.6%	-36.3%	51.1%	-100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Revenue		**8.6%**	**10.3%**	**1.9%**	**19.7%**	**5.1%**	**-52.5%**	**24.2%**	**54.4%**	**14.4%**	**2.4%**	**0.1%**	**4.6%**	**3.4%**	**2.7%**	**2.7%**	**2.7%**

Revenue (Share of Total)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Aviation	36.9%	35.7%	35.2%	32.5%	28.9%	27.7%	26.3%	26.5%	26.8%	27.3%	27.2%	27.5%	27.1%	27.2%	27.3%	27.3%	27.4%
Retail & Real Estate	19.0%	18.8%	19.1%	17.8%	14.6%	13.7%	17.6%	15.8%	14.2%	13.3%	13.3%	13.1%	14.4%	14.3%	14.2%	14.1%	13.9%
Ground Handling	27.4%	25.9%	24.4%	21.9%	19.4%	19.1%	19.0%	18.6%	17.3%	18.1%	18.7%	18.8%	18.6%	18.7%	18.7%	18.7%	18.8%
External Activities	16.6%	19.6%	21.3%	27.8%	37.1%	39.5%	37.1%	39.2%	41.7%	41.3%	40.9%	40.6%	39.9%	39.8%	39.8%	39.9%	39.9%
Segment Revenue	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Annual Reports, Own Analysis

Appendix 3 – Financial Model Assumptions

Appendix Figure 5: Fraport group financial model forecasting assumptions

Live Scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Income Statement																	
COGS (% of revenue)	-22%	-23%	-21%	-24%	-30%	-32%	-38%	-27%	-28%	-29%	-30%	-32%	-32%	-32%	-32%	-32%	-32%
Personnel (% of revenue)	-39%	-38%	-36%	-36%	-33%	-32%	-67%	-34%	-34%	-33%	-33%	-32%	-32%	-32%	-32%	-32%	-32%
Other operating (% of revenue)	-7%	-7%	-7%	-6%	-6%	-5%	-8%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%
Interest rate (% of average debt	0%	-2%	-3%	-4%	-1%	-3%	-4%	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%
Taxes on income (% of EBT)	-33%	-32%	-31%	-29%	-25%	-23%	-26%	-23%	-24%	-25%	-27%	-28%	-28%	-28%	-28%	-28%	-28%
Profit minorities (% of EAT)	7%	7%	6%	8%	6%	7%	5%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Profit shareholders (% of EAT)	93%	93%	94%	92%	94%	93%	95%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%
Dividend payout ratio	49%	45%	33%	42%	29%	44%	0%	0%	0%	0%	0%	50%	50%	50%	50%	50%	50%
Average shares (absolute change)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Basic (absolute change)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diluted (absolute change)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D&A (% of opening amount)																	
Airport operating projects		-5%	-5%	-11%	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%
PP&E		-5%	-5%	-5%	-5%	-6%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%
Goodwill (absolute change)		0	-22	22	0	0	0	0	0	0	0	0	0	0	0	0	0
Intangibles		-9%	-12%	-15%	-11%	-14%	-13%	-13%	-13%	-14%	-14%	-14%	-14%	-14%	-14%	-14%	-14%
Investment property (absolute change)		-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPEX (absolute change)																	
Airport operating projects	-13	-16	-32	-1,607	-344	-603	-267	-247	-2,000	-200	-200	-200	-200	-400	-400	-400	-400
Goodwill and intangibles	-8	-16	-6	-9	-13	-15	-14	-3	-15	-15	-15	-15	-15	-15	-15	-15	-15
PP&E	-252	-247	-267	-287	-472	-755	-837	-863	-800	-800	-800	-700	-500	-300	-300	-300	-300
Investment property	-19	-10	-1	0	-2	-6	-27	-11	-10	-10	-10	-10	-10	-10	-10	-10	-10
Companies using equity-meth	0	-2	0	-3	-4	-2	-2	-27	-5	-5	-5	-5	-5	-5	-5	-5	-5
Balance Sheet																	
Non-current assets:																	
Other NC assets (% of rever	43%	35%	29%	27%	22%	23%	49%	49%	43%	36%	29%	23%	23%	23%	23%	23%	23%
Total current assets:																	
Inventories (days)	30	26	22	15	10	7	12	13	11	10	9	7	7	7	7	7	7
Accounts receivable (days)	26	21	16	17	18	20	26	29	27	24	22	20	20	20	20	20	20
Other current assets (absolu	0	13	-47	-21	67	-89	103	0	0	0	0	0	0	0	0	0	0
Non-current liabilities:																	
LT Debt (absolute change)		-601	-37	719	145	647	2,190	2,442	1,080	-121	-1,136	-115	-114	-124	-132	-149	-166
Accounts payable (absolute change)		-5	-1	1	3	-4	1	0	0	0	0	0	0	0	0	0	0
Other NC liabilities (% of rev	40%	34%	28%	51%	42%	47%	82%	47%	47%	47%	47%	47%	47%	47%	47%	47%	47%
Current liabilities:																	
ST Debt (absolute change)	0	226	-177	209	42	-61	254	0	0	0	0	0	0	0	0	0	0
Accounts payable (days)	92	86	86	94	96	91	157	123	115	107	99	91	91	91	91	91	91
Other current liabilities (abs	0	56	-13	93	22	81	155	0	0	0	0	0	0	0	0	0	0
Shareholders' equity:																	
Issued capital (absolute cha	0	0.4	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital reserve (absolute ch	0	2.0	2.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equity to shareholders (% o	98%	98%	97%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%	96%

Source: Own Estimates

Income statement and balance sheet assumptions forecast the integrated financial statement model. The income statement starts with the thorough top-line revenue forecast based on the passenger and revenue-per-passenger multiple estimates, explained in detail in *Chapter 6.1*. Income statement margins are forecasted based on history, whereas the 2019 margins are expected to be reached in 2025. The majority of margins are calculated as a percentage of revenue. Exceptions are interest rates and taxes. The interest rate is based on the historical rate and not the cost of debt because the cost of debt is based on the synthetic ICR, which requires interest expenses. The interest rate is based on the average debt (opening and closing balances). Lastly, the tax rate is computed as a percentage of EBT. The German corporate tax rate includes corporate income tax, solidarity surcharge, and location-specific trade tax and amounts to approximately 30%. However, the historical effective tax rate is chosen to reflect the actual

status quo better and consider that Fraport is taxed in different countries. There has been a trend of lower tax rates over the historical years. However, a tax rate of 28% by 2025 is chosen to be more conservative.

Fraport has a historical track record of dividend payments. Due to the pandemic, Fraport announced withholding dividend payments for 2021 and 2022. The model assumes first dividend payments of 50% starting in 2025, when the aviation industry is expected to recover.

Balance sheet items are forecasted as a percentage of revenue or as absolute y-o-y changes. New equity issuances are not assumed.

Appendix 4 – Group Income Statement

Appendix Figure 6: Fraport group income statement forecast and margins

Income Statement (in € millions	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total revenue	**2,466**	**2,679**	**2,954**	**3,010**	**3,603**	**3,785**	**1,797**	**2,232**	**3,447**	**3,943**	**4,038**	**4,043**	**4,228**	**4,373**	**4,490**	**4,611**	**4,736**
COGS	-533	-610	-622	-720	-1,089	-1,197	-689	-594	-969	-1,155	-1,230	-1,279	-1,338	-1,384	-1,420	-1,459	-1,498
Gross Profit	**1,933**	**2,069**	**2,333**	**2,290**	**2,514**	**2,588**	**1,108**	**1,638**	**2,478**	**2,788**	**2,808**	**2,764**	**2,890**	**2,990**	**3,070**	**3,152**	**3,238**
Personnel expenses	-970	-1,027	-1,067	-1,093	-1,182	-1,223	-1,212	-770	-1,170	-1,317	-1,327	-1,306	-1,366	-1,413	-1,451	-1,490	-1,530
Other operating expenses	-172	-193	-212	-194	-202	-185	-147	-113	-173	-196	-199	-197	-206	-213	-219	-225	-231
EBITDA	**790**	**849**	**1,054**	**1,003**	**1,129**	**1,180**	**-251**	**755**	**1,134**	**1,275**	**1,282**	**1,261**	**1,318**	**1,364**	**1,400**	**1,438**	**1,477**
Depreciation and amortization	-307	-328	-360	-360	-399	-475	-458	-477	-507	-588	-613	-638	-651	-654	-653	-652	-651
EBIT (= operating result)	**483**	**521**	**694**	**643**	**731**	**705**	**-708**	**277**	**628**	**687**	**669**	**623**	**667**	**710**	**747**	**786**	**826**
Interest expense	-108	-87	-112	-137	-60	-115	-225	-297	-317	-333	-313	-293	-289	-285	-281	-277	-272
EBT	**375**	**434**	**581**	**506**	**670**	**590**	**-933**	**-20**	**310**	**355**	**356**	**330**	**378**	**425**	**466**	**509**	**554**
Taxes on income	-123	-137	-181	-146	-165	-136	243	4	-74	-90	-95	-92	-106	-119	-131	-143	-155
EAT	**252**	**297**	**400**	**360**	**506**	**454**	**-690**	**-15**	**236**	**265**	**261**	**238**	**272**	**306**	**336**	**367**	**399**
to non-controlling interests	17	21	25	30	32	34	-33	-1	16	18	18	17	19	21	23	26	28
to shareholders of Fraport AG	235	277	375	330	474	421	-658	-14	219	246	243	221	253	285	312	341	371

Margins	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total revenue (growth)	**0%**	**9%**	**10%**	**2%**	**20%**	**5%**	**-53%**	**24%**	**54%**	**14%**	**2%**	**0%**	**5%**	**3%**	**3%**	**3%**	**3%**
COGS	-22%	-23%	-21%	-24%	-30%	-32%	-38%	-27%	-28%	-29%	-30%	-32%	-32%	-32%	-32%	-32%	-32%
Gross Profit	**78%**	**77%**	**79%**	**76%**	**70%**	**68%**	**62%**	**73%**	**72%**	**71%**	**70%**	**68%**	**68%**	**68%**	**68%**	**68%**	**68%**
Personnel expenses	-39%	-38%	-36%	-36%	-33%	-32%	-67%	-34%	-34%	-33%	-33%	-32%	-32%	-32%	-32%	-32%	-32%
Other operating expenses	-7%	-7%	-7%	-6%	-6%	-5%	-8%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%
EBITDA	**32%**	**32%**	**36%**	**33%**	**31%**	**31%**	**-14%**	**34%**	**33%**	**32%**	**32%**	**31%**	**31%**	**31%**	**31%**	**31%**	**31%**
Depreciation and amortization	-12%	-12%	-12%	-12%	-11%	-13%	-25%	-21%	-15%	-15%	-15%	-16%	-15%	-15%	-15%	-14%	-14%
EBIT (= operating result)	**20%**	**19%**	**23%**	**21%**	**20%**	**19%**	**-39%**	**12%**	**18%**	**17%**	**17%**	**15%**	**16%**	**16%**	**17%**	**17%**	**17%**
Interest expense	-4%	-3%	-4%	-5%	-2%	-3%	-13%	-13%	-9%	-8%	-8%	-7%	-7%	-7%	-6%	-6%	-6%
EBT	**15%**	**16%**	**20%**	**17%**	**19%**	**16%**	**-52%**	**-1%**	**9%**	**9%**	**9%**	**8%**	**9%**	**10%**	**10%**	**11%**	**12%**
Taxes on income	-33%	-32%	-31%	-29%	-25%	-23%	-26%	-23%	-24%	-25%	-27%	-28%	-28%	-28%	-28%	-28%	-28%
EAT	**10%**	**11%**	**14%**	**12%**	**14%**	**12%**	**-38%**	**-1%**	**7%**	**7%**	**6%**	**6%**	**6%**	**7%**	**7%**	**8%**	**8%**
to non-controlling interests	7%	7%	6%	8%	6%	7%	5%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
to shareholders of Fraport AG	93%	93%	94%	92%	94%	93%	95%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%

Source: Annual Reports, Own Analysis

Appendix 5 – Group Balance Sheet

Appendix Figure 7: Fraport group balance sheet forecast

Balance Sheet (in € millions)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Non-current assets																	
Airport operating projects	479	501	516	2,621	2,844	3,284	3,221	3,378	5,279	5,320	5,355	5,384	5,412	5,638	5,858	6,071	6,276
PP&E	6,128	6,045	5,954	5,922	6,082	6,838	7,330	7,836	8,244	8,632	9,000	9,250	9,288	9,123	8,967	8,819	8,678
Goodwill and intangibles	199	203	166	152	154	150	138	123	121	120	118	116	115	114	112	111	111
Companies using equity-metho	217	238	210	268	260	242	166	192	207	222	237	252	267	282	297	312	327
Other non-current assets	1,066	940	852	817	784	869	883	1,096	1,468	1,421	1,191	928	970	1,004	1,030	1,058	1,087
Total non-current assets	**8,088**	**7,926**	**7,698**	**9,779**	**10,124**	**11,383**	**11,738**	**12,625**	**15,320**	**15,715**	**15,901**	**15,930**	**16,051**	**16,161**	**16,265**	**16,371**	**16,479**
Inventories	44	43	38	29	29	24	22	21	30	32	29	25	26	27	28	29	30
Accounts receivable	175	154	130	144	178	203	125	177	251	262	242	217	227	235	240	247	254
Cash and cash equivalents	401	406	736	629	801	789	1,864	2,792	2,000	2,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Other current assets	305	318	272	251	317	229	331	257	257	257	257	257	257	257	257	257	257
Total current assets	**925**	**921**	**1,175**	**1,053**	**1,326**	**1,244**	**2,343**	**3,247**	**2,539**	**2,551**	**1,528**	**1,500**	**1,511**	**1,519**	**1,526**	**1,534**	**1,541**
Total assets	**9,013**	**8,847**	**8,873**	**10,832**	**11,449**	**12,627**	**14,081**	**15,872**	**17,858**	**18,266**	**17,430**	**17,430**	**17,562**	**17,680**	**17,791**	**17,905**	**18,020**
Non-current liabilities																	
LT Debt	3,874	3,274	3,237	3,956	4,100	4,747	6,937	9,379	10,459	10,338	9,203	9,088	8,974	8,849	8,718	8,569	8,402
Accounts payable	47	43	42	42	46	41	43	67	67	67	67	67	67	67	67	67	67
Other non-current liabilities	991	914	834	1,546	1,511	1,761	1,482	1,038	1,603	1,834	1,878	1,881	1,967	2,034	2,089	2,145	2,203
Non-current liabilities	**4,912**	**4,231**	**4,113**	**5,544**	**5,657**	**6,549**	**8,461**	**10,484**	**12,129**	**12,239**	**11,148**	**11,035**	**11,007**	**10,950**	**10,873**	**10,780**	**10,672**
ST Debt	318	544	367	575	617	557	811	842	842	842	842	842	842	842	842	842	842
Accounts payable	135	143	147	186	287	297	295	200	305	338	332	318	332	344	352	362	372
Other current liabilities	362	418	406	499	521	601	757	603	603	603	603	603	603	603	603	603	603
Current liabilities	**815**	**1,105**	**919**	**1,260**	**1,424**	**1,455**	**1,862**	**1,645**	**1,750**	**1,783**	**1,777**	**1,763**	**1,777**	**1,789**	**1,797**	**1,807**	**1,817**
Total liabilities	**5,727**	**5,336**	**5,031**	**6,804**	**7,081**	**8,004**	**10,323**	**12,129**	**13,879**	**14,022**	**12,924**	**12,798**	**12,784**	**12,739**	**12,670**	**12,587**	**12,489**
Issued capital	923	923	924	924	924	924	924	924	924	924	924	924	924	924	924	924	924
Capital reserve	592	594	596	599	599	599	599	599	599	599	599	599	599	599	599	599	599
Revenue reserves	1,706	1,920	2,220	2,346	2,658	2,921	2,096	2,082	2,302	2,548	2,791	2,901	3,028	3,170	3,327	3,497	3,683
Equity to shareholders	3,221	3,437	3,740	3,868	4,180	4,443	3,619	3,604	3,830	4,082	4,332	4,452	4,592	4,749	4,922	5,110	5,315
Equity to minorities	65	74	101	161	188	180	140	139	155	174	192	208	227	249	272	298	325
Shareholders' equity	**3,286**	**3,512**	**3,841**	**4,029**	**4,368**	**4,623**	**3,759**	**3,744**	**3,979**	**4,244**	**4,505**	**4,632**	**4,778**	**4,942**	**5,121**	**5,317**	**5,531**
Total Liabilities and equity	**9,013**	**8,847**	**8,873**	**10,832**	**11,449**	**12,627**	**14,081**	**15,872**	**17,858**	**18,266**	**17,430**	**17,430**	**17,562**	**17,680**	**17,791**	**17,905**	**18,020**

Source: Annual Reports, Own Analysis

The plug variable of the balance sheet is the cash and cash equivalents derived from the cash flow statement. The forecasting schedules for long-term assets and debt can be seen below:

Appendix Figure 8: Fraport group balance sheet forecasting schedules

NWC Schedule	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Accounts Receivable	175	154	130	144	178	203	125	177	251	262	242	217	227	235	240	247	254
Inventory	44	43	38	29	29	24	22	21	30	32	29	25	26	27	28	29	30
Accounts Payable	135	143	147	186	287	297	295	200	305	338	332	318	332	344	352	362	372
NWC	84	54	21	-13	-80	-71	-147	-2	-24	-44	-61	-75	-79	-82	-84	-86	-88
Change in NWC		-30	-33	-34	-67	9	-76	145	-21	-21	-17	-14	-3	-3	-2	-2	-2

Airport Operating Proj	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Opening Balance		479	501	516	2,621	2,844	3,284	3,221	3,378	5,279	5,320	5,355	5,384	5,412	5,638	5,858	6,071
(-) Depreciation		-26	-26	-56	-79	-82	-93		-98	-159	-165	-171	-172	-173	-180	-187	-194
(+) Capex		16	32	1,607	344	603	267		2,000	200	200	200	200	400	400	400	400
(+) Other Net Additions		31	9	554	-41	-81	-237	157	0	0	0	0	0	0	0	0	0
Closing Balance	479	501	516	2,621	2,844	3,284	3,221	3,378	5,279	5,320	5,355	5,384	5,412	5,638	5,858	6,071	6,276

PP&E	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Opening Balance		6,128	6,045	5,954	5,922	6,082	6,838	7,330	7,836	8,244	8,632	9,000	9,250	9,288	9,123	8,967	8,819
(-) Depreciation		-285	-286	-277	-302	-370	-344		-392	-412	-432	-450	-463	-464	-456	-448	-441
(+) Capex		247	267	287	472	755	837		800	800	800	700	500	300	300	300	300
(+) Other Net Additions		-45	-72	-43	-10	371	-1	506	0	0	0	0	0	0	0	0	0
Closing Balance	6,128	6,045	5,954	5,922	6,082	6,838	7,330	7,836	8,244	8,632	9,000	9,250	9,288	9,123	8,967	8,819	8,678

Goodwill and Intangible	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Opening Balance		199	203	166	152	154	150	138	123	121	120	118	116	115	114	112	111
(-) Depreciation		-17	-47	-26	-16	-22	-20		-17	-17	-17	-17	-17	-16	-16	-16	-16
(+) Capex		16	6	9	13	15	14		15	15	15	15	15	15	15	15	15
(+) Other Net Additions		5	4	2	6	3	-6	-15	0	0	0	0	0	0	0	0	0
Closing Balance	199	203	166	152	154	150	138	123	121	120	118	116	115	114	112	111	111

Debt Schedule	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Opening Balance		3,874	3,274	3,237	3,956	4,100	4,747	6,937	9,379	10,459	10,338	9,203	9,088	8,974	8,849	8,718	8,569
(+) Additions (repayments)		-601	-37	719	145	647	2,190	2,442	1,080	-121	-1,136	-115	-114	-124	-132	-149	-166
Closing Balance	3,874	3,274	3,237	3,956	4,100	4,747	6,937	9,379	10,459	10,338	9,203	9,088	8,974	8,849	8,718	8,569	8,402

Source: Annual Reports, Own Analysis

Appendix 6 – Financial Ratio Analysis

Appendix Figure 9: Fraport group ratio analysis

Ratio Analysis	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Liquidity																	
Quick Ratio	1.1	0.8	1.2	0.8	0.9	0.8	1.2	2.0	1.4	1.4	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Current Ratio	1.1	0.8	1.3	0.8	0.9	0.9	1.3	2.0	1.5	1.4	0.9	0.9	0.9	0.8	0.8	0.8	0.8
Total Asset Turnover	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3
Net Asset Turnover R	0.3	0.3	0.4	0.3	0.4	0.3	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Efficiency																	
Inventory Turnover R	12.2	14.3	16.4	24.6	37.7	50.7	30.9	28.5	32.0	36.5	42.6	50.7	50.7	50.7	50.9	50.7	50.7
Inventory Days	29.9	25.6	22.3	14.8	9.7	7.2	11.9	12.8	11.4	10.0	8.6	7.2	7.2	7.2	7.2	7.2	7.2
Accounts Receivable T	14.1	17.4	22.8	21.0	20.3	18.6	14.3	12.6	13.7	15.0	16.7	18.6	18.6	18.6	18.7	18.6	18.6
Accounts Receivable T	25.9	21.0	16.1	17.4	18.0	19.6	25.5	28.9	26.6	24.3	21.9	19.6	19.6	19.6	19.6	19.6	19.6
Accounts Payable Rat	4.0	4.3	4.2	3.9	3.8	4.0	2.3	3.0	3.2	3.4	3.7	4.0	4.0	4.0	4.0	4.0	4.0
Accounts Payable Day	92.1	85.6	86.3	94.2	96.0	90.6	156.6	122.9	114.9	106.8	98.7	90.6	90.6	90.6	90.6	90.6	90.6
PP&E Turnover Ratio	0.4	0.4	0.5	0.5	0.6	0.6	0.2	0.3	0.4	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.5
Working Capital Turn	22.4	-14.6	11.5	-14.5	-36.5	-17.9	3.7	1.4	4.4	5.1	-16.2	-15.4	-15.9	-16.2	-16.6	-16.9	-17.2
Cash Turnover	6.1	6.6	4.0	4.8	4.5	4.8	1.0	0.8	1.7	2.0	4.0	4.0	4.2	4.4	4.5	4.6	4.7
Leverage & Solvency																	
Debt to Equity	1.3	1.1	0.9	1.1	1.1	1.1	2.1	2.7	2.8	2.6	2.2	2.1	2.1	2.0	1.9	1.8	1.7
Debt to Capital	1.2	0.9	0.9	1.0	0.9	1.0	1.7	2.2	2.3	2.2	1.9	1.8	1.7	1.7	1.6	1.5	1.5
Debt to Tangible Net V	1.4	1.2	1.0	1.2	1.1	1.2	2.1	2.8	2.9	2.7	2.3	2.2	2.1	2.0	1.9	1.8	1.7
Total Liabilities to Equ	1.7	1.5	1.3	1.7	1.6	1.7	2.7	3.2	3.5	3.3	2.9	2.8	2.7	2.6	2.5	2.4	2.3
Total Assets to Equity	2.7	2.5	2.3	2.7	2.6	2.7	3.7	4.2	4.5	4.3	3.9	3.8	3.7	3.6	3.5	3.4	3.3
Debt to EBITDA	8.7	7.3	5.2	7.0	6.5	7.5	-10.9	36.9	18.0	16.3	15.0	15.9	14.7	13.7	12.8	12.0	11.2
Net Debt to EBITDA	4.8	4.0	2.7	3.9	3.5	3.8	-23.5	9.8	8.2	7.2	7.1	7.1	6.7	6.4	6.1	5.8	5.6
Capital Structure Impa	0.2	0.2	0.2	0.2	0.1	0.2	-0.3	1.1	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3
Interest Coverage Rati	4.5	6.0	6.2	4.7	12.2	6.1	-3.1	0.9	2.0	2.1	2.1	2.1	2.3	2.5	2.7	2.8	3.0
Rates of Return																	
Return on Equity	7.7%	8.5%	10.4%	8.9%	11.6%	9.8%	####	-0.4%	5.9%	6.2%	5.8%	5.1%	5.7%	6.2%	6.6%	6.9%	7.2%
Return on Assets	2.8%	3.4%	4.5%	3.3%	4.4%	3.6%	-4.9%	-0.1%	1.3%	1.4%	1.5%	1.4%	1.6%	1.7%	1.9%	2.0%	2.2%

Source: Annual Reports, Own Analysis

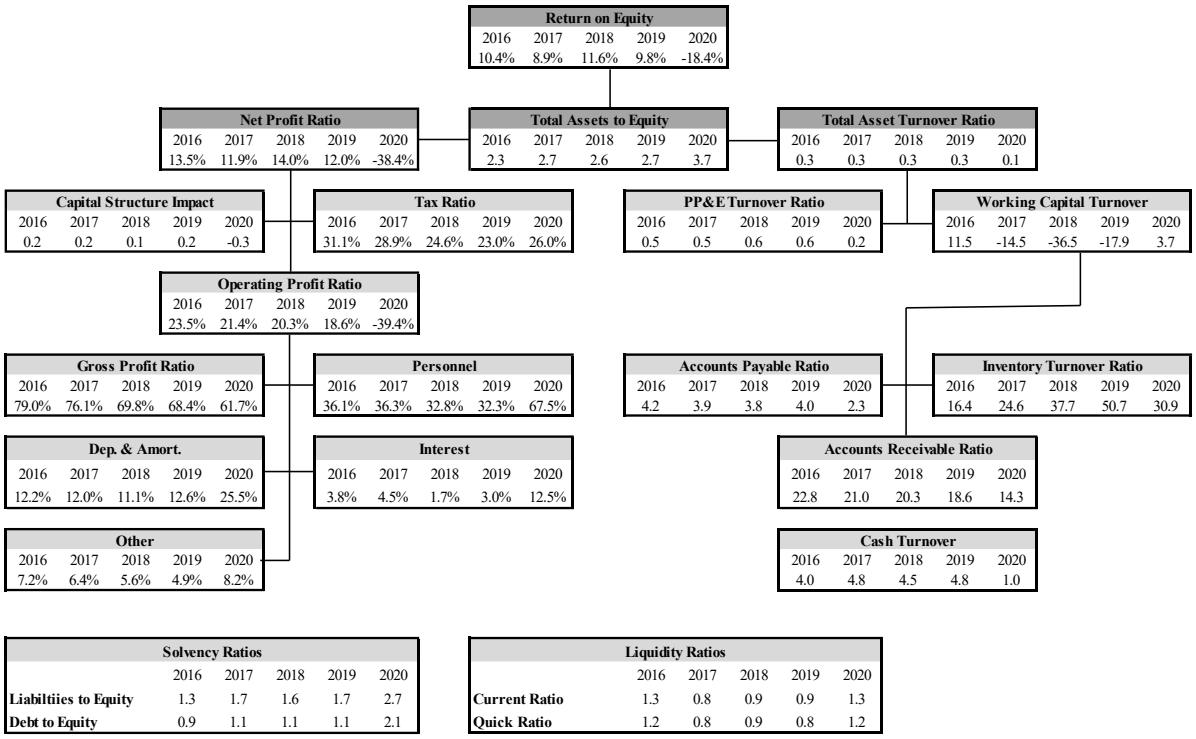
Appendix Figure 10: Peer group ratio analysis comparison

Ratio Analysis FY2019	ADP	Aena	Zürich	Vienna	Average	Fraport
Weight	40%	40%	10%	10%	**100%**	
Liquidity Ratios						
Quick Ratio (QR)	1.08	0.33	0.65	0.85	**0.71**	0.84
Current Ratio (CR)	1.11	0.34	0.67	0.87	**0.73**	0.85
Interest Coverage Ratio (ICR)	5.25	21.34	24.35	17.48	**14.82**	6.13
Efficiency Ratios						
Total Asset Turnover Ratio (TATR)	0.28	0.30	0.26	0.38	**0.30**	0.30
Inventory Turnover Ratio (ITR)	9.32	26.89	3.20	6.66	**15.47**	50.74
Accounts Receivable Ratio (ARR)	7.72	9.14	10.79	5.76	**8.40**	18.64
Accounts Payable Ratio (APR)	1.29	0.54	0.72	0.91	**0.89**	4.03
Inventory Days (DIO)	39.17	13.58	114.24	54.82	**38.00**	7.19
Accounts Receivable Days (DSO)	47.29	39.92	33.84	63.41	**44.61**	19.59
Accounts Payable Days (DPO)	282.92	680.00	508.82	401.50	**476.20**	90.63
Cash Conversion Cycle (CCC)	-196.46	-626.50	-360.75	-283.27	**-393.58**	-63.85
Solvency Ratios						
Total Assets to Equity	2.80	2.11	1.86	1.67	**2.31**	2.73
Debt to Equity	1.24	0.99	0.53	0.26	**0.97**	1.15
LT Debt to Total Capital	0.36	0.36	0.21	0.14	**0.32**	0.38
Net Debt to EBITDA	3.08	2.41	1.84	0.70	**2.45**	3.82
Profitability Ratios						
EBITDA Margin	63.23%	37.70%	53.04%	44.17%	**50.09%**	31.18%
EBIT Margin	46.25%	23.00%	33.31%	28.96%	**33.93%**	18.63%
Profit Margin (PM)	13.55%	33.67%	25.55%	20.16%	**23.46%**	12.00%
Return on Equity (ROE)	10.60%	21.36%	12.52%	12.72%	**15.31%**	9.83%
Return on Assets (ROA)	3.79%	10.13%	6.73%	7.64%	**7.01%**	3.60%

Source: Annual Reports, Own Analysis

Appendix 7 – Return on Equity DuPont Analysis

Appendix Figure 11: Fraport group return on equity DuPont analysis



Solvency Ratios	2016	2017	2018	2019	2020
Liabiltiies to Equity	1.3	1.7	1.6	1.7	2.7
Debt to Equity	0.9	1.1	1.1	1.1	2.1

Liquidity Ratios	2016	2017	2018	2019	2020
Current Ratio	1.3	0.8	0.9	0.9	1.3
Quick Ratio	1.2	0.8	0.9	0.8	1.2

Appendix 8 – Group Cash Flow Statement

Appendix Figure 12: Fraport group cash flow statement forecast

Cash Flow (in € millions)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Net Income		297	400	360	506	454	-690	-15	236	265	261	238	272	306	336	367	399
D&A		328	360	360	399	475	458	477	507	588	613	638	651	654	653	652	651
Changes in Working Capital		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accounts Receivables		21	24	-14	-34	-25	78	-51	-74	-11	20	25	-10	-8	-6	-7	-7
Inventories		1	5	9	0	5	1	1	-9	-1	3	4	-1	-1	-1	-1	-1
Accounts Payable		9	4	39	101	11	-3	-95	105	33	-6	-14	15	11	8	10	10
Cash from Operations		**656**	**794**	**754**	**971**	**921**	**-157**	**318**	**764**	**873**	**891**	**890**	**927**	**962**	**990**	**1,021**	**1,052**
CAPEX		-291	-306	-1,906	-834	-1,381	-1,147	-1,151	-2,830	-1,030	-1,030	-930	-730	-730	-730	-730	-730
Increase in all other assets		113	134	56	-33	4	-117	-140	-371	47	230	263	-42	-33	-27	-28	-29
Increase in all other liabilities		-21	-93	805	-13	330	-124	-597	565	231	44	3	86	68	54	56	58
Cash from Investing		**-198**	**-265**	**-1,046**	**-880**	**-1,046**	**-1,387**	**-1,888**	**-2,636**	**-752**	**-756**	**-664**	**-686**	**-696**	**-702**	**-702**	**-701**
Increase in current debt		226	-177	209	42	-61	254	31	0	0	0	0	0	0	0	0	0
Increase in trade payable		-5	-1	1	3	-4	1	24	0	0	0	0	0	0	0	0	0
Increase in non-current debt		-601	-37	719	145	647	2,190	2,442	1,080	-121	-1,136	-115	-114	-124	-132	-149	-166
Increase in issued capital		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Increase in capital reserve		2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Dividends		-125	-125	-139	-139	-185	0	0	0	0	0	-111	-127	-142	-156	-171	-186
Cash from Financing		**-502**	**-337**	**792**	**51**	**397**	**2,445**	**2,498**	**1,080**	**-121**	**-1,136**	**-226**	**-241**	**-267**	**-288**	**-320**	**-352**
Beginning Cash Balance		**401**	**406**	**736**	**629**	**801**	**789**	**1,864**	**2,792**	**2,000**	**2,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**
Total Cash Flow		-45	192	500	141	271	901	928	-792	0	-1,000	0	0	0	0	0	0
Plus: Other additions		49	138	-607	31	-284	174	0	0	0	0	0	0	0	0	0	0
Ending Cash Balance	**401**	**406**	**736**	**629**	**801**	**789**	**1,864**	**2,792**	**2,000**	**2,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**

Source: Annual Reports, Own Analysis

The cash flow statement results from the forecasted income statement and y-o-y changes in the balance sheet. The indirect method is used. Operating cash flow is computed starting from net income, adding back non-cash expense D&A and changes in NWC. Investing cash flow is calculated by CAPEX and all changes in other long-term and current assets and liabilities. Finally, Cash flow from financing activities is based on the forecasted debt schedule and

dividend payments. Total cash flow is zero over the years since the model assumes all excess cash is used to pay down debt over the required minimum cash balance. The ending cash balance is used as a plug variable for the balance sheet.

Appendix 9 – Weighted Average Cost of Capital

Appendix Figure 13: Fraport AG outstanding public bonds

Description	Issue Date	Maturity Date	Coupon Class	Country of Issue	Last Price	Amount	Yield
FRAG 15-Oct-2021	15. Apr 21	15. Okt 21	Zero Coupon	Germany	100	10,000,000	0
FRAG 13-Dec-2021	11. Jun 21	13. Dez 21	Zero Coupon	Germany	99.993	5,000,000	0.03
FRAG 1.625 09-Jul-2024 '24	09. Jul 20	09. Jul 24	Fixed Coupon	Eurobond	103.274	650,000,000	0.446
FRAG 2.125 09-Jul-2027 '27	09. Jul 20	09. Jul 27	Fixed Coupon	Eurobond	105.885	500,000,000	1.073
FRAG 1.875 31-Mar-2028 '27	31. Mrz 21	31. Mrz 28	Fixed Coupon	Eurobond	104.115	800,000,000	1.215
FRAG 5.875 10-Sep-2029	10. Sep 09	10. Sep 29	Fixed Coupon	Eurobond	133.402	150,000,000	1.415

Source: Refinitiv Eikon

Appendix Figure 14: S&P500 synthetic accounting-based rating table

Three-Year (2009 to 2011) Medians	AAA	AA	A	BBB	BB	B	CCC
EBIT Interest Coverage	33.4x	14.2x	11.6x	5.9x	3.0x	1.3x	n/a
EBITDA Interest Coverage	38.1x	19.6x	15.3x	8.2x	4.8x	2.3x	n/a
FFO / Debt	252.6%	64.7%	52.6%	33.7%	24.9%	11.7%	n/a
Free Operating Cash Flow / Debt	208.2%	51.3%	35.7%	19.0%	11.1%	3.9%	n/a
Disc. Cash Flow / Debt	142.8%	32.0%	26.1%	13.9%	8.8%	3.1%	n/a
Operating Income / Revenues	27.9%	27.6%	20.4%	19.7%	17.6%	16.6%	n/a
Debt / EBITDA	0.4x	1.2x	1.5x	2.3x	3.2x	5.5x	n/a
Return on Capital	29.3%	23.6%	20.7%	13.2%	10.9%	7.8%	n/a
Debt / Total Capital	14.7%	29.2%	33.8%	43.5%	52.2%	75.2%	n/a

Source: 2011 Adjusted Key U.S. Industrial and Utility Financial Ratios, Standard & Poor's.

Appendix Figure 15: S&P500 rating default spread conversion table

Moody's/ S&P	Default Spread (%)
Aaa/AAA	0.00%
Aa1/AA+	0.40%
Aa2/AA	0.50%
Aa3/AA-	0.60%
A1/A+	0.70%
A2/A	0.85%
A3/A-	1.20%
Baa1/BBB+	1.60%
Baa2/BBB	1.90%
Baa3/BBB-	2.20%
Ba1/BB+	2.50%
Ba2/BB	3.00%
Ba3/BB-	3.60%
B1/B+	4.50%
B2/B	5.50%
B3/B-	6.50%
Caa/CCC+	7.50%
Caa2/CCC	9.00%
Caa3/CCC-	10.00%

Source: https://aswathdamodaran.blogspot.com/2015/01/country-risk-return-and-pricing-global.html

Appendix Figure 16: Levered regression beta raw and winsorized

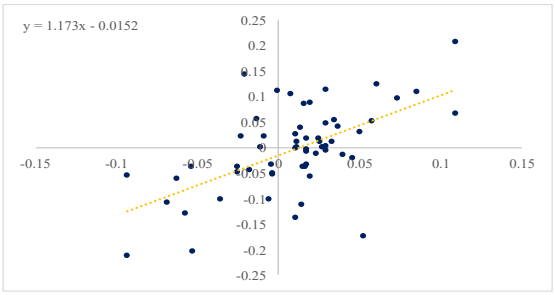
Company	FRAPORT (XET)
Index	ISHARES MSCI WORLD ETF - PRICE INDEX
Number of St. Dev.	2

5-Year Monthly Global

St. Dev. Company	0.2065	-0.2130
St. Dev. Market	0.1091	-0.0935

	Raw Beta		Adjusted Beta	
	Slope	Intercept	Slope	Intercept
Coefficient	1.425	-0.014	1.173	-0.015
St. Error	0.199	0.010	0.214	0.009
R^2	0.474	0.077	0.345	0.068
F statistic	51.303	57.000	29.974	57.000
Regression sum of squares	0.307	0.342	0.137	0.261

# of Company outliers	2
# of Index outliers	4

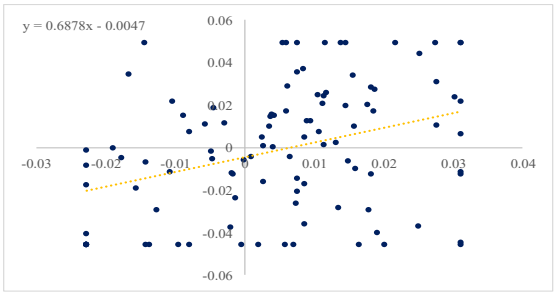


2-Year Weekly Global

St. Dev. Company	0.04914767	-0.04565437
St. Dev. Market	0.03125401	-0.02266768

	Raw Beta		Adjusted Beta	
	Slope	Intercept	Slope	Intercept
Coefficient	1.756	-0.008	0.688	-0.005
St. Error	0.221	0.006	0.181	0.003
R^2	0.383	0.059	0.123	0.029
F statistic	63.339	102.000	14.368	102.000
Regression sum of squares	0.217	0.349	0.012	0.084

# of Company outliers	28
# of Index outliers	18

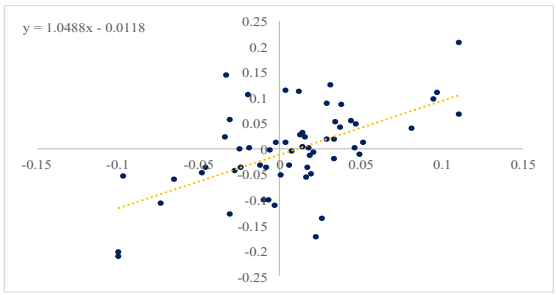


5-Year Monthly Local

St. Dev. Company	0.15182749	-0.14197254
St. Dev. Market	0.06888291	-0.05093127

	Raw Beta		Adjusted Beta	
	Slope	Intercept	Slope	Intercept
Coefficient	1.343	-0.011	1.049	-0.012
St. Error	0.195	0.010	0.196	0.009
R^2	0.454	0.079	0.335	0.068
F statistic	47.384	57.000	28.754	57.000
Regression sum of squares	0.295	0.354	0.134	0.265

# of Company outliers	1
# of Index outliers	3

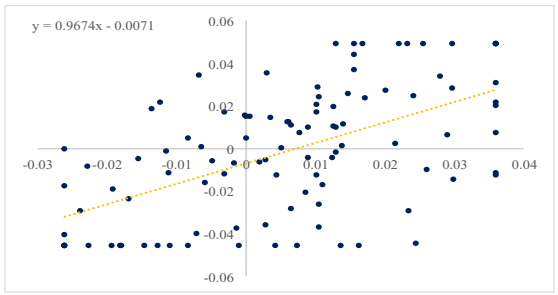


2-Year Weekly Local

St. Dev. Company	0.04914767	-0.04565437
St. Dev. Market	0.036013	-0.02594028

	Raw Beta		Adjusted Beta (Winsorized	
	Slope	Intercept	Slope	Intercept
Coefficient	1.850	-0.009	0.967	-0.007
St. Error	0.150	0.005	0.139	0.003
R^2	0.600	0.047	0.322	0.025
F statistic	152.828	102.000	48.349	102.000
Regression sum of squares	0.340	0.227	0.031	0.065

# of Company outliers	28
# of Index outliers	17



Source: Refinitiv Eikon, Own Analysis

Appendix Figure 17: Vasicek adjustment: peer group selection criteria

Name	Symbol	Country	Exchange	Price	Shares	Marketcap (mio)	1.)	2.)	3.)	Peer?
Airports of Thailand PCL	AOT.BK	Thailand	SET50	1.63	14.286	23.29	✓	✓	✓	✓
Aena SME SA	AENA.MC	Spain	IBEX35	138.10	0.150	20.72	✓	✓	✓	✓
Sydney Airport Holdings Pty Ltd	SYD.AX	Australia	ASX200	4.91	2.699	13.25	×	✓	✓	✓
Aeroports de Paris SA	ADP.PA	France	CAC Mid 60	102.05	0.099	10.10	×	✓	✓	✓
Copenhagen Airports A/S	KBHL.CO	Denmark		825.91	0.008	6.48	×	×	×	×
Auckland International Airport Ltd	AIA.NZ	New Zealand	NZX 50	4.32	1.473	6.36	×	✓	✓	✓
Flughafen Zuerich AG	FHZN.S	Switzerland	SMI	143.39	0.031	4.40	✓	✓	✓	✓
Grupo Aeroportuario del Pacifico SAB de CV	GAPB.MX	Mexico	IPC	9.81	0.431	4.22	×	✓	✓	✓
Japan Airport Terminal Co Ltd	9706.T	Japan	Nikkei225	38.56	0.093	3.59	✓	✓	✓	✓
Flughafen Wien AG	VIEV.VI	Austria		28.35	0.084	2.38	×	✓	×	×
Beijing Capital International Airport Co Ltd	0694.HK	China	SSE180	0.52	4.579	2.38	✓	✓	✓	✓
Grupo Aeroportuario del Centro Norte SAB de CV	OMAB.MX	Mexico	IPC	5.21	0.344	1.79	✓	✓	✓	✓
TAV Havalimanlari Holding AS	TAVHL.IS	Turkey	BIST30	2.43	0.363	0.88	✓	✓	✓	✓
Corporacion America Airports SA	CAAP.K	Luxembourg		4.65	0.161	0.75	✓	✓	✓	×
Aeroporto Guglielmo Marconi di Bologna SpA	ADB.MI	Italy		9.96	0.036	0.36	×	✓	×	×

Source: Refinitiv Eikon, Own Analysis

Appendix 10 – Literature: Discounted Cash Flow Analysis (DDM, FCFE)

Dividend Discount Model (DDM)

Damodaran (2012) argues the *DDM* to be one of the simplest models to value a company's equity since the value of a stock depends on the present value of its expected dividends. The general intuition of buying and holding shares is to receive two cash flows: dividends throughout the period held and an expected price at the end. The expected price itself depends on future dividends. Therefore, the value of a share is the present value of dividends through infinity. There are two main inputs in the formula below, the expected dividends on a per-share basis and the appropriate risk-reflecting discount rate:

$$Share\ Price = \sum_{t=1}^{n} \frac{E(DPS)_t}{(1 + R_{E(L)})^t} + \frac{TV}{(1 + R_{E(L)})^t} \qquad (18)$$

The expected dividends per share depend on future assumptions about the net income plus the company's payout ratio. The cash flows are then discounted using the levered cost of equity.

$$E(DPS) = NI * Dividend\ Payout\ Ratio \qquad (19)$$

In general, two main versions of this model have evolved. First, the Gordon Growth Model assumes that dividends will grow at a constant rate in perpetuity, and second, the Two-Staged Growth Model incorporates two different growth periods see equation *(18)*.

The *DDM*'s central assumption is that the dividend payments are the only cash flow received by shareholders. Even though a modified version considers share buybacks and treats them as dividends, the model may still lead to a false equity value when companies constantly return less or even more than they could potentially offer to their shareholders.

Therefore, the total amount of cash available to shareholders must first be measured and then compared to the actual amount returned to shareholders via dividends to determine whether companies offer too little or too much. The following formula captures this proportion of the cash returned to shareholders to the *FCFE*.

$$Cash\ to\ Shareholders\ to\ FCFE\ Ratio = \frac{(Dividends + Share\ Buybacks)}{FCFE} \qquad (20)$$

For the *DDM* to work, this ratio should be expected to revolve around one over the past years. If this ratio is less than one, the company returns less and increases its cash balance or

marketable securities. If this value is greater than one, the company drains existing cash or issues new securities to pay for dividends. Market data shows that companies tend to pay less than their available *FCFE.* According to the Compustat database 1998, the average dividend to *FCFE* ratio was 51.55% for all firms listed on the NYSE. The *FCFE* method is explained in the next sub-chapter.

Free Cash-Flow to Equity (FCFE)

There are two distinctive ways to calculate the total cash attributable to the shareholders of a company. The first one starts with the net income and subtracts all reinvestment needs required to ensure future growth. Net income is the bottom-line profitability of a company and an accounting measure of shareholders' earnings during a period.

First, the difference between depreciation and amortization and capital expenditures, also referred to as net capital expenditures are subtracted. Net capital expenditures indicate the company's growth stage as high-growth companies require more capital expenditures to grow. In contrast, mature companies have low or even negative net capital expenditures.

Second, changes in net working capital are subtracted. Increases in net working capital lower the cash flow available to shareholders and vice versa. The amount depends on the type of industry; a prime example is the retailing industry which requires high working capital. Since shareholders are only interested in the cash flow effect, the y-o-y change in net working capital is used.

Finally, equity investors are paid last, and therefore, the changes in debt issued and repaid or, in other words, net debt are added back. If a company funds future investments primarily through debt issuances and increases the debt ratio, the *FCFE* will increase. However, more leverage does not ultimately lead to a higher total equity value since the leverage increases the levered beta, resulting in a higher overall cost of equity. The leftover cash flow belongs to the shareholders and can be paid out as dividends or share buybacks:

$$FCFE = NI - NCAPEX - \Delta NWC + \Delta Net\ Debt \qquad (21)$$

The alternative way to calculate the *FCFE* starts with the *FCFF*, representing the cash flow attributable to equity and debt holders. Without going too much into detail, adjustments are made in terms of non-taxable interest and changes in net debt:

$$FCFE = FCFF - Interest * (1 - T) + \Delta Net\ Debt \qquad (22)$$

The *FCFE* method is similar to the *DDM* concerning the underlying assumptions. The only difference is that it discounts the *FCFE* instead of the expected dividends:

$$Equity\ Value = \sum_{t=1}^{n} \frac{FCFE_t}{(1+R_{E(L)})^t} + \frac{TV}{(1+R_{E(L)})^t} \quad (23)$$

Appendix 12 – Terminal Value

Appendix Figure 18: Total annual concession fee calculation (TCFF method)

TV Concession Payments (TCF)	AYT	GRC	LIM	FOR	POA	BGR	LED	Sum
Beginning Year	2027	2017	2001	2017	2017	2006	2010	
Ending Year	2052	2057	2041	2047	2042	2041	2040	
Duration (after 2030)	**22**	**27**	**11**	**17**	**12**	**11**	**10**	
Upfront Payment	1,813	1,234	233	190	120	3	0	
Fixed Payment (annual)	73	0	0	0	0	0	1	
Total Fixed Payment	**1,885**	**1,234**	**233**	**190**	**120**	**3**	**1**	
WACC 2030 (TCF)	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	
PV Total Fixed Payment	750	398	147	93	73	2	1	
Annuity (Annual Concession Cost)	**52**	**25**	**17**	**8**	**8**	**0**	**0**	**110**
Revenue 2030	0	69.9	165.0	54.3	54.3	31.4	126.0	
Perfomance Fee (% of Revenue)	0.0%	29.0%	46.5%	5.0%	5.0%	19.0%	12.0%	
Variable Fee (annual)	**0**	**20**	**77**	**3**	**3**	**6**	**15**	**123**
Total Payment (annual)	**52**	**45**	**94**	**10**	**11**	**6**	**15**	**233**

Source: Fraport Visual Factbook 2020, Own Analysis

Appendix Figure 19: Total annual concession fee calculation (APV method)

TV Concession Payments (APV)	AYT	GRC	LIM	FOR	POA	BGR	LED	Sum
Beginning Year	2027	2017	2001	2017	2017	2006	2010	
Ending Year	2052	2057	2041	2047	2042	2041	2040	
Duration (after 2030)	**22**	**27**	**11**	**17**	**12**	**11**	**10**	
Upfront Payment	1,813	1,234	233	190	120	3	0	
Fixed Payment (annual)	73	0	0	0	0	0	1	
Total Fixed Payment	**1,885**	**1,234**	**233**	**190**	**120**	**3**	**1**	
RE(U) 2030 (APV)	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	
PV Total Fixed Payment	702	367	142	89	70	2	1	
Annuity (Annual Concession Cost)	**50**	**23**	**17**	**8**	**8**	**0**	**0**	**106**
Revenue 2030	0	69.9	165.0	54.3	54.3	31.4	126.0	
Perfomance Fee (% of Revenue)	0.0%	29.0%	46.5%	5.0%	5.0%	19.0%	12.0%	
Variable Fee (annual)	**0**	**20**	**77**	**3**	**3**	**6**	**15**	**123**
Total Payment (annual)	**50**	**44**	**93**	**10**	**10**	**6**	**15**	**229**

Source: Fraport Visual Factbook 2020, Own Analysis

Appendix 13 – Valuation Summary

Appendix Figure 20: Share price summary per scenario

Consensus Share Prices	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
FCF	67.11	72.06	78.81	85.97	92.28	96.25	100.09	103.84	107.57	111.27
TCF	63.48	68.04	74.49	81.36	87.42	91.16	94.79	98.33	101.88	105.41
APV	66.03	69.86	76.30	83.37	89.40	93.13	96.69	100.48	104.06	107.61
Average Consensus	**65.54**	**69.99**	**76.53**	**83.56**	**89.70**	**93.51**	**97.19**	**100.89**	**104.50**	**108.09**

Optimistic Share Prices	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
FCF	96.09	102.30	110.50	119.06	126.63	131.71	136.95	141.97	146.97	151.95
TCF	87.14	92.89	100.67	108.84	116.04	120.79	125.71	130.42	135.14	139.86
APV	87.01	91.98	99.77	108.15	115.29	119.99	124.83	129.80	134.53	139.25
Average Optimistic	**90.08**	**95.72**	**103.64**	**112.02**	**119.32**	**124.16**	**129.17**	**134.06**	**138.88**	**143.69**

Pessimistic Share Prices	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
FCF	53.06	57.43	63.62	70.22	76.11	79.66	83.14	86.67	90.19	93.68
TCF	54.43	58.56	64.58	71.03	76.81	80.27	83.68	87.15	90.64	94.11
APV	59.79	63.26	69.32	76.02	81.84	85.37	88.79	92.59	96.19	99.78
Average Pessimistic	**55.76**	**59.75**	**65.84**	**72.42**	**78.25**	**81.77**	**85.20**	**88.81**	**92.34**	**95.86**

Source: Own Analysis

Appendix 14 – Scenario Analysis

Appendix Figure 21: Passenger growth rate estimates Frankfurt and international sites

Frankfurt Site	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Consensus	59.6	61.0	60.8	64.5	69.5	70.5	18.6	29.6	54.3	67.2	73.2	76.1	78.4	81.6	83.9	86.4	88.9
Percentage of 2019							*26%*	*42%*	*77%*	*95%*	*104%*	*108%*	*111%*	*116%*	*119%*	*123%*	*126%*
Optimistic	59.6	61.0	60.8	64.5	69.5	70.5	18.6	30.2	58.1	70.8	75.9	78.5	80.9	85.7	88.1	90.7	93.3
Percentage of 2019							*26%*	*43%*	*82%*	*100%*	*108%*	*111%*	*115%*	*121%*	*125%*	*129%*	*132%*
Pessimistic	59.6	61.0	60.8	64.5	69.5	70.5	18.6	28.9	51.3	64.0	70.4	73.3	76.0	77.5	79.7	82.1	84.4
Percentage of 2019							*26%*	*41%*	*73%*	*91%*	*100%*	*104%*	*108%*	*110%*	*113%*	*116%*	*120%*

Frankfurt and Intl. Sites	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Consensus	151.9	157.3	154.9	203.7	238.8	336.5	111.7	166.1	286.3	338.9	362.7	374.7	385.3	398.2	409.1	420.5	432.3
Percentage of 2019							*33%*	*49%*	*85%*	*101%*	*108%*	*111%*	*115%*	*118%*	*122%*	*125%*	*128%*
Optimistic	151.9	157.3	154.9	203.7	238.8	336.5	111.7	172.3	303.5	356.4	378.5	389.8	400.7	418.1	429.6	441.5	453.9
Percentage of 2019							*33%*	*51%*	*90%*	*106%*	*112%*	*116%*	*119%*	*124%*	*128%*	*131%*	*135%*
Pessimistic	151.9	157.3	154.9	203.7	238.8	336.5	111.7	159.9	271.4	322.5	346.8	358.5	369.9	378.3	388.7	399.5	410.7
Percentage of 2019							*33%*	*48%*	*81%*	*96%*	*103%*	*107%*	*110%*	*112%*	*116%*	*119%*	*122%*

Source: Own Estimate

Appendix 15 – Sensitivity Analysis

Appendix Figure 22: DCF method's sensitivity analysis

FCF Discount Rate (2030)

EV/EBITDA Exit Multiple	4.4%	4.3%	4.2%	4.1%	4.0%	3.9%	3.8%	3.7%	3.6%	3.5%	3.4%
9.6x	34.27	38.92	44.12	49.98	56.63	64.28	73.17	83.67	96.26	111.68	131.05
9.7x	34.81	39.47	44.67	50.53	57.19	64.85	73.74	84.24	96.84	112.27	131.64
9.8x	35.36	40.02	45.22	51.09	57.76	65.41	74.32	84.82	97.42	112.85	132.23
9.9x	35.90	40.56	45.78	51.65	58.32	65.98	74.89	85.39	98.00	113.44	132.82
10.0x	36.44	41.11	46.33	52.20	58.88	66.54	75.46	85.97	98.58	114.02	133.42
10.1x	36.98	41.66	46.88	52.76	59.44	67.11	76.03	86.55	99.16	114.61	134.01
10.2x	37.52	42.20	47.43	53.31	60.00	67.68	76.60	87.12	99.74	115.20	134.60
10.3x	38.07	42.75	47.98	53.87	60.56	68.24	77.17	87.70	100.32	115.78	135.19
10.4x	38.61	43.30	48.53	54.43	61.12	68.81	77.74	88.27	100.90	116.37	135.78
10.5x	39.15	43.84	49.09	54.98	61.68	69.37	78.31	88.85	101.49	116.95	136.37
10.6x	39.69	44.39	49.64	55.54	62.24	69.94	78.88	89.43	102.07	117.54	136.96

FCF Discount Rate (2030)

Perpetuity Growth Rate	4.4%	4.3%	4.2%	4.1%	4.0%	3.9%	3.8%	3.7%	3.6%	3.5%	3.4%
2.1%	23.47	26.56	29.90	33.54	37.53	41.92	46.78	52.22	58.33	65.29	73.27
2.2%	25.68	28.99	32.60	36.56	40.91	45.74	51.13	57.20	64.09	72.01	81.22
2.3%	28.09	31.67	35.59	39.91	44.70	50.05	56.07	62.91	70.77	79.90	90.67
2.4%	30.75	34.64	38.93	43.68	48.99	54.96	61.75	69.54	78.60	89.28	102.10
2.5%	33.70	37.95	42.66	47.93	53.85	60.59	68.32	77.31	87.91	100.63	116.19
2.6%	36.98	41.66	46.88	52.76	59.44	67.11	76.03	86.55	99.16	114.61	134.01
2.7%	40.66	45.84	51.67	58.30	65.91	74.76	85.19	97.71	113.04	132.29	157.24
2.8%	44.81	50.60	57.17	64.72	73.50	83.86	96.28	111.48	130.58	155.33	188.79
2.9%	49.53	56.06	63.55	72.26	82.53	94.85	109.94	128.89	153.45	186.65	234.14
3.0%	54.95	62.38	71.02	81.21	93.44	108.41	127.21	151.58	184.52	231.64	304.82
3.1%	61.23	69.80	79.91	92.04	106.90	125.55	149.73	182.42	229.17	301.78	430.35

TCF Discount Rate (2030)

EV/EBITDA Exit Multiple	4.8%	4.7%	4.6%	4.5%	4.4%	4.3%	4.2%	4.1%	4.0%	3.9%	3.8%
9.6x	37.56	41.39	45.56	50.13	55.17	60.76	66.99	74.00	81.95	91.05	101.61
9.7x	38.08	41.91	46.09	50.67	55.71	61.30	67.54	74.55	82.51	91.62	102.17
9.8x	38.60	42.44	46.62	51.20	56.25	61.85	68.09	75.11	83.07	92.18	102.74
9.9x	39.12	42.96	47.15	51.74	56.79	62.39	68.64	75.66	83.62	92.75	103.31
10.0x	39.64	43.49	47.68	52.27	57.33	62.94	69.19	76.21	84.18	93.31	103.88
10.1x	40.16	44.02	48.21	52.81	57.87	63.48	69.74	76.77	84.74	93.87	104.45
10.2x	40.69	44.54	48.74	53.35	58.41	64.02	70.29	77.32	85.30	94.44	105.02
10.3x	41.21	45.07	49.27	53.88	58.95	64.57	70.83	77.88	85.86	95.00	105.59
10.4x	41.73	45.59	49.81	54.42	59.49	65.11	71.38	78.43	86.42	95.57	106.16
10.5x	42.25	46.12	50.34	54.95	60.03	65.66	71.93	78.99	86.98	96.13	106.72
10.6x	42.77	46.65	50.87	55.49	60.57	66.20	72.48	79.54	87.54	96.69	107.29

TCF Discount Rate (2030)

Perpetuity Growth Rate	4.8%	4.7%	4.6%	4.5%	4.4%	4.3%	4.2%	4.1%	4.0%	3.9%	3.8%
2.1%	28.95	31.72	34.68	37.86	41.28	44.98	48.99	53.36	58.14	63.41	69.25
2.2%	30.85	33.79	36.94	40.33	44.00	47.98	52.31	57.06	62.28	68.07	74.53
2.3%	32.90	36.02	39.39	43.03	46.97	51.27	55.98	61.16	66.91	73.31	80.52
2.4%	35.12	38.46	42.06	45.98	50.24	54.91	60.06	65.75	72.11	79.26	87.36
2.5%	37.53	41.11	44.99	49.22	53.86	58.96	64.61	70.92	78.01	86.04	95.25
2.6%	40.16	44.02	48.21	52.81	57.87	63.48	69.74	76.77	84.74	93.87	104.45
2.7%	43.05	47.21	51.77	56.79	62.36	68.56	75.54	83.45	92.51	103.01	115.32
2.8%	46.22	50.74	55.73	61.25	67.40	74.33	82.18	91.16	101.57	113.79	128.36
2.9%	49.73	54.67	60.14	66.25	73.12	80.91	89.83	100.16	112.28	126.73	144.28
3.0%	53.62	59.05	65.11	71.93	79.65	88.50	98.75	110.78	125.12	142.53	164.17
3.1%	57.97	63.98	70.74	78.41	87.19	97.36	109.29	123.52	140.80	162.27	189.72

APV Discount Rate (2030)

EV/EBITDA Exit Multiple	5.1%	5.0%	4.9%	4.8%	4.7%	4.6%	4.5%	4.4%	4.3%	4.2%	4.1%
9.6x	49.03	51.49	54.13	56.98	60.06	63.41	67.06	71.08	75.53	80.47	86.01
9.7x	49.53	52.00	54.64	57.49	60.58	63.93	67.59	71.62	76.06	81.01	86.56
9.8x	50.04	52.50	55.15	58.01	61.10	64.45	68.12	72.15	76.60	81.55	87.10
9.9x	50.54	53.01	55.66	58.52	61.62	64.98	68.65	72.68	77.14	82.10	87.65
10.0x	51.04	53.52	56.17	59.04	62.14	65.50	69.18	73.22	77.68	82.64	88.20
10.1x	51.54	54.02	56.69	59.55	62.66	66.03	69.71	73.75	78.22	83.18	88.74
10.2x	52.04	54.53	57.20	60.07	63.18	66.55	70.24	74.28	78.75	83.72	89.29
10.3x	52.55	55.04	57.71	60.58	63.70	67.08	70.77	74.82	79.29	84.27	89.84
10.4x	53.05	55.54	58.22	61.10	64.22	67.60	71.29	75.35	79.83	84.81	90.39
10.5x	53.55	56.05	58.73	61.61	64.73	68.12	71.82	75.88	80.37	85.35	90.93
10.6x	54.05	56.56	59.24	62.13	65.25	68.65	72.35	76.42	80.90	85.89	91.48

APV Discount Rate (2030)

EV/EBITDA Exit Multiple	5.1%	5.0%	4.9%	4.8%	4.7%	4.6%	4.5%	4.4%	4.3%	4.2%	4.1%
2.1%	44.75	46.65	48.66	50.80	53.06	55.48	58.06	60.83	63.82	67.05	70.56
2.2%	45.92	47.92	50.03	52.28	54.67	57.24	59.99	62.95	66.15	69.63	73.44
2.3%	47.18	49.28	51.50	53.88	56.42	59.15	62.09	65.27	68.72	72.49	76.63
2.4%	48.53	50.74	53.09	55.62	58.32	61.24	64.39	67.81	71.55	75.66	80.20
2.5%	49.98	52.32	54.82	57.50	60.39	63.52	66.92	70.63	74.70	79.20	84.21
2.6%	51.54	54.02	56.69	59.55	62.66	66.03	69.71	73.75	78.22	83.18	88.74
2.7%	53.24	55.88	58.72	61.80	65.15	68.80	72.81	77.24	82.16	87.68	93.92
2.8%	55.08	57.90	60.95	64.27	67.90	71.87	76.27	81.15	86.63	92.82	99.89
2.9%	57.09	60.12	63.41	67.00	70.95	75.31	80.16	85.59	91.73	98.74	106.83
3.0%	59.28	62.55	66.11	70.03	74.35	79.16	84.56	90.65	97.60	105.63	115.01
3.1%	61.70	65.24	69.12	73.41	78.18	83.53	89.58	96.48	104.44	113.75	124.81

Discount Rate 2030 % Change

EV/EBITDA Exit Multiple	0.5%	0.4%	0.3%	0.2%	0.1%	0.0%	-0.1%	-0.2%	-0.3%	-0.4%	-0.5%
9.6x	40.29	43.93	47.94	52.36	57.29	62.81	69.08	76.25	84.58	94.40	106.22
9.7x	40.81	44.46	48.47	52.90	57.83	63.36	69.63	76.80	85.14	94.96	106.79
9.8x	41.33	44.99	49.00	53.43	58.37	63.90	70.18	77.36	85.70	95.53	107.36
9.9x	41.85	45.51	49.53	53.97	58.91	64.45	70.72	77.91	86.25	96.09	107.93
10.0x	42.37	46.04	50.06	54.50	59.45	64.99	71.27	78.47	86.81	96.66	108.50
10.1x	42.90	46.57	50.59	55.04	59.99	65.54	71.82	79.02	87.37	97.22	109.07
10.2x	43.42	47.09	51.12	55.58	60.53	66.08	72.37	79.58	87.93	97.79	109.64
10.3x	43.94	47.62	51.65	56.11	61.07	66.63	72.92	80.13	88.49	98.35	110.21
10.4x	44.46	48.15	52.19	56.65	61.61	67.17	73.47	80.68	89.05	98.91	110.77
10.5x	44.98	48.67	52.72	57.18	62.15	67.72	74.02	81.24	89.61	99.48	111.34
10.6x	45.51	49.20	53.25	57.72	62.69	68.26	74.57	81.79	90.17	100.04	111.91

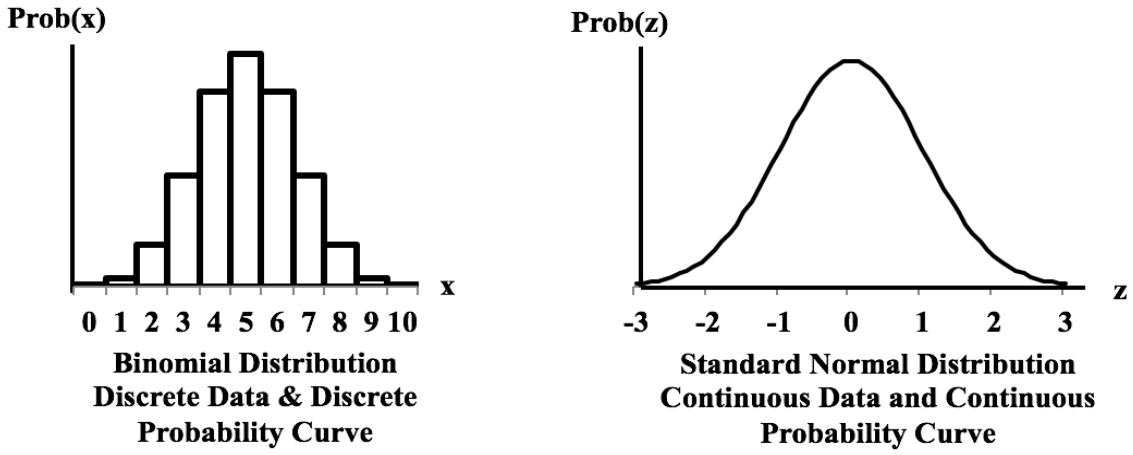
Discount Rate 2030 % Change

Perpetuity Growth Rate	0.5%	0.4%	0.3%	0.2%	0.1%	0.0%	-0.1%	-0.2%	-0.3%	-0.4%	-0.5%
2.1%	32.39	34.98	37.75	40.73	43.96	47.46	51.28	55.47	60.10	65.25	71.02
2.2%	34.15	36.90	39.86	43.06	46.53	50.32	54.48	59.07	64.18	69.91	76.39
2.3%	36.05	38.99	42.16	45.61	49.37	53.49	58.05	63.12	68.80	75.24	82.61
2.4%	38.13	41.28	44.70	48.42	52.52	57.04	62.06	67.70	74.09	81.40	89.89
2.5%	40.40	43.79	47.49	51.55	56.03	61.02	66.62	72.95	80.21	88.62	98.55
2.6%	42.90	46.57	50.59	55.04	59.99	65.54	71.82	79.02	87.37	97.22	109.07
2.7%	45.65	49.64	54.06	58.97	64.47	70.71	77.85	86.13	95.90	107.66	122.16
2.8%	48.70	53.08	57.95	63.41	69.60	76.69	84.91	94.60	106.26	120.65	139.01
2.9%	52.11	56.95	62.37	68.50	75.53	83.69	93.31	104.88	119.15	137.37	161.75
3.0%	55.95	61.33	67.42	74.39	82.48	92.03	103.51	117.67	135.75	159.93	194.67
3.1%	60.30	66.34	73.26	81.29	90.76	102.15	116.20	134.14	158.14	192.60	248.29

Appendix 16 – Monte Carlo Simulation

The distributions are selected based on the variable. Two types of distributions are selected: discrete symmetric binomial and continuous symmetric normal. Normal distributions are chosen for the following variables: free cash flows 2022 to 2030, concession cost 2030, perpetuity growth rate, and exit multiple. On the other hand, variables D/E, levered beta, and MRP follow a discrete binomial distribution since these variables are clustered around the central value and are expected without the probability of significant outliers (tail risk).

Appendix Figure 23: Probability function selected for Monte Carlo simulation



Appendix Figure 24: Monte Carlo Simulation TCFF share price distribution

Share Price	Absolute Frequency	Relative Frequency	Normal cumulative	Normal distribution
0.00	0	0.0000	0.0000	0.0025
3.83	0	0.0000	0.0001	0.0045
7.66	0	0.0000	0.0002	0.0114
11.48	0	0.0000	0.0005	0.0273
15.31	1	0.0010	0.0011	0.0616
19.14	5	0.0050	0.0024	0.1308
22.97	32	0.0320	0.0050	0.2614
26.80	155	0.1550	0.0099	0.4918
30.62	412	0.4120	0.0186	0.8709
34.45	969	0.9690	0.0331	1.4518
38.28	1,815	1.8150	0.0559	2.2780
42.11	3,210	3.2100	0.0896	3.3647
45.93	4,977	4.9770	0.1363	4.6781
49.76	7,100	7.1000	0.1976	6.1224
53.59	9,118	9.1180	0.2730	7.5424
57.42	10,356	10.3560	0.3605	8.7464
61.25	11,104	11.1040	0.4559	9.5474
65.07	10,740	10.7400	0.5540	9.8102
68.90	9,532	9.5320	0.6489	9.4886
72.73	7,751	7.7510	0.7353	8.6390
76.56	6,205	6.2050	0.8094	7.4039
80.39	4,506	4.5060	0.8691	5.9729
84.21	3,348	3.3480	0.9144	4.5358
88.04	2,366	2.3660	0.9469	3.2423
91.87	1,718	1.7180	0.9687	2.1816

Source: Own Analysis

Appendix 17 – Comparable Company Analysis

Aeroports de Paris SA provides airport infrastructure services for their portfolio of 24 airports in 13 countries (4 continents), receiving almost 218 million passengers in total. Their business model is divided into five segments: Aviation, Retail and Services, Real Estate, International and Airport Developments, and others. To date, ADP ranks among the largest airport groups worldwide. Significant contributors are its strategic partnerships with TAV Airports (46.12% stake) and Airport International Group, which operates 13 airports in Europe and the Middle East and Queen Alia International Airport in Amman, Jordan. The three main airports are in the Paris area: Paris-Charles de Gaulle, Paris-Orly, and Paris-Le Bourget (*ADP, 2020*).

Aena SME SA is a government-owned airport service provider, operating 46 airports and two heliports in Spain and manages 23 airports worldwide through its subsidiary Aena Internacional. Most of its international activity focuses on Latin America, with six in Brazil, 12 in Mexico, two in Columbia, and two in Jamaica. Due to its most prominent share in Spanish airports, Aena ranks with 293.4 million domestic passengers accommodated in 2019 first place ahead of ADP (108), TAV (105), and Fraport (70.5) (*Aena, 2020*).

Flughafen Zuerich AG is a semi-public airport operator. Its gateway, Zurich airport, carried 31.5 million passengers in 2019 and offered 138 European and 65 intercontinental destinations. Over the past years, the company regularly won awards for high-quality standards in services offered. In addition, participation in the management and operation of international holdings increased. They are active at nine airports in five countries, mainly emphasizing Latin America (*Zurich Airport, 2020*).

Flughafen Wien AG provides airport services for three international airports in Austria (Vienna), Malta, and Slovakia. In 2019, 39.5 million passengers are carried on all three sites. Vienna airport serves as a gateway to destinations in Eastern Europe. Being one of the largest employers in Austria is crucial for fostering economic growth (*Vienna Airport, 2020*).

The figure below illustrates key financial ratios for the peer companies over the past five years. However, the ratios are extracted from Refinitiv Eikon and are different from the ratios calculated from the annual report due to internal standardization procedures.

Appendix Figure 25: Key financial ratio peer group comparison

	Aeroports de Paris					Aena					Flughafen Zuerich					Flughafen Wien				
Financial Key Ratios	**2016**	**2017**	**2018**	**2019**	**2020**	**2016**	**2017**	**2018**	**2019**	**2020**	**2016**	**2017**	**2018**	**2019**	**2020**	**2016**	**2017**	**2018**	**2019**	**2020**
Profitability																				
Gross Margin	96%	95%	95%	89%	88%	95%	96%	96%	96%	93%	84%	84%	86%	86%	80%	96%	96%	95%	96%	92%
EBITDA Margin	41%	44%	42%	39%	-3%	62%	64%	65%	63%	39%	57%	56%	50%	53%	31%	44%	43%	43%	44%	-8%
Operating Margin	24%	29%	28%	23%	-64%	39%	43%	44%	45%	-4%	33%	33%	28%	33%	-9%	23%	26%	28%	29%	-26%
Pretax Margin	22%	24%	22%	19%	-83%	41%	40%	41%	42%	-10%	31%	34%	26%	32%	-14%	21%	23%	26%	28%	-30%
Effective Tax Rate	32%	30%	33%	34%		23%	24%	24%	23%	-	21%	20%	21%	20%	-	27%	27%	27%	26%	-
Net Margin	15%	17%	15%	12%	-71%	31%	31%	32%	33%	-7%	25%	28%	21%	26%	-11%	15%	17%	19%	21%	-23%
Liquidity																				
Quick Ratio	2.0	1.7	1.2	1.1	1.4	0.7	0.8	0.7	0.4	1.2	0.8	0.7	0.6	0.9	0.9	0.7	0.8	0.7	0.4	1.2
Current Ratio	2.0	1.7	1.2	1.1	1.4	0.7	0.8	0.7	0.4	1.2	0.8	0.8	0.6	0.9	0.9	0.7	0.8	0.7	0.4	1.2
Times Interest Earned	6.4	7.1	5.2	4.8	-2.9	12.6	17.1	19.5	22.0	0.6	8.9	9.4	13.9	14.2	-9.7	12.6	17.1	19.5	22.0	0.6
Cash Cycle (Days)	-1349	-836	-789	-318	-642	-63	-236	-385	-439	-344	-346	-343	-321	-346	-301	-63	-236	-385	-439	-344
Leverage																				
Assets/Equity	2.5	3.1	3.3	3.3	5.1	3.1	2.7	2.5	2.3	2.6	1.9	1.8	1.8	1.8	1.8	3.1	2.7	2.5	2.3	2.6
Debt/Equity	1.0	1.3	1.4	1.4	2.9	1.8	1.4	1.2	1.1	1.3	0.4	0.4	0.3	0.3	0.4	1.8	1.4	1.2	1.1	1.3
% LT Debt to Total Capital	49%	47%	46%	45%	62%	57%	53%	49%	43%	50%	25%	22%	18%	19%	17%	57%	53%	49%	43%	50%
(Debt-Cash)/EBITDA	2.2	2.1	2.6	2.8	-	3.8	3.0	2.5	2.4	8.0	1.3	1.1	0.9	0.7	-	3.8	3.0	2.5	2.4	8.0
Operating																				
A/R Turnover	4.4	4.1	3.9	4.5	1.9	7.7	10.0	10.4	9.3	3.1	8.7	7.0	6.6	6.1	3.0	7.7	10.0	10.4	9.3	3.1
Avg. A/R Days	84	90	94	82	191	47	37	35	40	118	42	52	56	60	124	47	37	35	40	118
Inv Turnover	5.1	5.6	5.5	7.9	3.2	24.4	23.1	23.5	23.4	22.3	4.9	5.3	6.1	5.5	4.3	24.4	23.1	23.5	23.4	22.3
Avg. Inventory Days	71	65	67	47	114	15	16	16	16	16	74	69	60	67	86	15	16	16	16	16
Avg. A/P Days	1505	992	950	447	947	126	289	435	494	478	462	464	437	473	510	126	289	435	494	478
Fixed Asset Turnover	0.5	0.6	0.6	0.6	0.3	0.3	0.3	0.3	0.4	0.2	0.5	0.5	0.6	0.6	0.2	0.3	0.3	0.3	0.4	0.2
WC / Sales Growth	3%	-10%	-12%	-14%	33%	9%	7%	2%	-12%	-3%	10%	6%	-4%	1%	-4%	9%	7%	2%	-12%	-3%
ROIC	5%	6%	5%	5%	-11%	8%	9%	10%	11%	-1%	7%	7%	9%	10%	-4%	8%	9%	10%	11%	-1%

Source: Refinitiv Eikon

Appendix 18 – Precedent M&A Transactions Analysis

Over the recent years, infrastructure investors have favored airports, with valuation multiples increasing y-o-y. According to a study by PwC, airport transactions between 2016 and 2018 indicate an average EV-to-EBITDA multiple of 22 times. This multiple has increased by six times over the past ten years. With an average multiple of 16 times during 2009 and 2010. In the pre-Covid world, airport EV-to-EBITDA multiples were expected to average around 18 to 24 times in the future (*Bentley, 2019*).

According to the past 4-years precedent, European M&A transactions researched from Deal Screener, Refinitiv Eikon, the average EV-to-EBITDA multiple was 21.7. However, public information on airport deals is scarce, lowering the sample transactions with disclosed multiples to only seven.

Appendix Figure 26: Precedent airport M&A transactions in Europe between 2016 and 2019

	Deal Information								Deal Valuation Reuters		
Announced	Target Name	Target Nation	Target Industry	Target Company Description	Acquirer Name	Acquirer Nation	Acquirer Industry	Aquirer Company Description	Deal Size (m)	EV/ Sales	EV/ EBITDA
14.05.2019	**Aeroport Toulouse-Blagnac SA**		Transportation & Infrastructure	Airport operator that is located in Blagnac, France.	**Eiffage SA**		Transportation & Infrastructure	Highway, street and bridge construction company.	569		
25.02.2019	**Aeroporto Friuli Venezia Giulia SpA**		Transportation & Infrastructure	The Company owns and operates Trieste airport.	**2i Aeroporti SpA**		Transportation & Infrastructure	Provider of airport operation related services.	37	3.4x	30.2x
27.12.2018	**Gatwick Airport Ltd**		Transportation & Infrastructure	Owns and operates London Gatwick airport	**Vinci Airports SAS**		Transportation & Infrastructure	Airport concession holder and operator.	3,663		
04.12.2018	**Durham Tees Valley Airport Ltd**		Transportation & Infrastructure	Provider of airport operation related services.	**Tees Valley Combined Authority**		City Government	City government.	51	7.9x	-9.8x
25.09.2018	**Aeropuerto de Ciudad Real SA**		Transportation & Infrastructure	Provider of airport services.	**Ciudad Real International Airport**		Transportation & Infrastructure	Provider of air traffic control services.	66		
27.02.2018	**Fraport Ic Ictas Antalya Airport**		Transportation & Infrastructure	Provider of airport operation related services.	**TAV Havalimanlari Holding AS**		Transportation & Infrastructure	Provider of airport operation related services.	443		
25.06.2018	**Aeroporto di Firenze SpA**		Transportation & Infrastructure	Provides airport management services.	**Corporacion America Italia SpA**		Transportation & Infrastructure	Provider of airport operation related services.	24	7.3x	42.5x
29.03.2018	**Internationale Luchthaven Kortrijk-**		Transportation & Infrastructure	Operator of Kortrijk-Wevelgem airport.	**Investor Group**		Other Financials	Investor group	12		
19.02.2018	**Aeroporto di Firenze SpA**		Transportation & Infrastructure	Provides airport management services.	**Corporacion America Italia SpA**		Transportation & Infrastructure	Provider of airport operation related services.	16	6.6x	38.4x
13.09.2017	**Kobenhavns Lufthavne A/S**		Transportation & Infrastructure	Owns and operates the airports at Kastrup and Roskilde.	**Investor Group**		Other Financials	Investor group	122	11.4x	19.6x
09.11.2016	**Aeroports de la Cote d'Azur SA**		Transportation & Infrastructure	Controls airports Nice, Cannes-Mandelieu and Saint Tropez.	**Azzurra Aeroporti Srl**		Transportation & Infrastructure	Special purpose acquisition vehicle formed by Atlantia.	1,432	9.2x	22.1x
08.11.2016	**Nicelli SpA**		Transportation & Infrastructure	Nicelli SpA is the operator of Nicelli airport.	**Societa Aeroporto Cerrione Spa**		Transportation & Infrastructure	Provider of air traffic control services.	0		
14.03.2016	**Flughafen Wien AG**		Transportation & Infrastructure	Provides airport services at Wien airport.	**Airports Group Europe Sarl**		Other Financials	Provides investment services and is a holding company.	193	3.9x	9.2x
01.02.2016	**Malta Mediterranean Link Consortium Ltd**		Transportation & Infrastructure	Provider of airport operation related services.	**Flughafen Wien AG**		Transportation & Infrastructure	Provides airport services at Wien airport.	69		
Mean										7.1x	21.7x
Median										7.3x	22.1x

Source: Refinitiv Eikon

Moreover, this multiple must be adjusted for the premium paid. Public information on transportation and infrastructure average premiums paid over the historical years is also limited. According to a study by BCG, acquisition premiums average around 30.6% in the long term (*Kengelbach et al., 2019*).

Considering this premium, the value of airports from precedent transactions lies around 15 times EV-to-EBITDA. Furthermore, according to PwC, the transaction multiples for mature airports turn out lower on average (*Radia et al., n.d.*). Considering the EBITDA of 2021, the average share price from precedent transactions amounts to €42.18.

Appendix Figure 27: Precedent airport M&A transactions share price

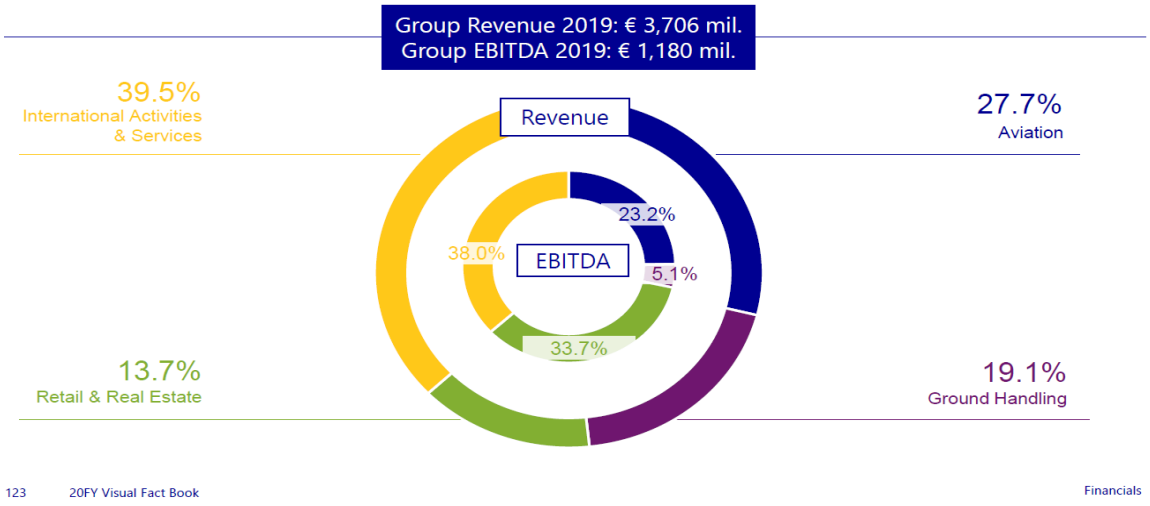
Company	Market Data						Precedents	
	Price	Shares	Market Capitalization	Net Debt and Minorities	Enterprise Value	EBITDA 2021	EV/ Sales	EV/ EBITDA
Mean							7.1x	21.7x
Median							7.3x	22.1x
Mean (@30.6% Premium)							4.9x	15.1x
Median (@30.6% Premium)							5.1x	15.3x
Fraport (average)	**42.18 €**	92.5	**3,900 €**	7,568 €	**11,468 €**	**755 €**		
Fraport (min)	**41.24 €**	92.5	**3,813 €**	7,568 €	11,381 €			
Fraport (max)	**43.12 €**	92.5	**3,987 €**	7,568 €	11,555 €			

Source: Own Analysis

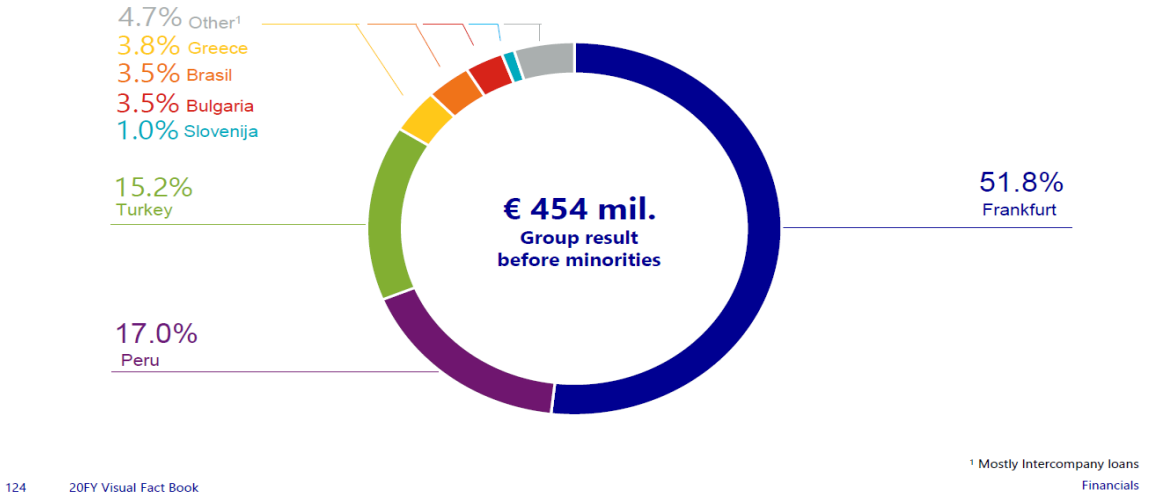
However, due to the lack of public data on airport transaction multiples and premiums paid, the result of this method is meaningless.

Appendix 19 – Company Overview

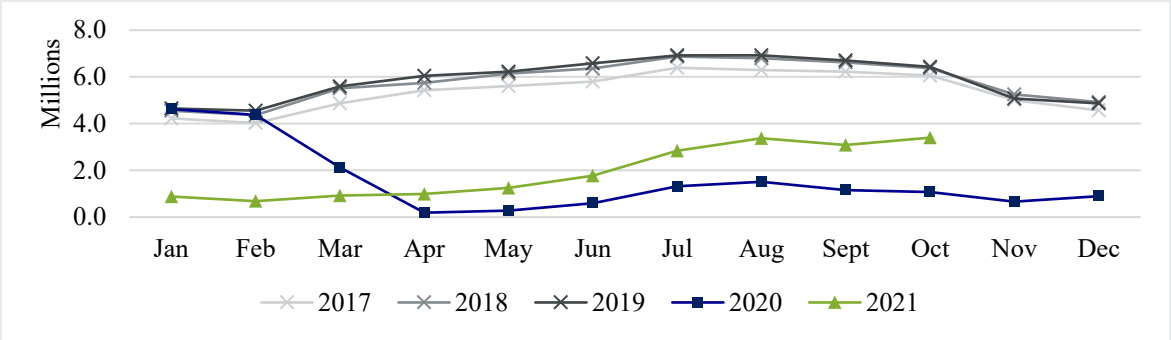
Appendix Figure 28: Group revenue and EBITDA split 2019



Appendix Figure 29: Group result split 2019

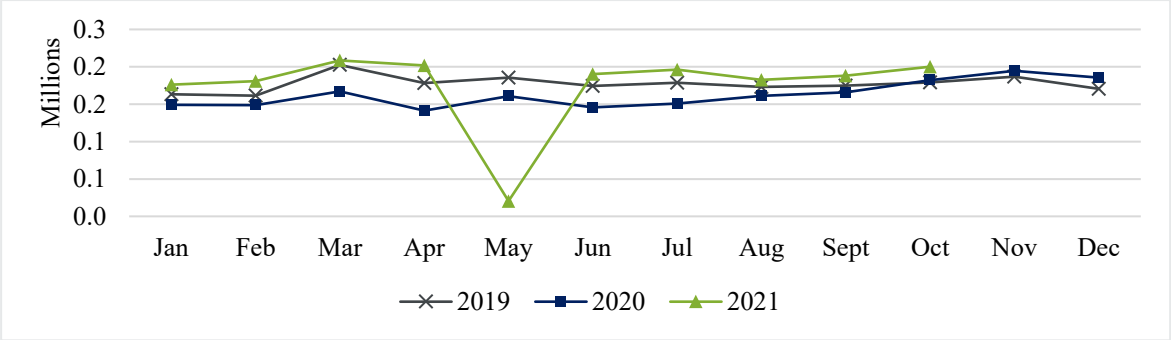


Appendix Figure 30: Monthly passenger numbers at Frankfurt site per year



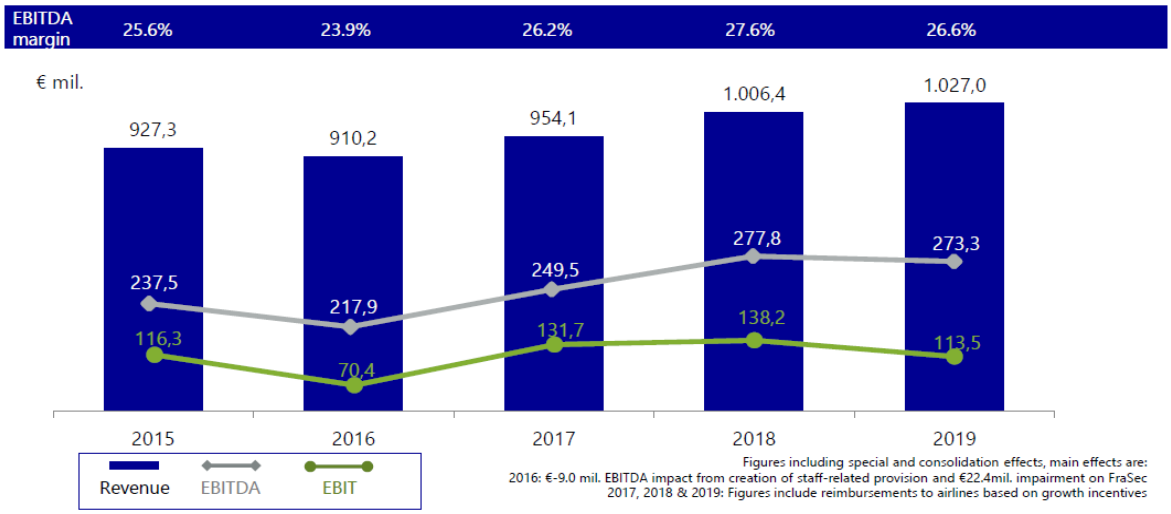
Source: CAPA – Centre for Aviation

Appendix Figure 31: Monthly cargo tonnages at Frankfurt site per year

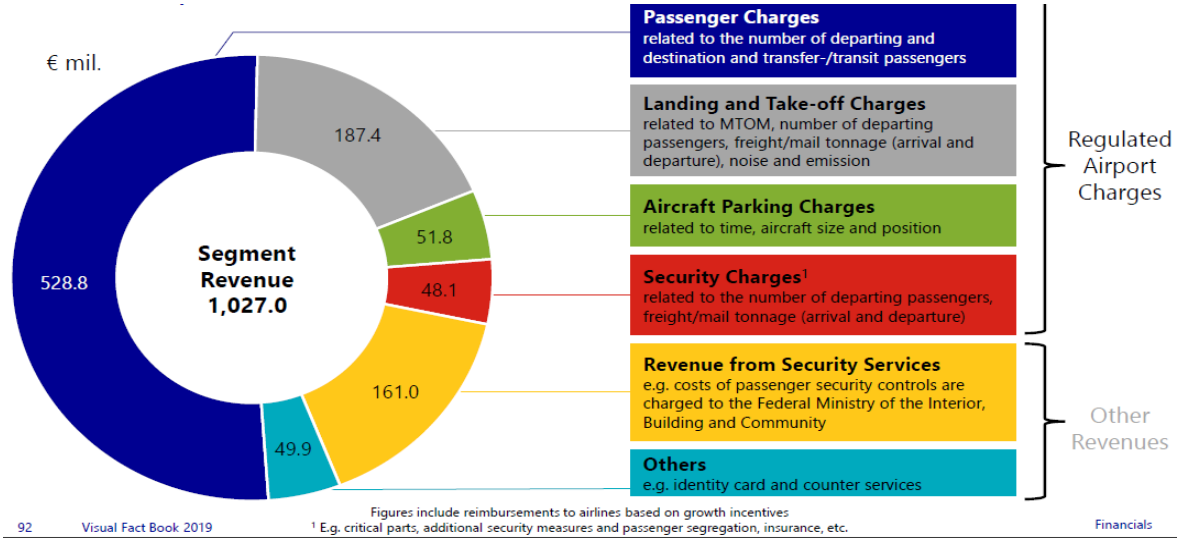


Source: CAPA – Centre for Aviation

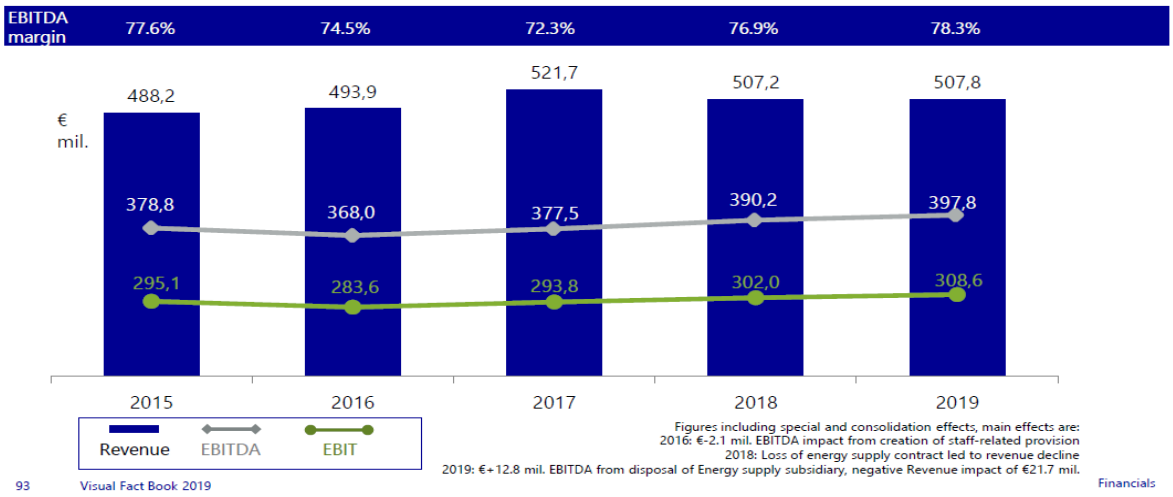
Appendix Figure 32: Aviation segment key figures (Visual Fact Book 2019)



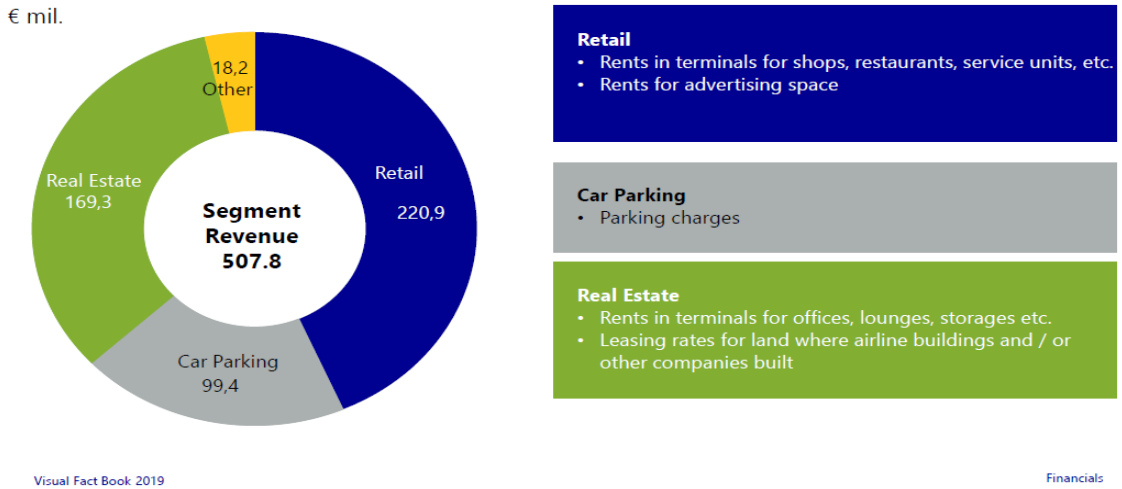
Appendix Figure 33: Aviation segment revenue split 2019



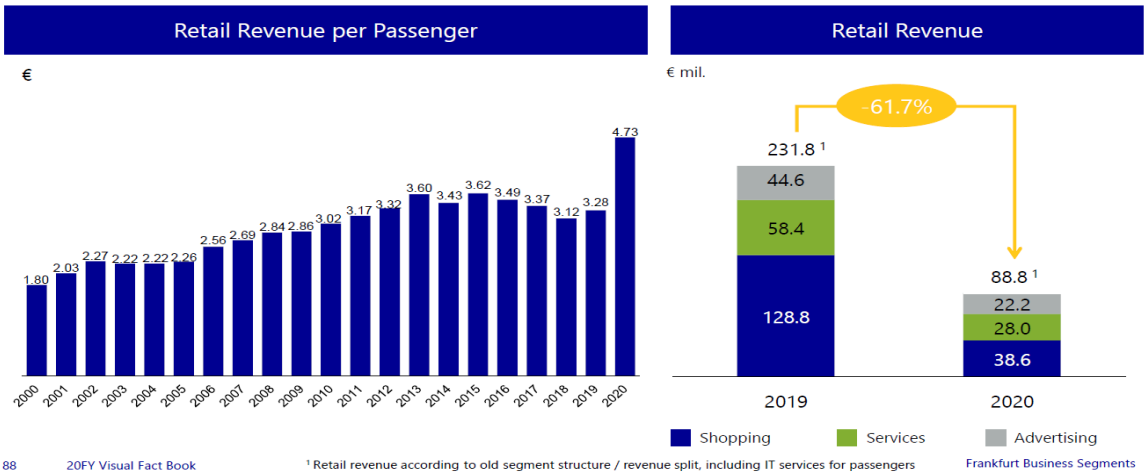
Appendix Figure 34: Retail and real estate segment key figures (Visual Fact Book 2019)



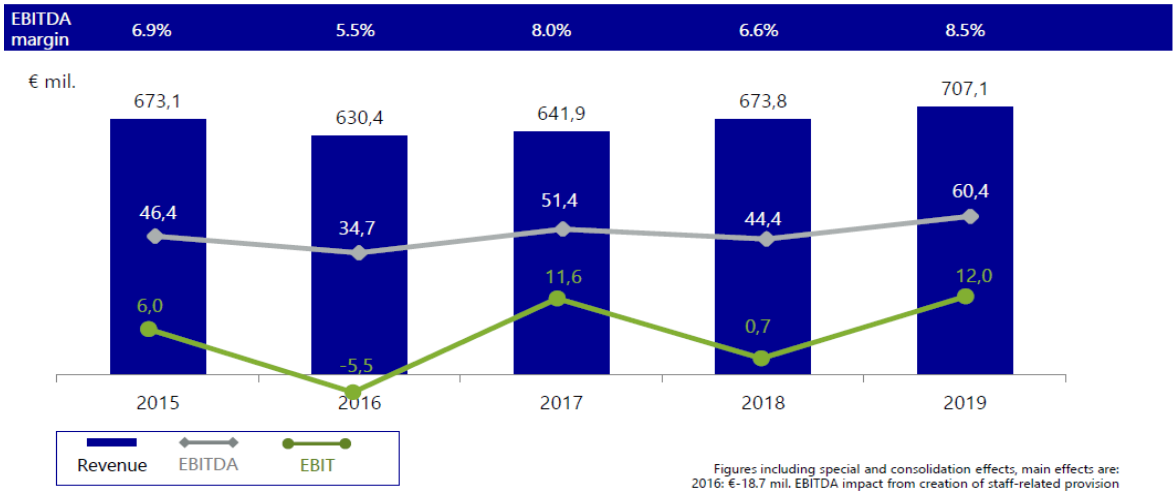
Appendix Figure 35: Retail and real estate segment revenue split 2019



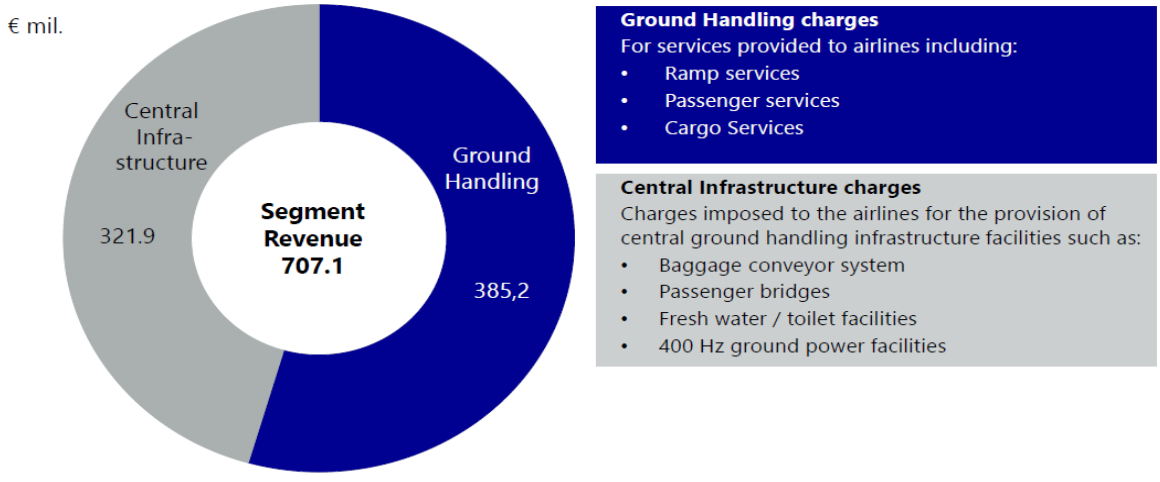
Appendix Figure 36: Retail revenue development per passenger



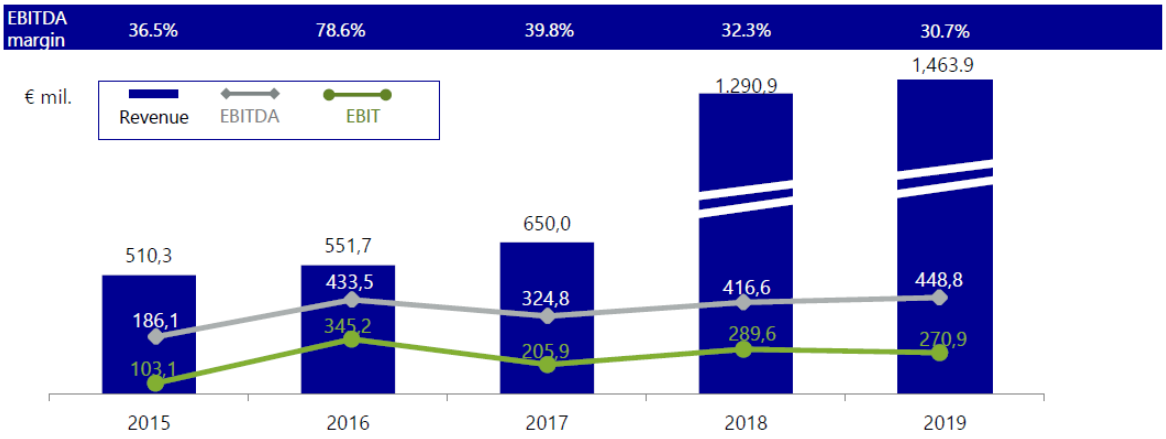
Appendix Figure 37: Ground Handling segment key figures (Visual Fact Book 2019)



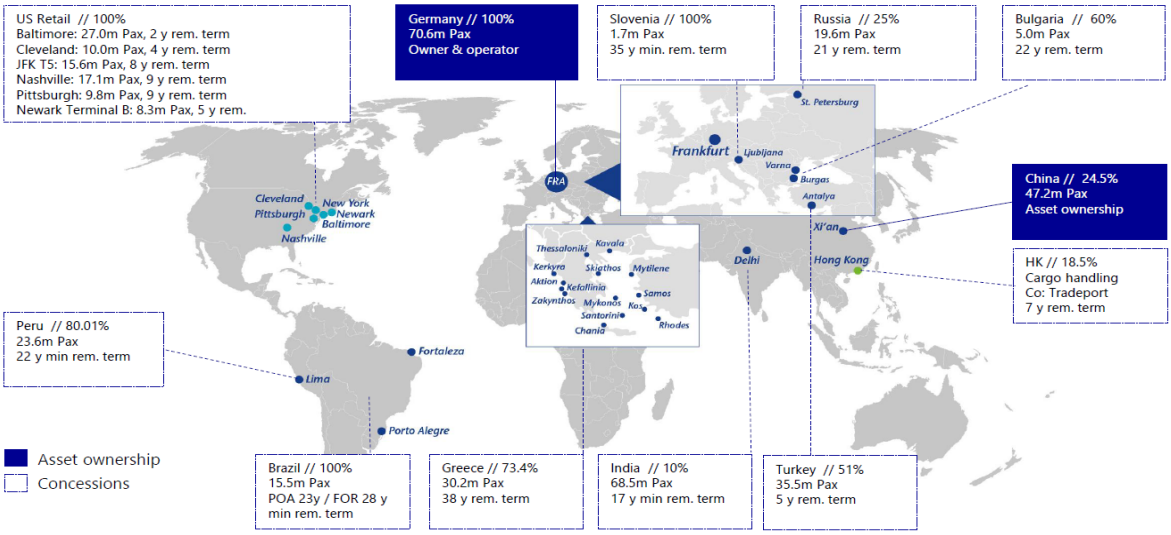
Appendix Figure 38: Ground Handling segment revenue split 2019



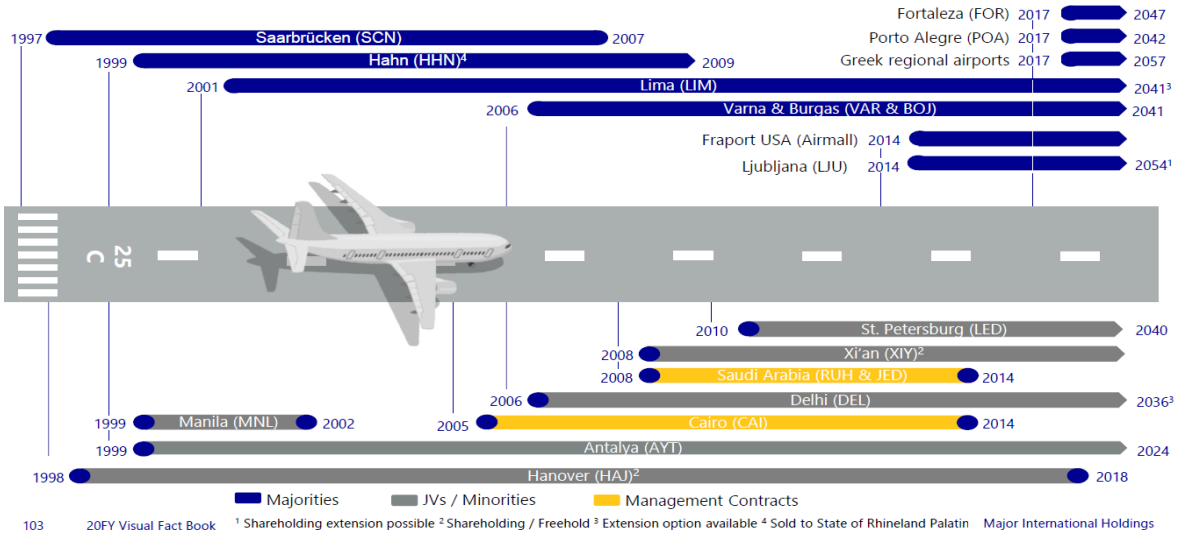
Appendix Figure 39: International Activities and Services segment key figures (Visual Fact Book 2019)



Appendix Figure 40: Fraport concession airports (Visual Fact Book 2020)



Appendix Figure 41: Fraport international airport portfolio timeline



[1] Shareholding extension possible [2] Shareholding / Freehold [3] Extension option available [4] Sold to State of Rhineland Palatin

Appendix Figure 42: Fraport international airport holdings fact sheet

Investment	% share	Consolidation	Investment type	Concession charge	Capex obligation[1]	Regulation
Fortaleza	100	Full	Concession until 2047	Fixed minimum[5] + 5% revenue component	Modernizing and expanding the airport	Dual till
Porto Alegre	100	Full	Concession until 2042 [3]	Fixed minimum[5] + 5% revenue component	Modernizing and expanding the airport	Dual till
Ljubljana	100	Full	Asset ownership[4]	No conc. charge	/	Dual till
Lima	80.01	Full	Concession until 2041 [3]	Fixed minimum + revenue component	Modernization of existing infrastructure fulfilled, new runway and new terminal to be constructed	Single till
Greek regionals	73.4	Full	Concession until 2057	Fixed minimum + EBITDA component as of 2021	Modernizing and expanding the airport portfolio	Dual till with predefined charge mechanism
Varna & Burgas	60	Full	Concession until 2041	Fixed minimum + revenue component	Construction of 2 new terminals fulfilled	Dual till
Antalya	51/50 [2]	@equity	Concession until 2026	Fixed	Construction of new terminal fulfilled	Dual till with fixed charges
St. Petersburg	25	@equity	Concession until 2040	Fixed minimum + revenue component	Construction of new terminal fulfilled	Dual till
Xi'an	24.5	@equity	Asset ownership	No conc. charge	/	Charges set by authority
Delhi	10	@cost	Concession until 2036 [3]	Revenue component	/	Hybrid till

[1] W/o maintenance capex and investments subject to traffic growth [2] Share of voting rights: 51% / dividend share: 50%
[3] Extension option available [4] Right to operate airport derived from land use contract until 2054, extension possible
[5] starting in year 6 of the concession

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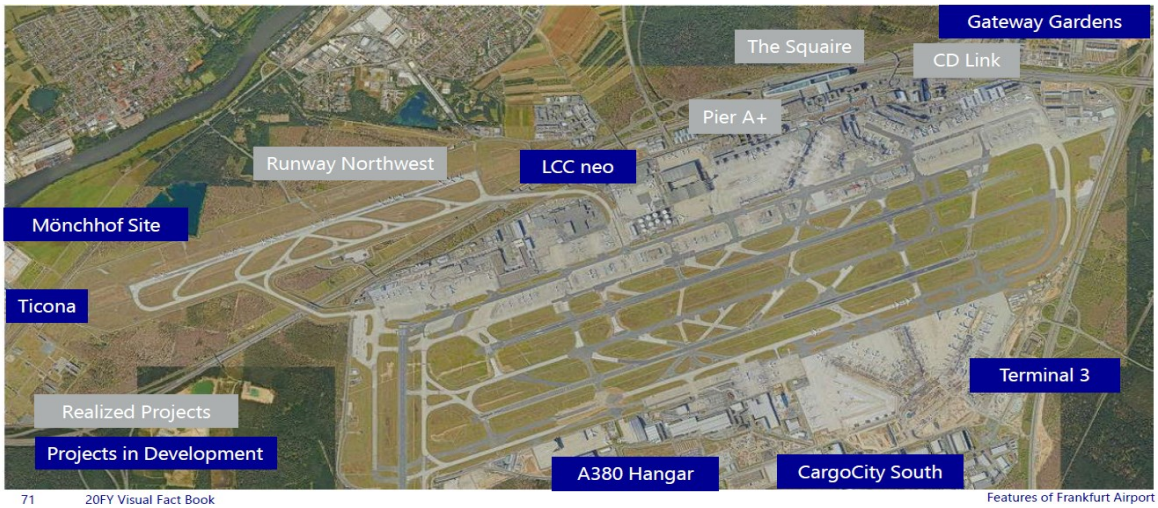
Appendix Figure 43: Frankfurt site investments finished and, in the pipeline



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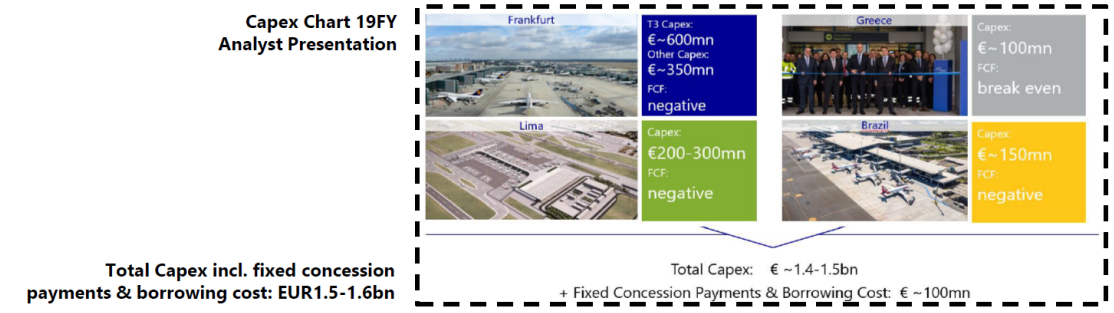
Appendix Figure 44: Fraport group CAPEX reduction due to Covid-19



FY 2020 Capex Spend EUR c.1,147mn
= EUR 403mn Savings vs. mid point of 2020 Guidance (-26%)

- Frankfurt T3: € c.536 mil. (€-64 mil.), Other Capex: €c.326 mil. (€-24 mil.)
- Lima: € c.101 mil. (€-149 mil.)
- Greece: € c.97 mil. (€-3 mil.)
- Brasil: € c.44 mil. (€-106 mil.)
- Fixed Concessions & Borrowing Cost: € c.42 mil. (€-58 mil.)

30 20FY Visual Fact Book Impacts of COVID-19

Appendix Figure 45: Fraport group CAPEX outlook fiscal year 2021

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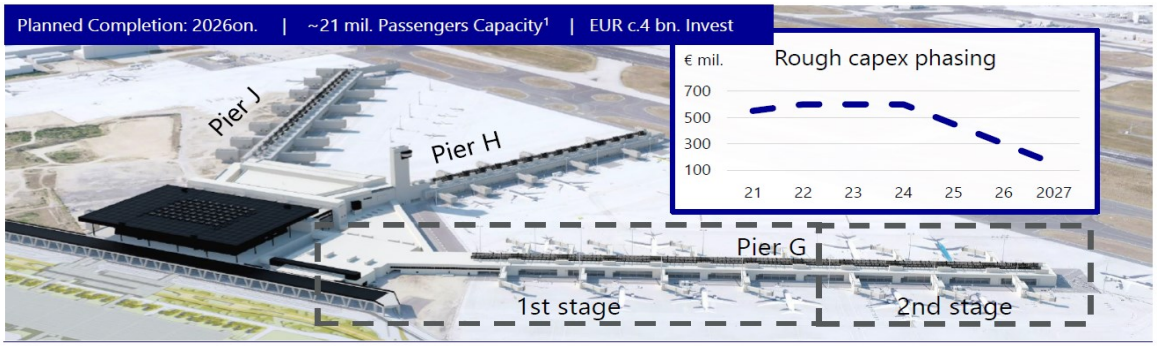
Appendix Figure 46: Frankfurt airport terminal 3 project plan

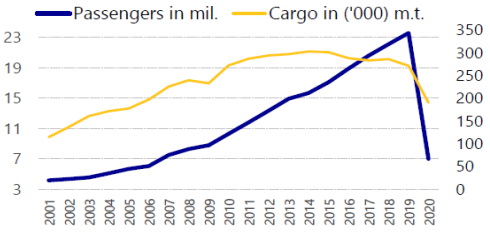


Terminal 3: Main Hall and Piers H & J
- Planned completion: 2026
- Passenger capacity: ~14 mil. p. a.
- Parking positions: 24
- 400m Pier H for Schengen operation
- 600m Pier J for Non-Schengen operation

Terminal 3 Pier G: 1st stage
- Planned completion: 2026
- Passenger capacity: ~4 to 5 mil. p. a.
- Parking positions: 9
- Flexible Schengen/Non-Schengen operations due to swing gates

73 20FY Visual Fact Book ¹ Piers H, J & G stages 1&2 Features of Frankfurt Airport

Appendix Figure 47: Lima airport holding information



Fraport ownership: 80.01%

Fraport investment since: February 2001

Investment type: 40 years concession + extension option

Airport profile
Capital city airport of Peru & regional hub for LatAm
1 runway, 1 terminal

Cost of acquisition: Multiple stage acquisition + annual variable revenue linked concession charge of c.46.5%

Scope of Fraport activities: Aviation & non-Aviation

Capex obligation: Obligation to modernize existing infrastructure fulfilled, new construction works commenced in January 2020 with new runway to be completed in end of 2022 and inauguration of new terminal scheduled for end of 2024 / start of 2025

Regulation: single till

Profits to Group: ~€ 5 mil. (2019: ~€ 83 mil.)

Share in Group result: n/a (2019: ~17 %)

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Appendix Figure 48: Construction progress at Lima airport

- Completion of 2nd Runway and new Tower end of 2022
- Total cost: USD c.450mn
- USD financing at c.1.8% interest cost
- Decision on Terminal construction to be taken H2 2021
- Project Finance to be assumed
- Strong travel restrictions due to COVID-19 still in place

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Appendix 20 – ESG Analysis

All information is retrieved from Fraport's annual report and visual factbook 2020. Nowadays, ESG performance is becoming more and more critical for investors worldwide. Fraport positioned itself well ahead, emphasizing sustainable development and increasing focus on the annual reporting of ESG measures. Overall, ESG performance paints a rosy picture since Fraport appears to follow the right strategy to achieve a long-term balance between the environmental and social realms. This is coherent with Refinitiv Eikon's ESG rating of A- (82.21/100) for the fiscal year of 2020. Compared to its international peers in the aviation industry, Fraport ranks third place well ahead compared to ADP (68.72), Flughafen Wien (40.62), and Flughafen Zurich (33.45).

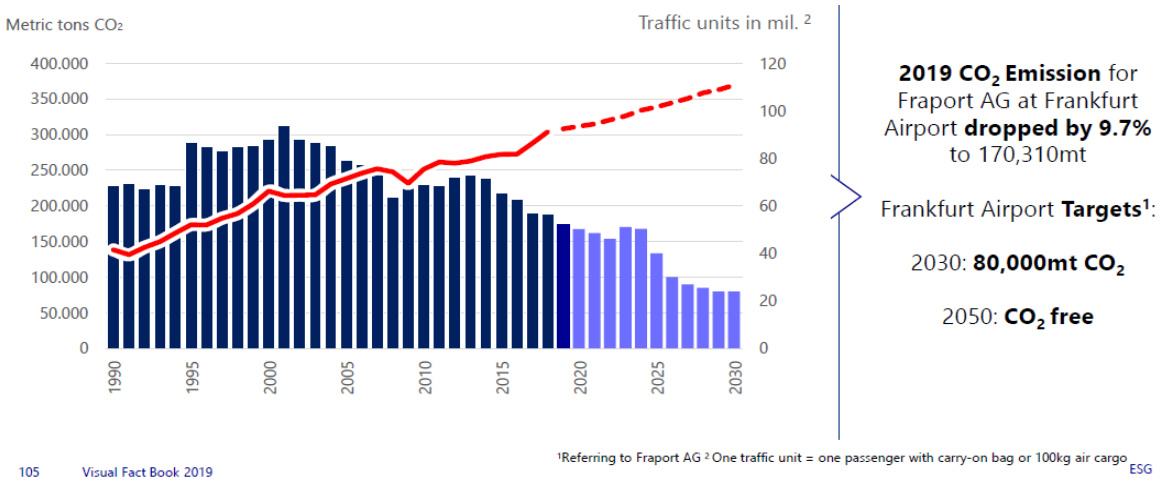
Environment:

The core topics within Environment are CO2 reduction, Air Quality and Noise Abatement, and Water and Waste. The group reduced emitted CO2 emissions over the years despite traffic growth. Their roadmap to net zero CO2 consists of three pillars: avoiding unnecessary CO2 consumption wherever possible, exchanging or upgrading equipment with efficient technologies, and producing green electricity through PV or wind parks. The group's CO2 target for 2030 is to further lower emissions to under 80,000 metric tons of CO2 and be CO2-free by 2050. The targets are achieved through digitalization, such as state-of-the-art pricing schemes that favor modern aircraft types, home office, and reduced business trips. In addition, incentives to use sustainable aviation fuel and an increasing share of high-speed train feeder services to replace short-haul flights domestically.

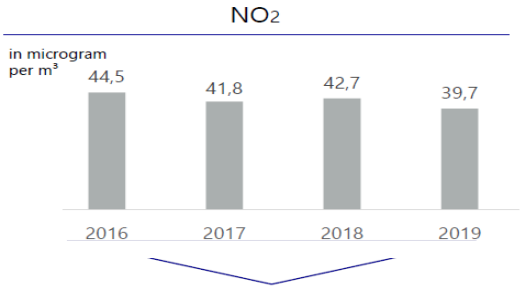
In addition, NO2 declined over the recent years and is also a contributing factor to determining airport charges. Noise complaints were reduced due to fewer night flights.

Lastly, water and waste performance worsened over the years.

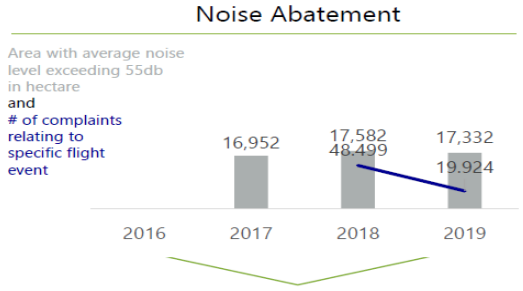
Appendix Figure 49: Frankfurt airport CO2 reduction versus traffic growth



Appendix Figure 50: Frankfurt airport air quality and noise reduction

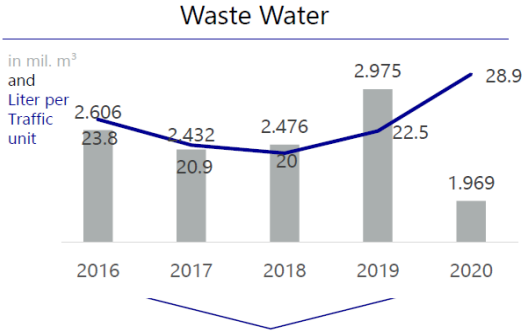


- Good Progress in NO2 Reduction
- Working Group implemented to address and evaluate NO2 further
- NO2, a.o., component of Airport charges
- Figures also contain Road Traffic

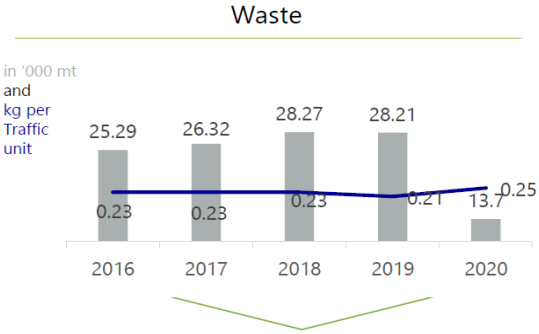


- Clear reduction of complaints, among others, due to less night flights
- 2016/17 data not available and or included automated complaining system

Appendix Figure 51: Frankfurt airport water and waste management



- 2020 waste water reduced due to lower number of aircraft movements



- 2020 waste volume reduced due to lower number of aircraft movements

Social:

Fraport focuses on employee diversification and female leadership. In 2020, the Frankfurt site employed 26.3% females, with 25.6% women in management positions. Furthermore, the share of foreigners amounts to 23.7% and employees with disabilities to 6.6%.

Governance:

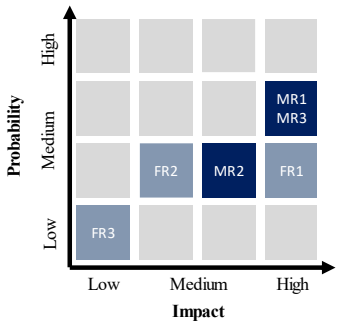
The corporate structure follows the German prescribed system for listed companies consisting of two boards, the "Executive Board" and the "Supervisory Board." Both boards have duties to report to the shareholders. The supervisory board members are elected by shareholder representatives and have the right to appoint or dismiss members of the executive board. The executive committee consists of five members with multiple years of pre-experience in their fields. The remuneration system changed for the fiscal year of 2020. Total remuneration for all members is capped at different levels and includes a fixed annual salary and a short-term and long-term variable bonus. For example, CEO Stefan Schulte's fixed annual non-performance-related salary amounts to €715,000, representing 45-67% of the total remuneration. The short-term bonus makes up around 15-25%, whereas the long-term performance bonus is approximately 27-36%.

Appendix Figure 52: Fraport executive board committee

Appendix 21 – Risk Analysis

The most significant risks are covered that could potentially affect the share price forecast in the following. All information is obtained from Fraport's annual report 2020.

Appendix Figure 53: Risk matrix (Annual Report 2020)



Market Risk [MR1] – Further development of the coronavirus pandemic

The development of future traffic volumes at Frankfurt and all international sites heavily depends on local infection rates and domestic and international travel restrictions. In addition, the vaccination rollout is also crucial for future travel since it curbs the widespread of Covid-19. Furthermore, side effects or inefficacy against potential new mutations combined with supply bottlenecks could delay the vaccination rollout. Lastly, the future outlook of the pandemic is still uncertain. High uncertainty pulls demand back. Cost-saving programs by companies or increased digitalization also lead to fewer business trips.

Market Risk [MR2] – Macroeconomic

The pandemic forced many companies into bankruptcy despite the increased public debt. Therefore, unemployment increases while income and wealth decline. Global trade could face shifts towards national protectionism, hurting export-oriented economies like Germany. In addition, BREXIT and further trade restrictions or sanctions imposed globally could dampen global growth.

Market Risk [MR3] – Competitive and regulatory environment

With increasing international competition for O&D passengers, the success of an airport depends significantly on the Airline and their offered products like route network, fleet structure, and offered fares. Risks related to aircraft stationing or retirement decisions (Lufthansa pressured Fraport and relocated A380s to Munich airport since more attractive incentives were provided for Low-Cost-Carriers at the Frankfurt site). In addition, new competition in the Middle East could emerge and increase supply (for example, new Istanbul airport). In the wake of the pandemic and tight financial policies of Airlines could force more bankruptcies, and therefore, market consolidations. Furthermore, political decisions concerning climate protection could drive up the cost of travel. Lastly, discussions on short-haul domestic flight bans could shift passengers to rail.

Firm Risk [FR1] – Risks from capital expenditure projects

Capital expenditures were already decreased and adjusted for the new passenger forecast. However, risks may still arise from construction cost increases, supplier bankruptcies, further

delays in the schedule, Covid-19 restrictions, and influences stemming from the public, environment, politics, or technological changes.

Firm Risk [FR2] – Personnel

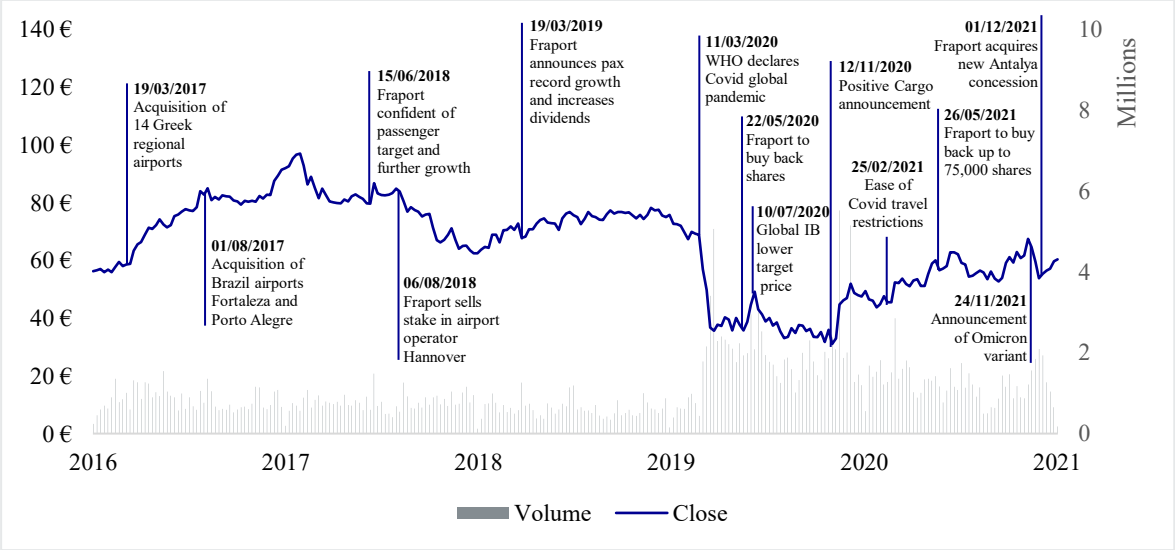
In the wake of Covid-19, the group restructured and led go of personnel to become leaner. Therefore, risks arise from the loss of expertise and key personnel. In addition, the existing workforce may become more challenging to retain despite agreements and short-time work in place. Lastly, reduction of flexible working hours due to changes in labor law.

Firm Risk [FR3] – Financial (interest rate, forex, credit risk, and oil prices]

Excessive capital expenditures and the issuance of debt lead to increased interest requirements. In addition, the risk of hedging losses in market value from interest rate derivatives arises. Other financial derivative instruments face counterparty default risk. Furthermore, Fraport is active worldwide and, therefore, affected by currency exchange rates. Lastly, rising oil prices could increase airfares and dampen demand.

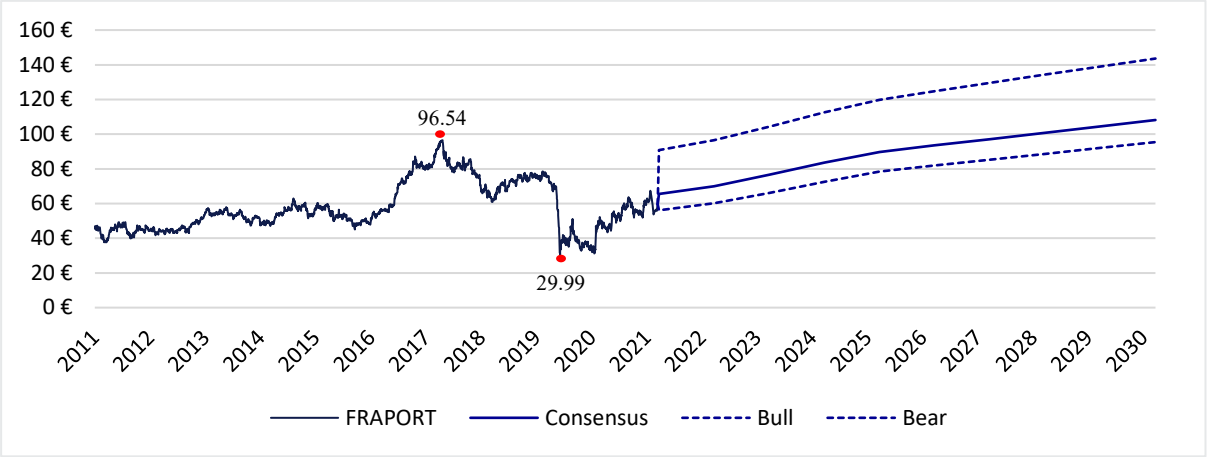
Appendix 22 – Share Price

Appendix Figure 54: Stock price history and market news



Source: Refinitiv Eikon, Own Analysis

Appendix Figure 55: Fraport forecasted intrinsic share price development per scenario



Source: Fraport Visual Factbook (2020)

German airports expect increasing passenger figures in 2022 after travel restrictions are eased since travel enthusiasm is still elevated.

Fraport's share price has recovered since the beginning of December from the announcement of the Omicron variant. The 2021 high of €70 per share is still out of reach; however, trends show positive signs. The share price has exceeded the 200-day moving average, and the current upswing in momentum, which the MACD indicates, supports the bullish sentiment. The next resistance level hovers at €65 representing the average intrinsic value price per share derived from the DCF analysis for December 31, 2021. In the short term, investors could go long and harvest this upside potential until the resistance level of €65 is reached. Risk tolerant investors could even increase their gains by using leverage.

Appendix Figure 56: Fraport share price technical analysis

Source: www.tradingview.com