Empirical Analysis of Financial Statement and Common Valuation Methods

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Abstract. Business valuations are often used today by stakeholders to estimate the economic value of the benefits a business generates. In this case, financial market participants use a variety of valuation methods to determine the price they are willing to pay or accept to achieve a stock sale. Therefore, this paper conducts financial statement analysis and common valuation methods on the basis of Airbus annual report, and then evaluates some other factors that affect valuation. The study found that Airbus got rid of high leverage and implemented sustainable development in recent years. The stock price based on common valuation methods is lower than the market value. However, this paper believes that due to the current situation of Airbus and the capital market, the current market value is reasonable.

Keywords: Financial Statements, Valuations, Finance, Investments.

1. Introduction

Financial statement analysis is the process of analyzing a company's financial statements for decision-making purposes. External stakeholders use it to understand the overall health of an organization, as well as to assess financial performance and business value, while internal members use it as a monitoring tool for managing finances. In addition, stakeholders often use business valuation to estimate the economic value of the benefits generated by the business. In this case, various valuation methods are used by financial market participants to determine the price they are willing to pay or accept in order to realize the sale of shares. Therefore, this paper presents the empirical analysis of financial statement and common valuation methods in the case of Airbus.

2. Sample characteristics and variable selection

Airbus is Europe's largest aerospace company, with a focus on providing efficient, technologically advanced solutions for aerospace, defense and interconnected services. With its philosophy of "sustainable aviation for a safe and unified world", Airbus has become a pioneer in the field of sustainable aviation. Airbus Group consists of three main business units: Commercial Aviation, Airbus Helicopters and Defense Aerospace. In addition, Airbus has seven subsidiaries worldwide covering aviation services, traffic management, aviation communications, equipment testing, etc. Airbus' annual revenue in 2021 is €52.1 billion, up 4.4% from 2020. Among Airbus' three main business units, Commercial Aviation remains the main source of revenue, accounting for 69% of the Group's annual revenue.

3. Financial Statement Analysis

This paper calculates five-year financial ratios for Airbus based on the company's annual reports, and selects the Aerospace & Defense Industry average ratios on CSIMarket as benchmarks [1]. The liquidity, leverage, efficiency and profitability of Airbus are analyzed from two dimensions of horizontal comparison and vertical comparison.

3.1 Strong Liquidity

Table 1 Liquidity ratios for Airbus from 2017 to 2021

Year	2017	2018	2019	2020	2021
Current ratio	1.07	0.97	0.91	1.18	1.17
Quick ratio	0.51	0.44	0.40	0.57	0.57
Cash ratio	0.24	0.19	0.19	0.32	0.33

The company's current ratio, quick ratio, and cash ratio have fluctuated slightly in the last five years, but have remained stable in the last two years. At the end of FY2021, the company's current ratio was 1.17, quick ratio was 0.57 and cash ratio was 0.33(Table 1). The company's current assets have not changed much in the last five years, but total current liabilities have decreased from €55,779 million in FY2017 to €47,807 million in FY2021(Table 2), with the decrease in accounts payable being the main reason for the increase in the company's current ratio[2].

Table 2 Comparison between Airbus and Aerospace & Defense Industry in terms of liquidity

Year	2017	2018	2019	2020	2021
Aerospace & Defense Industry	0.26	0.23	0.17	0.26	0.32
Airbus	0.51	0.44	0.40	0.57	0.57

In addition, the company's quick ratio has been significantly higher than the industry average for the last five years, which shows the company's good liquidity. This is in line with the company's strategy of trying to maintain liquidity and flexibility. High liquidity position is an indication of company’s increasing ease in funding its day-to-day operations and ability to capture growth opportunities that arrive in the market.

3.2 High Leverage

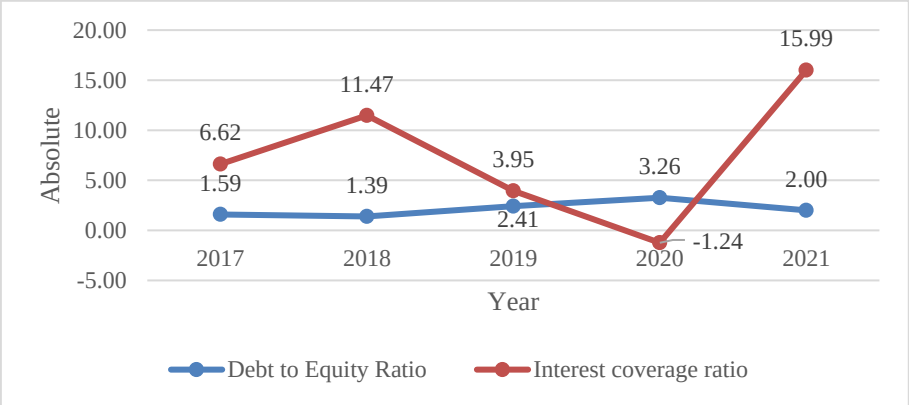

Figure 1 Leverage ratio for Airbus from 2017 to 2021

The company prefer debt financing and has a debt profile of different maturities and sources. The company's debt capital was always at a high level, but in 2019 and 2020 the company's equity capital was half of previous years' equity capital, mainly due to the very poor retained earnings in both years (Figure 1). Poor operating conditions and high debt levels left the company with the negative interest coverage ratio in 2020, which means that the company's income in that year was not enough to cover the interest expenses of the debt financing.

However, the company's leverage level declines significantly in 2021. In that year, Airbus repaid $1 billion of bonds on the U.S. institutional market and €1 billion of convertible bonds into Dassault Aviation shares, resulting in a reduction of €988 million in long-term financing debt and €1,067 million in short-term financing debt[2]. In addition, impressive net profit in 2021 led to an increase in owners' equity of €3,021 million. The good operating conditions and the reduction in debt levels

led to a significant improvement in the company's interest coverage ratio to 15.99 in 2021(Figure 2 and Figure 3).

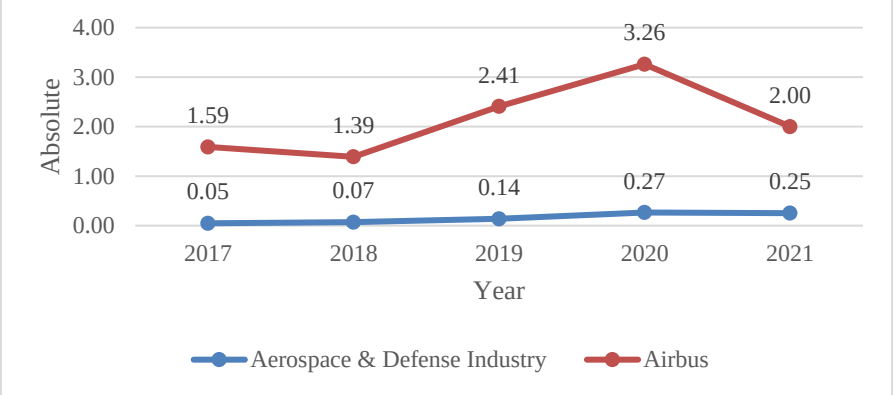

Figure 2 Comparison between Airbus and Aerospace & Defense Industry in terms of leverage

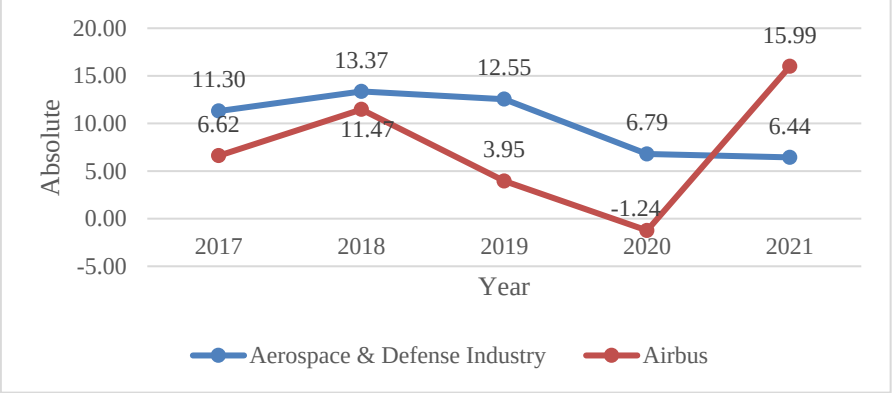

Figure 3 Comparison between Airbus and Aerospace & Defense Industry in terms of interest coverage ratio

However, the company's leverage level is still well above the industry average, which means the company is taking on higher risks. However, the company's ability to pay interests in 2021 is well above the industry average, so investors need not worry much.

3.3 Low Efficiency

Table 3 Asset utilization ratios for Airbus from 2017 to 2021

Year	2017	2018	2019	2020	2021
Total asset turnover	0.59	0.57	0.61	0.44	0.48
Inventory turnover	1.93	1.78	1.89	1.43	1.37
Fixed asset turnover	3.98	3.82	4.14	2.94	3.14

The company's total asset turnover, inventory turnover and fixed asset turnover have been declining over the past five years. At the end of FY2021, the total asset turnover was 0.48, inventory turnover was 1.37, and fixed asset turnover was 3.14, all of which were lower than those in FY2017 (Table 3 Table 4 and Table 5)[2].

Table 4 Comparison between Airbus and Aerospace & Defense Industry in terms of total asset turnover

Year	2017	2018	2019	2020	2021
Aerospace & Defense Industry	0.94	0.88	0.82	0.68	0.71
Airbus	0.59	0.57	0.61	0.44	0.48

Table 5 Comparison between Airbus and Aerospace & Defense Industry in terms of inventory turnover

Year	2017	2018	2019	2020	2021
Aerospace & Defense Industry	2.66	2.83	3.11	2.23	2.18
Airbus	1.93	1.78	1.89	1.43	1.37

In addition, the company's total asset turnover and inventory turnover have been lower than the industry average for the past five years, which means that the flow of assets from input to output during the company's operation is slow and the utilization of assets is inefficient. This results in a low delivery rate of the company's aircraft and a large backlog of orders.

3.4 Enhanced Profitability

Table 6 Profitability ratios for Airbus from 2017 to 2021

Year	2017	2018	2019	2020	2021
Return on sales	5.12%	7.92%	1.90%	-1.02%	10.24%
Return on assets	2.53%	2.61%	-1.16%	-1.06%	3.90%
Return on equity	21.55%	30.98%	-22.12%	-18.11%	44.00%
Return on capital	4.97%	9.20%	2.57%	-0.85%	9.02%

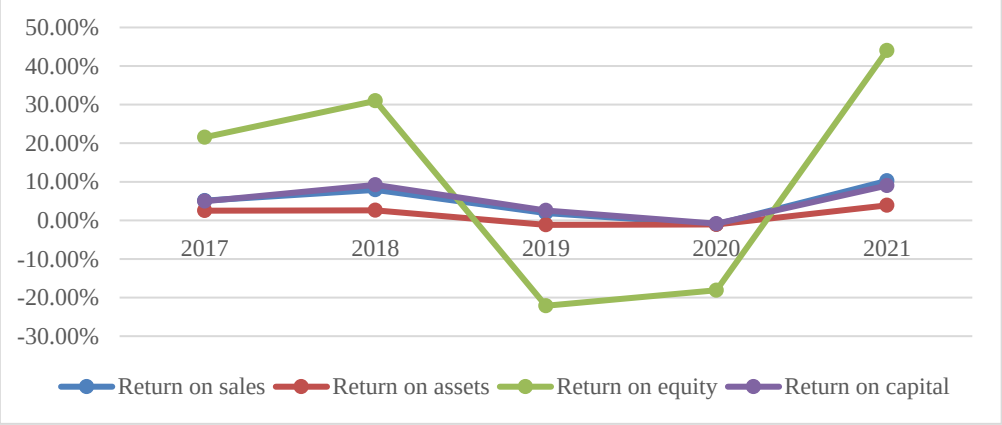

Figure 4 Profitability ratios for Airbus from 2017 to 2021

Over the past five years, the company's four indicators - ROS, ROA, ROE, and ROC - have changed in more or less the same direction.

However, the fluctuation of ROE is the most dramatic, which is caused by the company's high leverage. This can be explained by the following formula: ROE = (1 - Tax rate) × [ROA + (ROA - Interest rate) × Debt/Equity]. In FY2019 and FY2020, the company's ROA were negative and ROA were less than the interest rate, so the company's high leverage aggravated the company's loss situation and investors faced greater losses.

In 2021, the company's ROE increased significantly to 44%. This can be explained by 3-step DuPont analysis: ROE = Net margin × Asset turnover × Leverage. First, net income increased significantly in 2021(Table 6 and Figure 4). The improved business environment and increased demand for air travel in 2021 contributed to a 4.5% increase in revenue, and the company's continued efforts in cost control resulted in a 3.9% decrease in cost of sales. In addition, the company's capital structure with more debt and less equity contributed to a larger ROE increase. Moreover, a small increase in asset turnover also led to an increase in ROE.

While the company's profitability was lower from 2017 to 2020, it was significantly above the industry average in 2021, implying the company’s ability to provide higher returns to shareholders.

4. Common Valuation Methods

4.1 Discounted Cash Flow Model

In this section, the discounted cash flow model is used to estimate the intrinsic value of Airbus based on expected future cash flows[3]. The paper compiles the balance sheets and income statements of Airbus for the last five years and calculates the net working capital, depreciation and amortization, capital expenditures, etc(Table 7).

Table 7 Working Capital, Depreciation and Capital Expenditure

Working Capital and CAPEX	Actual Dec-2017	Actual Dec-2018	Actual Dec-2019	Actual Dec-2020	Actual Dec-2021
Total working capital	22,314	22,521	23,583	27,885	25,285
Trade accounts receivable	5,983	6,867	6,841	6,206	6,440
Trade accounts payable	13,406	16,237	14,808	8,722	9,693
Inventories	29,737	31,891	31,550	30,401	28,538
Depreciation & amortization	2,298	2,444	2,927	2,831	2,325
Depreciation for the year	NA	1,332	2,542	1,160	556
Amortization for the year	NA	1,112	385	1,671	1,769
Capital expenditure (CAPEX)	NA	1,495	3,063	540	418

(in millions €)

4.1.1 Forecast of Corporate Ratios

According to the financial statements and analyst reports obtained, the corporate ratios shown below are used to forecast future cash flows, which are based on the authoritative forecast, mean and median of ratios over the past five years, as well as other factors (Table 8).

Table 8 Forecast Drivers: Corporate Ratios

Forecast drivers: Ratios etc.	Forecast Dec-2022	Forecast Dec-2023	Forecast Dec-2024	Forecast Dec-2025	Forecast Dec-2026	Source
Sales growth	0.14	0.13	0.08	0.06	0.06	Wall St
Cost (percentage of sales)	0.95	0.95	0.95	0.95	0.95	Median
Days sales in receivables	41	41	41	41	41	Mean
Days purchases in payables	79	79	79	79	79	Mean
Days sales in inventory	199	199	199	199	199	Mean
Net fixed asset (percentage of sales)	0.91	0.91	0.91	0.91	0.91	Median
Depreciation (percentage of fixed assets)	0.05	0.05	0.05	0.05	0.05	Mean
CAPEX (percentage of revenue)	0.02	0.02	0.02	0.02	0.02	Mean

Authoritative Forecast: For sales growth, Wall Street forecasts of 14%, 13%, 8%, 6% and 6% for each of the years 2022 through 2026 are used for this paper [4].

Mean: For ratios with a more stable trend over the past five years, such as days sales in receivables, the mean of the past five years has been used as the drivers for forecasting expected future cash flows.

Median: For ratios that have changed significantly over the past five years, such as cost to sales ratio, the median of the past five years has been chosen to better predict future changes.

Other factors: As the global spread of COVID-19 gets significantly improved in 2021, the epidemic is stabilizing in many countries. This means that the problems caused by COVID-19 will gradually be solved and the economy will gradually stabilize in the future. For this reason, the paper expects the tax rate to maintain at 17% in the future, which is the same as in 2021.

4.1.2 Forecast of Income Statement and Balance Sheet

According to the above forecast corporate ratios and the financial statements, the forecasts of balance sheet and income statement for years ended December 2022 to December 2026 can be predicted.

4.1.3 Intrinsic Value

Based on the above information, this paper assumes a WACC of 9.58%, which was published by Airbus in its 2021 annual report used for a discounted cash flow analysis of its A220 program. Thus, after the calculation process shown in the figure below, this paper yields an intrinsic value of €70.9 billion for the Airbus equity and a share price of €90.28(Table 9).

Table 9 Discounted-Cash-Flow-Based Intrinsic Value Estimates

Discounted -Cash-Flow-Based Intrinsic Value Estimates	**Actual Dec-2021**	**Forecast Dec-2022**	**Forecast Dec-2023**	**Forecast Dec-2024**	**Forecast Dec-2025**	**Forecast Dec-2026**
Present value of free cash flow	7,819.00	2,763.52	912.58	1,896.75	2,246.16	
Present value of horizon value	66,506.41				66,506.41	95,893.40
Present value of entity	**74,325.42**					
Less net debt	-3,400.00					
Intrinsic value of equity	**70,925.42**					
Number of outstanding shares (in millions)	785.63					
Estimate of the value of equity per share	**90.28**					

(in millions €)

4.2 Sensitivity Analysis

The above process is based on the growth rates provided by Wall Street, however, the comparison of its forecasts for Airbus sales growth and market sales growth shows that Wall Street's estimates for Airbus sales are relatively conservative. Therefore, a sensitivity analysis of the sales growth rate has been performed, and the calculated valuation of the Airbus share price in the optimistic scenario is €100.75(Table 10).

Table 10 Sensitivity-Analysis-Based Intrinsic Value Estimates

Sensitivity-Analysis-Based Intrinsic Value Estimates	**Actual Dec-2021**	**Forecast Dec-2022**	**Forecast Dec-2023**	**Forecast Dec-2024**	**Forecast Dec-2025**	**Forecast Dec-2026**
Present value of free cash flow	4,864.49	1,890.51	294.51	723.55	1,955.92	
Present value of horizon value	77,685.57				77,685.57	112,012.26
Present value of entity	**82,550.06**					
Less net debt	-3,400.00					
Intrinsic value of equity	**79,150.06**					
Number of outstanding shares (in millions)	785.63					
Estimate of the value of equity per share	**100.75**					

(in millions €)

4.3 Multiple-Based Valuation Model

Nine companies in the aerospace industry are selected as Airbus comparable companies for this paper, and their market capitalization, historical P/E ratios, and forward P/E ratios are collected separately. Since the P/E ratios of some companies are much larger than others, this paper performs a median treatment for calculating industry P/E ratios. The share price estimates based on historical P/E and forward P/E ratios are obtained as €99.72 and €76.21, respectively (Table 11).

Table 11 Multiple-Based Intrinsic Value Estimates

Ticker	**(EUR in millions except Fair Price)**			
	Company Name	**Market Cap**	**Trailing P/E**	**Forward P/E**
AIR.PA	**Airbus SE**	**85,425.26**	**17x**	**21.3x**
BA.L	BAE Systems PLC	28,166.96	7.3x	12.6x
QQ.L	QinetiQ Group PLC	2,442.28	9.7x	19.3x
KOG.OL	Kongsberg Gruppen ASA	5,848.75	26.1x	23x
HO.PA	Thales SA	24,187.48	19.6x	18.6x
SAF.PA	Safran SA	43,643.31	96.1x	76.1x
AM.PA	Dassault Aviation SA	13,117.00	14.4x	30.5x
MTX.DE	MTU Aero Engines AG	9,809.48	36.5x	29.1x
LDO.MI	Leonardo SpA	5,896.90	9.3x	9x
SAAB B.ST	Saab AB	30,453.97	29.7x	35.9x
Industry median			**18.3x**	**22.15x**
(*) Profit after tax			4,608	2,819
Equity value			**84,331**	**62,446**
(/) Outstanding shares			785.63	785.63
Fair price			**107.34**	**79.48**

4.4 Investment Recommendation

Following these conclusions, this paper compares the results with the range of Airbus' share price float on the day of December 31, 2021 and during the 52 weeks, as shown in the figure, it can be seen that the share price, valued by both methods, is below €112.36. However, according to expert analysis, Airbus' share price based on intrinsic value is 30% undervalued(Figure 5)[4]. Given the large variation in airbus' share price over the last 52 weeks and the fact that the share price was near its maximum at the end of the year, this paper recommends holding the share and waiting for upside opportunities.

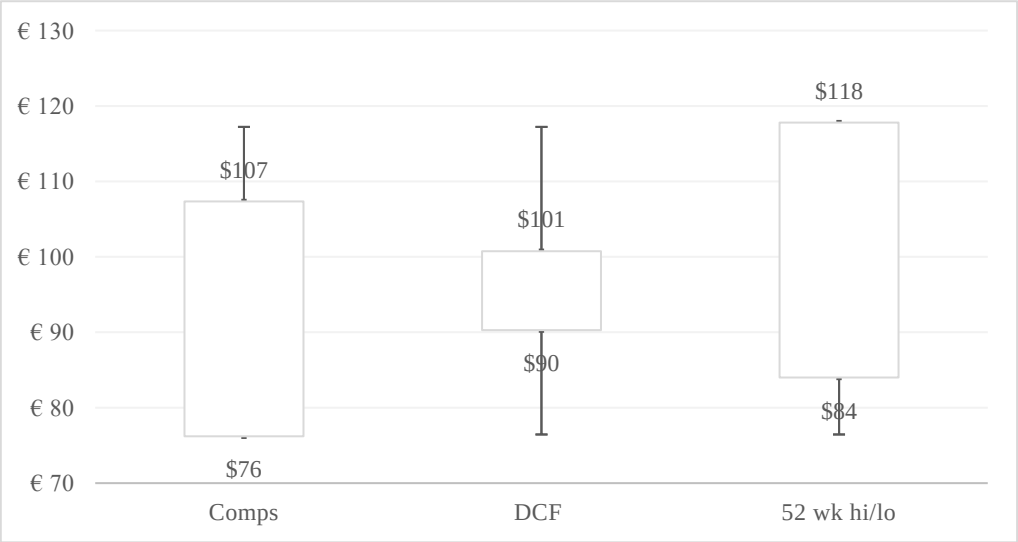

Figure 5 Valuation Summary

5. Other Factors Affecting Valuation

5.1 New Business Model

Airbus had relied on a business model with warehouses close to airports and short delivery times in previous years to capture a large volume of orders worldwide. However, as the COVID-19 brought a heavy blow, Airbus tries to maintain its competitive advantage through a new business model [5-7]. These days Airbus and Boeing are not just facing off in their core business of building and delivering aircraft on time, but are focusing on competing on artificial intelligence and big data. In the first three quarters of the transformation, Airbus' service revenues increased to $2.8 billion, up 17 percent year-over-year, and this rapid resilience has shown the world a bright future for Airbus, attracting a large number of investors.

5.2 Payout Policy

Airbus has introduced a new dividend policy since 2013 in order to reward its shareholders, promising a dividend that would continue to grow within a payout ratio of 5% to 30%. And they have proven to achieve this, with the exception of 2019 and 2020, when they had to stop paying dividends due to the COVID-19, Airbus' dividends have remained positive and popular with investors[8].

5.3 Share Repurchase

Airbus repurchased nearly 10% of its issued shares between February 23rd and March 3rd of this year and approved on its official website full details of the repurchase[9], which will be redistributed to the shareholders in accordance with the provisions of the Long-Term Incentive Plan.

5.4 Credit Rating

In terms of credit ratings, Airbus is an industry leader with an A- or higher rating from the major international rating agencies such as Standard & Poor's, Moody's Investors Service and Fitch Ratings[10]. The higher the rating, the lower the potential risk that the company will not be able to meet its obligations, which is another important reason why customers choose to borrow from airbus.

6. Conclusion

To sum up, this paper has conducted financial statement analysis and common valuation methods based on Airbus' annual report, and then evaluate some other factors affecting valuation. It is found that Airbus is getting rid of high leverage and implementing sustainability in recent years, and that the share prices based on common valuation methods are all lower than the market value, however, the paper considers the current market value to be reasonable due to the current situation of Airbus and the capital market.

References

[1] CSIMarket (2022) Aerospace & Defense Industry Financial Strength Information.

[2] Airbus SE (2021) Airbus-SE-Full-Annual-Report-2021.

[3] Jezkova, V., Rowland, Z., Machova, V. et al., (2020). The Intrinsic Value of an Enterprise Determined by Means of the FCFE Tool. Sustainability, 12(21), p.8868.

[4] Simply Wall St. (2022). An Intrinsic Calculation for Airbus SE (EPA: AIR) Suggests It's 30% Undervalued. [online]

[5] Baumann, O., Becker, M., & Horrmann, I. (2020). Ensuring Adaptation While Seeking Efficiency: Tiered Outsourcing and Skip-Level Supplier Ties in the Airbus A350 Program. Organization Science (Providence, R.I.), 31(5), 1176-1197.

[6] Cansino, J., & Román, R. (2017). Energy efficiency improvements in air traffic: The case of Airbus A320 in Spain. Energy Policy, 101, 109-122.

[7] He, S., Hipel, K.W. & Kilgour, D.M. (2017) Analyzing market competition between Airbus and Boeing using a duo hierarchical graph model for conflict resolution. J. Syst. Sci. Syst.Eng.26,683–710.

[8] Lynn, M., Boeing Company, & Airbus Consortium. (1995). Birds of prey: The war between Boeing and Airbus. Heinemann.

[9] Simply Wall St. (2022). Airbus (ENXTPA: AIR) - Share price, News & Analysis - Simply Wall St. [online]

[10] Woo, A., Park, B., Sung, H., et al. (2021). An Analysis of the Competitive Actions of Boeing and Airbus in the Aerospace Industry Based on the Competitive Dynamics Model. Journal of Open Innovation, 7(3), 192.