

A Work Project, presented as part of the requirements for the Award of a Master Degree in Economics / Finance / Management from the NOVA – School of Business and Economics.

Equity Research Delta Air Lines, Inc. - Shaping a Powerful Industry

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A Project carried out on the Master in Finance Program, under the supervision of:

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Abstract

This equity research report looks to provide context to an equity valuation of US-based airline Delta Air Lines, Inc. (DAL:NYSE). The report goes over the past performance of the Delta and its US-based peers while providing some insights on the company's operation. Afterwards, it reflects on the current industry conditions, where the COVID-19 pandemic takes the centre stage on the analysis. Finally, the report identifies future trends for the US airline market.

Keywords: Equity Research; Delta Air Lines, Inc.; US Airlines; COVID-19;

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DELTA AIR LINES, INC.

AIRLINE

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COMPANY REPORT

4 JANUARY 2021

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Deep dive into Delta Air Lines' Value Creation

How does the COVID-19 recovery look like in 2021?

- COVID-19 Recovery:** The biggest challenge for Delta in the next years will be its recovery from the Coronavirus pandemic. In 2020, we expect DAL to generate a net loss of \$10 billion due to travel restrictions and low passenger demand. Afterwards, Capacity is forecasted to grow at a CAGR of 3.9% between 2021 and 2026, surpassing 2019's all-time highs by the end of 2026.
- History of Operational Profitability:** Delta Air Lines was the most profitable US airline for the last 3 years. We forecast a return to operational profitability as soon as 2022.
- Strong Financial Position:** Delta enters 2021 with a D/E of 71.24% and a quick ratio of 87%. Delta's low D/E ratio of 33% coming into 2020 coupled with the \$9 billion liquidity injection approved by the US government allows the company to enter 2021 with enough liquidity to adapt its operations in the face of short-term losses.
- Most Profitable Airline Market in the world:** North American airline segment obtained a ROIC 9.9% in 2019, making it the most profitable region in the world.

Company description

Delta Air Lines is an US-based airline company founded in 1925. The company operates both passenger and cargo transportation within the US and worldwide. In 2019, Delta served more than 200 million passengers across more than 50 countries and 325 destinations. Delta is also invested in numerous international carriers through Joint Ventures and it operates separate business units in the MRO and oil refinery industries.

Recommendation: BUY

Price Target FY21: 49.70 \$

Price (as of 26-Mar-21) 40.21 \$

Reuters: DAL.N, Bloomberg: DAL:US

52-week range (\$) 17.51-62.48

Market Cap (\$B) 25.64

Outstanding Shares (m) 637.73

Source: Refinitiv Eikon



Source: Bloomberg

(Values in \$ millions)	2019	2020E	2021F
Revenues	47 007	16 765	24 291
Operating Income	7 671	-4 517	-3 457
Total comp. Income	4 603	-10076	-4 028

(Values in %)	2019	2020E	2021F
ROIC	18.5	-30.1	-9.3
Net Margin	15.1	-22.3	-11.8
ROE	30	-191	-321

Source: Refinitiv Eikon | Own computations

THIS REPORT WAS PREPARED EXCLUSIVELY FOR ACADEMIC PURPOSES BY TIAGO JESUS SILVEIRA, A MASTER IN FINANCE STUDENT OF THE NOVA SCHOOL OF BUSINESS AND ECONOMICS. THE REPORT WAS SUPERVISED BY A NOVA SBE FACULTY MEMBER, ACTING IN A MERE ACADEMIC CAPACITY, WHO REVIEWED THE VALUATION METHODOLOGY AND THE FINANCIAL MODEL. (PLEASE REFER TO THE DISCLOSURES AND DISCLAIMERS AT END OF THE DOCUMENT)

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1. Company Overview

1.1 Company Description

Delta Air Lines is an US-based airline company founded in 1925. Serving more than 200 million customers each year, Delta Air Lines is one of the leading US-based airlines and controls 22.1% of the US aviation market. At the end of 2019, the airline was operating 1340 aircrafts.

The company focuses mainly on domestic networks, from where it generates over 70% of its passenger revenue, but it also has an extensive global network which includes more than 300 destinations in over 50 countries. Delta Air Lines has hubs throughout important US and international airports. To increase its exposure to international markets, Delta has invested in Joint ventures with smaller international carriers and it created the SkyTeam, which is one of the three biggest airline alliances in the world. Additionally, Delta operates other adjacent businesses like Maintenance Repair and Overhaul and an oil refinery. Both business units service Delta Air Lines and its subsidiaries, as well as third parties.

1.2 Strategy

Delta Air Lines is in a competitive industry where the profit margins are slim, and cyclicity is a prominent feature. To differentiate itself from competitors and increase shareholder return, Delta follows three major strategic guiding points.

The first is focus on high paying customers, namely business travellers. To target them, Delta invested in premium products, in better customer segmentation, and in employee training. This long-term commitment has netted the company numerous prizes for its excellence in the business segment. In 2020, the company received the award for the best American Airline for business travel from the Business Travel News for the 10th year in a row. As stated in its annual report, "customer segmentation has enhanced our revenue growth and reduced reliance on the most price sensitive customer segment"¹.

The second guiding point is Delta's network design. Delta operates a Hub and Spokes model and it explores routes with less competition and less frequent flights. They have a 74% share of the world's largest hub, Atlanta GA, whereas their competitors do not have more than 72% in their major hubs². In regional

¹ Delta Airlines Inc. (2019). 10K 2019

² Source: Bureau of Transportation Statistics

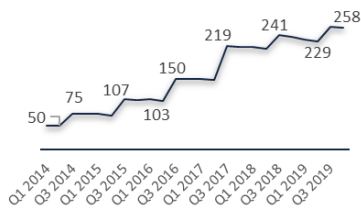
flights, 60%³ of their routes do not have any competitors. The lack of competition allows the company to increase fares and load factor. The result is a highly profitable network per amount of capacity supplied.

The final guiding point is the vertically integration of supply chains. Delta has acquired and built business units that are designed to reduce operational costs of the group. Delta has numerous subsidiaries, the most notable being the Maintenance, Repairs and Overhaul (MRO) unit called Delta TechOps and the refinery unit called Monroe Energy. These units not only provide services to the main Airline but sell their products to third parties for a profit. By controlling related business, DAL hopes to reduce its operating costs compared to competitors. However, Delta shares all the risk of the underlying businesses.

1.3 Shareholder Structure and Dividend Policy

Delta Air Lines' shareholder distribution is very fragmented. The only institution with more than 10% stake in Delta is The Vanguard Group, which holds 10.41% of the shares. The top 20 holders combined have a holding concentration of 38.02%. Most holders are either investment advisors or hedge funds. For this reason, we believe that shareholder structure will not have any influence in the future operations of the company.

Since its IPO in May 2007, Delta has only offered a consistent dividend payout between Q2 2013 and Q4 2019⁴. The fall in profitability due to the COVID-19 pandemic outbreak brought the dividend issuance program to a halt. Additionally, the CARES act package received by Delta to pay employee salaries stipulates that no dividend or share repurchase will take place before the 30th of September 2021⁵.



Graph 1: Dividends paid (in \$Million)
(Source: Bloomberg)



Graph 2: Dividend Yield and Share price
(Source: Bloomberg)

1.4 Management Team

Delta Air Lines' top management is characterized by its experience. Edward Bastian, DAL's CEO since 2016, has been in top positions at Delta for 22 years. He was serving as President of Delta during the 2008 recession and consequent recovery period (2008 - 2016). Alongside him, Delta has COO Gil West and CFO Paul Jacobson. Both have more than 15 years of experience working at top management positions at Delta.

This team has shown in the past the ability to adapt to dire business conditions and explore new market opportunities. In our opinion, this experience will be crucial to navigate the uncertain recovery period the airline industry is facing.

³ Bachman, Justin. Skift (2017) - Delta Holds an Edge Over Competitors by Dominating Less-Competitive Markets

⁴ DAL Dividend History (<https://www.nasdaq.com/market-activity/stocks/dal/dividend-history>)

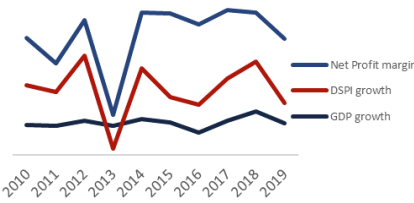
⁵ Delta Airlines Inc. (2020). 10Q 2020 report, 3rd quarter

2. American Airline Industry

2.1 A Cyclical Industry Going Through an Economic Recession

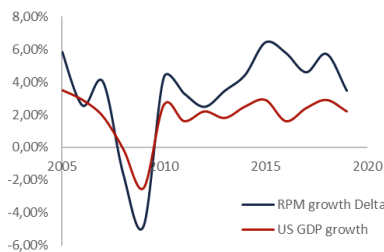
The Airline Industry is greatly influenced by the underlying economic conditions of the United States. The reason is simple: in expansions, leisure travel increases as disposable income increases for families; By the same token, business travel thrives when there is a lot of economic activity. Comparing US GDP growth and Disposable Income growth with airline profitability backs this claim.

For this reason, the stock performance hinges on the economic recovery of the United States. And while the estimated decrease in GDP for 2020 is around 4.3%, the IMF forecasts a strong rebound in 2021 of 3.1%. With the recent developments in the vaccine, we believe that this recovery is justified. Long-term, we feel confident that the United States will continue to grow at a steady rate of 1.8%. The US continues to be one the best countries to do business⁶ in and we believe that status will remain unchanged.



Graph 3: GDP growth, Disposable Personal Income growth, Net Profit margin

(Source: FRED, Economic Data, St. Louis)



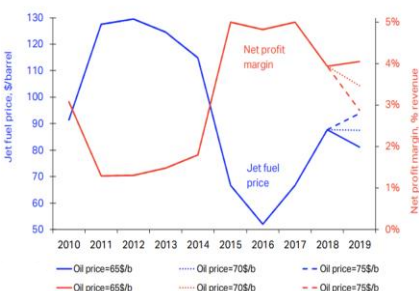
Graph 4: US GDP growth and RPM growth Delta

(Source: Bureau of Transportation Statistics)

2.2 Oil Price

The oil market changed dramatically over the last decade. The first part of the decade was dominated by the oligopoly of OPEC, which maintained supply deliberately low to keep price per barrel high. Between 2009 and 2014, the demand for oil increased 7.9%, whereas OPEC supply of oil only increased 3.28%⁷. But with the breakthroughs in fracking technology, countries like the United States were able to increase supply tremendously and, in turn, decrease oil prices. With the additional supply, the price of a barrel of oil remained between 40\$ and 75\$ from 2015 to 2019.

This newfound stability was destroyed by the COVID-19 pandemic. With the travel bans and the global economy coming to a halt, the demand for oil dropped sharply. As a result, oil stockpiles reached record highs⁸ all over the world and prices dropped sharply.



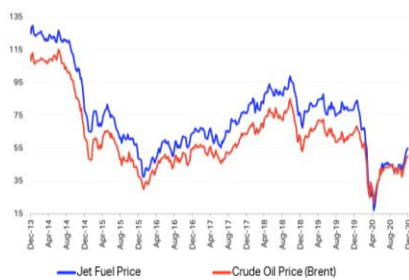
Graph 5: Jet Fuel price and Net Profit margin relationship

(Source: IATA Economics site, Platts, Datastream)

⁶ 6th in Ease of Doing Business rankings by The World Bank. (<https://www.doingbusiness.org/en/rankings>)

⁷ International Energy Agency. (2020). World oil supply and demand, 1971-2019 (<https://www.iea.org/data-and-statistics/charts/world-oil-supply-and-demand-1971-2019>). World oil production by region, 1971-2019 (<https://www.iea.org/data-and-statistics/charts/world-oil-production-by-region-1971-2019>).

⁸ EIA, U.S. Energy Information Administration. (2020). All-time high of 2,118 million barrels of crude oil and Petroleum Products in July 2020 (<https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WTTSTUS1&f=W>)



Graph 6: Fuel price & Crude Oil Price (\$/barrel) (Source: IATA Economics site, Platts, Datastream)

But despite the terrible first two quarters of 2020, Q3 and Q4 saw oil consumption levels recover 7%⁹. With the vaccination starting in December 2020, the future looks promising for the industry. Anthony Fauci, NIAID Director, said December 1st that he expects herd immunity in the US by the end of Q2 2021. Demand for oil products is expected to gradually increase as the economy opens. EIA's forecast for 2021 suggests that oil consumption could fully recover by the end of the year.

In our view, we believe that there will be some consolidation in the oil industry but not sufficient to decrease production and push prices to the levels of 2009 to 2014. Prices will hover around \$50 and \$75 for the foreseeable future.

2.3 9 Billion Dollars in Government Aid to Delta

A big factor in the recovery of the airlines will be the bailout packages received by the industry. In March of 2020, the US senate passed the CARES Act bill which provided \$25 billion in financial help to US airlines. The financial aid was issued to help the industry meet its salary costs until the end September. Delta was the recipient of \$5.6 billion divided between a grant totalling \$4.0 billion and a \$1.6 billion low interest rate loan. When comparing to total expenses in 2020, the \$5.6 billion cash injection represented 24%. In exchange, Delta could not conduct involuntary layoffs until the end of the period. Later in December, a new bill passed with a \$15 billion allocated to airlines¹⁰. That translates into a new cash-inflow of \$3.4 billion to Delta, once again to help pay employee salaries. This help will improve Delta's recovery process by making the company less reliant on the issuance of debt for short-term liquidity.

We believe that this will be the last financial package granted to the industry during the recovery period of the pandemic. With the vaccination efforts well under way, we believe that 2021 will be the year where the United States will turn the corner and recover from the health crisis. With an open economy, airlines will be able to recuperate their revenue streams and decrease their dependence on external financing.

2.4 Political Change and its impact on Delta

The November 3rd elections brought some change to the US political landscape. Joe Biden was elected president and the democratic party was able to hold the US House of Representatives. Whether the party regains the senate majority will

⁹ EIA, U.S. Energy Information Administration. (2020). Own calculation with data from <https://www.eia.gov/outlooks/steo/data/browser/#/?v=9&f=Q&s=0&start=201601&end=202104&ctype=linechart&motype=0&linechart=COPRPU>

¹⁰ The Wall Street Journal. (2020). (<https://www.wsj.com/articles/airlines-prepare-to-bring-back-thousands-of-workers-after-congress-passes-covid-19-aid-bill-11608658635>)

depend on Georgia's senate runoff elections happening on the 5th of January 2021. If the Democrats gain the two Georgia senate seats, the Democratic party will control the legislative process. With this comes the ability to push partisan legislation such as a new tax bill and new regulations. If that happens, we see two main legislative changes with significant impact on Delta.

First, the tax rate. On his campaign website, Joe Biden proposes an increase in the corporate tax to 28% (vs current tax rate of 21%). With a higher tax rate from 2022 onwards, the share price is expected to drop to \$48.99.

The second is new environmental regulations. There is significant pressure to enact ecological reform coming from the legislative branches of the US government, the most prominent initiative being the Green New Deal. While the implementation mechanism is still unclear, it is safe to assume that polluting industries like the airline business will be affected. The implementation can come in a form of a fuel tax for each gallon used. If the price of oil increases by 2% from 2021 onwards as a consequence of this measure, we forecast a share price decrease of 13.4% to \$43.03.

If Republicans retain the Senate majority, rules and regulations will stay the same since it will be very difficult for Democrats to introduce new legislation until the next elections¹¹. Polls suggest that Republicans will hold the Senate but both senate seats are within the margin of error.

2.4 Trends

The airline market is changing drastically due to changes in economic conditions and consumer behaviour, as well as health authority's guidelines. In our analysis, we identified four major trends that will have a significant impact on the business conditions for DAL.

1. Hub and Spokes will continue to dominate with lower passenger demand

When looking at route management, airlines can be divided into two main models: Hub and Spokes, and Point-to-Point (PTP).

In recent years, the Point-to-Point model became popular on the back of newer fuel-efficient aircrafts that reduced the breakeven price per seat. The trend was driven by low cost carriers that did not have the legacy assets the incumbent airlines had, leaving them more flexibility to adopt the model.

With the decrease in demand due to the pandemic, the economics of a point-to-point model cease to make sense. The PTP model relies on serving

¹¹ In 2022, there will be new elections for the US Senate and the US House of Representatives

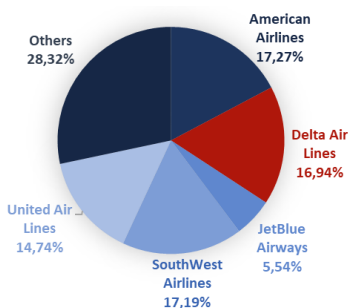
“underserved and overpriced markets”¹² to make a profit but, with low demand number, airlines cannot fill planes to justify having direct flights in their normal routes. For that reason, the Hub and Spokes model will be better at dealing with the decrease in demand of passengers. Delta Airlines already has its infrastructure and aircraft fleet optimized for this model, which will make the recovery process easier. We expect a full recovery of capacity by 2025.

2. Post-pandemic decrease in business travel can be as high as 25%

The second trend that will define the industry is the decrease in business travel. In 2019, 20% of the domestic trips were business related. This customer segment is pivotal for the Delta business strategy. They provide constant demand all year long and during the less busy weekdays. Additionally, research¹³ shows that they have lower price sensitivity when compared with leisure travellers. But with the paradigm shift brought by COVID, many companies have allowed employees to work remotely. With that, most personal meetings that required air travel were substituted with video conferences due to cost effectiveness and convenience. It is difficult to estimate the long-term impact on business travel, but industry experts expect drops as high as 25%¹⁴. With a larger number of employees working from home and companies unwilling to allocate as large a budget for travel, we believe that the business travel segment will be the slowest to recover to pre-pandemic levels. By 2023, we believe that only 17.5% of domestic trips will be business related. The impact will be mostly felt in passenger mile yield, which expected to recover to 17 cents per mile in 2026.

3. Lack of market consolidation

The third trend that will affect the industry is the push to avoid further consolidation. The US market continues to be dominated by legacy carriers. 67% of the capacity is split between only four companies. Unlike Europe, there were no significant entries in the market in the past decade that caused market fragmentation. In times of economic downturns like the one we are currently on, one would expect the airline market to consolidate even further. However, the recent financial aid provided by the government shows that, like it happened in the great recession of 2009, there is significant political pressure to avoid bankruptcies in the industry. We expect to see 3 outcomes from the lack of further consolidation: first, we do not believe that Delta Air Lines will be involved in a major M&A in the next 3 years; second, no major shifts in market share



Graph 7: U.S. Carriers – Domestic Capacity

(Source: Bureau of Transportation Statistics and own calculations)

¹² Cook, Gerald N., Goodwin, Jeremy. (2008). Airline Networks: A Comparison of Hub-and-Spoke and Point-to-Point Systems

¹³ Brons, M., Pels, E., Nijkamp, P. & Rietveld, P.. (2001). Price elasticities of demand for passenger air travel: a meta-analysis - Journal of Air Transport Management 8 (2002) 165–175

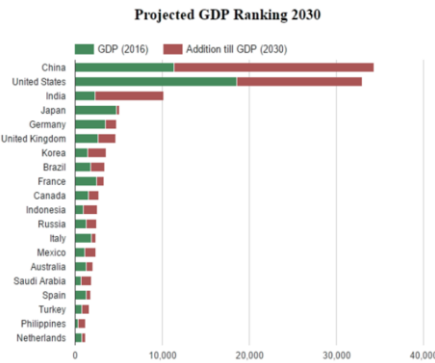
¹⁴ Financial Times. (2020). The death of the business trip? (<https://www.ft.com/content/cdd2ecad-eafe-4289-8ad1-78dac463a536>)

distribution between airlines in the next 3 years; third, we expect DAL's passenger mile yield to drop only 5.2% from its all-time high in 2019.

4. APAC countries will be the major driver of growth for International travel

The region is home to some of the fastest growing economies in the world. By 2030, it is expected that seven countries from the region crack the top 20 in terms of Real GDP. As a result, air travel in the region will explode. ICAO¹⁵ forecasts a capacity increase growing at 5.9% CAGR until 2035 for flights between Central Southwest Asia and North America¹⁶.

Leisure travel to these countries is growing and it will continue to do so as living standards and safety increase. Additionally, economic development will open new business opportunities to US firms, making business travel grow as a result.



Graph 8: Top 20 in terms of real GDP for 2030

(Source: IMF, World Economic and Financial Surveys, World Economic Outlook Database)

3. Delta Air Lines Cost Break Down vs Competitors

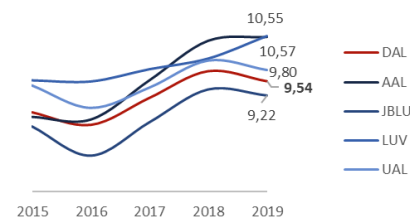
Delta Air Lines stood as the most profitable legacy carrier in the US in 2019. The company achieved those results by having comparable costs per ASM with the other legacy carriers (American Airlines and United Air Lines) while being better at generating revenue.



Graph 9: Revenue per ASM

(Source: Bloomberg | Own calculations)

In the past 5 years, Delta has been in the top 2 of the highest cost structures per ASM in the US alongside American Airlines. This is mainly explained by the cost of the ancillary business and refinery and the profit sharing commitment, which are cost captions that are not shared by other airlines. But in terms of core operational costs shared by all airlines¹⁷, DAL consistently ranks in the middle of the pack when comparing to its US peers.



Graph 10: Operational Costs per ASM

(Source: Bloomberg | Own calculations)

Salary expenditure tends to be the largest cost for US airlines. The airline business is labor intensive and an expansion in capacity must be accompanied by an increase in employee count. Looking at the past 5 years, DAL's expenditure on salaries was slightly below industry average, growing at a CAGR of 6.35% (compared to 7.07% of the industry). A possible reason for the salary trend is Delta's low number of unionized workers.

The second largest expense is fuel costs. As it was mentioned previously, fuel prices directly influence the profitability levels of an airline. With the purchase of Trainer Refinery in 2012¹⁸, the company betted on vertical integration to

¹⁵ International Civil Aviation Organization

¹⁶ ICAO, Long-Term Traffic Forecasts. (2008). (https://www.icao.int/sustainability/Documents/LTF_Charts-Results_2018edition.pdf)

¹⁷ Salaries, Fuel, MRO, Landing Fees, Aircraft rentals, D&A

¹⁸ Purchased under Delta Air Lines wholly-owned subsidiary Monroe Energy LLC

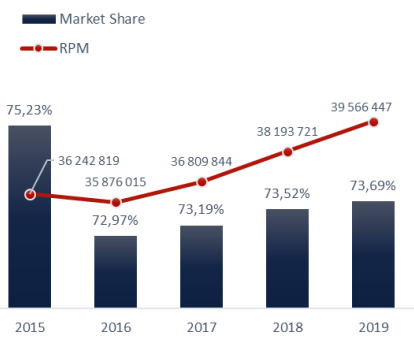
decrease fuel costs. But surprisingly, DAL had an above average fuel cost 4 out of the last 5 years. Despite the acquisition, Fuel cost per ASM was on average 0.12 cents higher in the last 5 years when compared to its peers. Given its track record and operational risk, it is difficult to justify the \$180 million purchase. It is a problem that can hold back the profitability of DAL in the future.

Regarding Maintenance, Repairs and Overhaul (MRO), Delta beats its competitors in cost per ASM. DAL has an older fleet, which makes it more prone to maintenance interventions and higher MRO costs. However, Delta has a business unit specialized in MRO¹⁹. This allows the company to save on the premium associated with third-party repairs and thereby decreasing the costs. This is a major advantage for DAL that we do not expect to be matched by their competitors.

The last major operational cost for US airlines is Landing Fees. Across the last 5 years, Delta consistently beat its peers on this cost caption and the main reason why is its bargaining power with airports. The price is directly linked with the bargaining power of the airline over the airports. The bigger is the market share of a single airline in an airport, the higher is the bargaining power of said airline. DAL is in a privileged position to negotiate with its main hub airport, Hartsfield–Jackson Atlanta International Airport. Delta has a 74% market share of the airport’s capacity. Additionally, other hubs where DAL operates on are also very reliant on Delta’s landing fees for revenue.

Note that only all three legacy carriers operate big regional operations. That is the main cause for the difference between total cost per ASM between them and JetBlue and Southwest Airlines (Low-Cost Carriers).

Summing up, Delta has shown consistently low core operational costs for a legacy carrier. However, the extra costs from other business units and initiatives propel Delta’s Costs per ASM to the top of the US industry.



Graph 11: Market Share and RPMs of Delta in Atlanta International Airport
(Source: Bureau of Transportation Statistics and own calculations | Own calculations)

4. Delta Air Lines - Competitive Analysis

4.1 Strong Balance Sheet Pre-Pandemic

As of December 2019, Delta Airlines had a total debt to equity ratio of 33%. The ratio was a result of almost 10 years of positive Net Income combined with a conservative policy of dividend payout and debt issuance. The resulting financial cushion reduces the probability of bankruptcy, allowing the company to pursue a more aggressive recovery plan. On top of its spending on new aircraft to

Company	Equity/ EV	Net Debt/ EV	D/E
DAL	75%	25%	33%
LUV	92%	8%	9%
UAL	57%	43%	75%
AAL	32%	68%	208%
AC	80%	20%	26%
JBLU	74%	26%	35%

Graph 12: D/E of Peers as of 31/12/2019
(Source: Eikon | Own calculations)

¹⁹ Delta TechOps

renovate its fleet, DAL continues to pursue terminal renovations like the one Delta is doing in LAX and New York La Guardia airports.

4.2 Most profitable US carrier in International

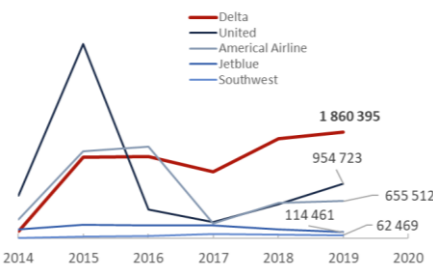
Travel

Delta Airlines has a very strong international presence. Among all international flights done by US Carriers in 2019, Delta represented 27.6% of the capacity compared to its domestic market share of 16.94%. Although DAL is not the market leaders in terms of capacity, it is the most profitable US airline when it comes to international travel.

The demand for international travel has exploded in the last decade. As the international markets expanded, other legacy carriers like United Airlines and American Airlines focused on increasing market share of capacity by opening a wide range of new routes, even at a loss. On the other hand, Delta did not increase capacity nearly as much and focused on higher yielding routes. This resulted in market leading profitability.

Another reason for Delta’s success internationally is their business alliances. As a founding member of the SkyTeam alliance²⁰, Delta can enter code sharing agreements²¹ with a wide variety of international airlines. The code sharing agreements enable DAL to sell seats to a broad number of traditional European and Asian gateway cities which are not economically viable otherwise. This is because, by entering a code sharing agreement, both airlines reduce costs by operating only one flight instead of two competing flights. Moreover, partnering with local airlines allows Delta to offer quality customer service like access to airport lounges in wide range of destinations for a fraction of the cost. This last feature is particularly important for high paying customers, which are the focus of the airline.

While 2020 was terrible for international travel and we expect a slow recovery in 2021, we are optimistic for the recovery process after 2021. The vaccination timeline in the US and across the world makes us we believe that restrictions on international travel will be lifted in by the end of Q4 2021. In our view, 2021 be in line with the numbers of 2020 and in 2022 will be the start of a swift recovery. With its superior financial resources and experience operating internationally, we believe that DAL will maintain its market share of capacity for international travel.



Graph 13: Net income from International travel (in thousands of Dollars)
(Source: Bureau of Transportation Statistics)

²⁰ SkyTeam is an international alliance between airlines. Members include Air France, China Airlines, China Eastern, KLM, Korean Air, and Middle East Airlines, to name a few.

²¹ Business arrangement in which two or more airlines market the same flight under their own airline brand and flight number. The flight is also included in the airlines’ own flight schedule

4.3 Highest Brand Value in the Industry

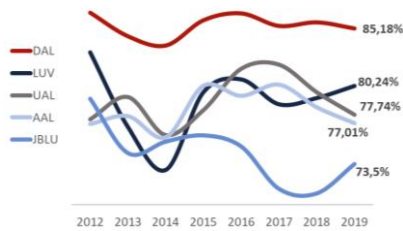
Delta has developed a very valuable brand over the years. Brand Finance estimates that the Delta Air Lines brand is worth \$9.2 billion, ranking first globally amongst airlines. As with any other brand, Delta Air Lines’ brand value is predicated on the perceived benefit of the brand by customers. The perceived value is later monetized by Delta by charging higher fares and by partnering up with third-party companies that want to use DAL’s trade name and products.

For an airline to perform well in this metric, it has to have a combination of these three factors:

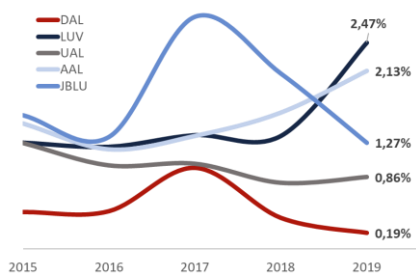
The first factor is the purchasing power of its customer base. Delta is a key player in the North America region, one the wealthiest geography in the world. Its access to the large population with high standards of living means that a loyal customer base is worth more in terms of brand value. This is the reason why North American Airlines dominate the ranking. Furthermore, DAL differentiated itself over the years by being the best Business Airline in the US, thus capturing a larger portion of the coveted subset of clients.

The second factor is the size of its customer base. As of 2019, the Delta’s main airline transported 162 million passengers or 17.5% of passengers transported by US carriers. Given its prominent position in the market and better than average financials, we forecast the company to retain its status as one of the biggest airlines in the US.

The final factor is operational reliability. Delta is the best legacy carrier when it comes to operational reliability. To estimate operational reliability, we used a combination of number of flights that arrived on time to their destinations and the number of flights that were cancelled. The metric used to measure timely arrivals is on-time-performance (OTP). It represents the ratio between flights that arrive on time divided by all the flights of an airline each year. And for 2019²², DAL came second behind Hawaiian Airlines with 85.18% of all flights reaching their destination on time. Regarding flight cancellations, the metric used to evaluate it was Flight Cancellation Rate (FCR). For Delta, that number was 0.19% in 2019. In the future, we expect Delta to retain its position as the most reliable legacy carrier due to high investment on non-flight equipment and route management software, as well as investment in airport terminals. As a result, Delta’s SkyMiles Program revenue will grow at a CAGR of 5%.



Graph 14: Reporting Operating Airline On-Time Arrival
(Source: Bureau of Transportation Statistics)

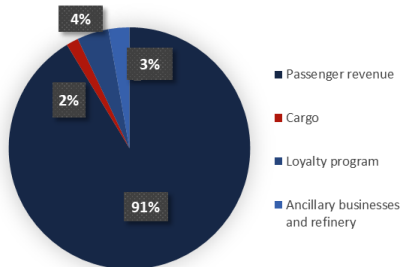


Graph 15: Flight Cancellation Rate
(Source: Bureau of Transportation Statistics)

²² 2020 values were disregarded due to the COVID-19 pandemic

5. Key Value Drivers

Revenue Breakdown



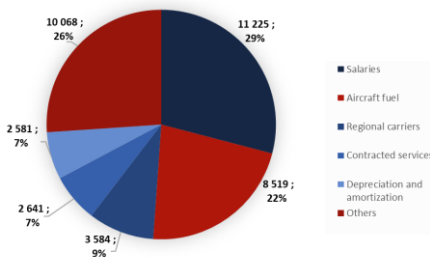
Graph 16: Delta's Revenue Structure
(Source: 10K Delta Air Lines Inc. Annual Report)

Delta Air Lines' total revenue can be broken down into 3 types: Airplane transportation, Loyalty Program and Ancillary businesses and refinery.

Airplane transportation includes passenger revenue and cargo revenue and together they accounted for 93% of total revenue in 2019. Passenger revenue depends on Available seat miles, passenger mile yield, and load factor and each requires individual estimation. On the other hand, cargo revenue is highly dependent on passenger revenue because nearly all the cargo revenue is obtained by using extra room in passenger airplanes to use for cargo transportation.

The other two sources of revenue are not strictly linked to passenger revenue. Loyalty Program revenue is generated by flying on Delta, but also from contracts with third-party companies where Delta travel benefits are offered. Currently, the biggest partner is American Express and cash sales from this deal were worth \$4 billion in 2019. The value of the contracts is closely related to the evolution of Delta's brand value.

The final revenue source for the company is its Ancillary business and Refinery. This caption includes aircraft maintenance provided to third parties, Delta's vacation wholesale operations, Delta's private jet operations, and refinery sales to third parties.



Graph 17: Delta's Cost Structure
(Source: 10K Delta Air Lines Inc. Annual Report)

Cost Breakdown

Delta's cost structure can be divided between costs linked to capacity and costs linked to other value drivers. Prime examples of costs in the first category, are Aircraft Fuel, Regional Carrier Expenses and Salaries. They all depend greatly on capacity, so their estimation was conducted using ASM. On the other cost category, the most important cost drivers are the Ancillary business and refinery cost and depreciation.

6. Forecast

Revenue

Total Revenue for DAL is mostly driven by passenger revenue. The figure accounted for around 91% of Revenue for the airline in the past 5 years.

The forecast of Passenger Revenue can be broken down into 3 steps: 1. Capacity available to sell to clients; 2. Prices charged to customers; 3. How full are the planes travelling.

There are standard metrics in the industry to track each parameter of Passenger Revenue. For capacity, the metric forecasted was Available Seat Miles (ASM). For price, the metric was Passenger mile yield. And for fullness, Load factor.

Summing up, the Passenger Revenue forecast will be given by the formula:

$$\text{Passenger Revenue} = \text{ASM} * \text{Passenger Mile Yield} * \text{Load Factor}$$

- Available Seat Miles

ASM is a metric of capacity that sums up all the miles flown by each seat of an airline's fleet.

ASM is sensitive to 3 factors: the number of planes used, the distance each plane is travelling per year, and the number of seats in each plane.

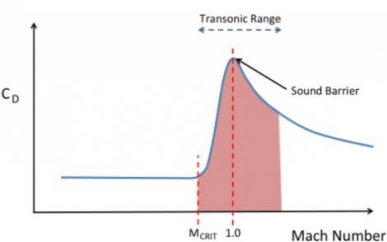
Similar to Passenger Revenue, ASM is calculated by multiplying three factors:

$$\text{ASM} = \text{Average Mile Flown per Plane} * \# \text{ Airplanes} * \text{Average Seats per Airplane}$$

The first factor, **Average Miles Flown per Plane** (AMFP) is a metric that reveals how much are Delta's planes travelling in one year. This is a factor that depends on average airplane speed and airtime, and both components are very hard to improve upon.

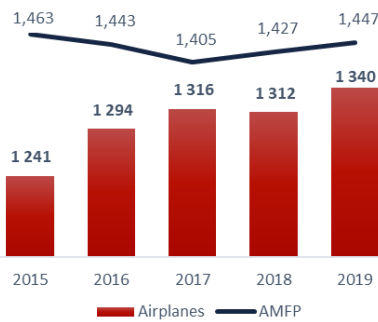
The average airplane speed limitation comes from the physics of engine design. The overwhelming majority of planes owned by Delta have turbofan engines, which are engines that are most efficient at speeds around 500 and 550 miles per hour. Regardless of age or technology, all turbofan engines operate optimally at that speed range. Newer turbofan engine models are installed not to reduce travel time by increasing speed, but rather to decrease the fuel needed to operate them. On top of that, flying above Mach 0.8²³ (613 mph) increases the drag experienced by an aircraft and, consequently, decreasing fuel efficiency.

The other way to improve AMFP is to increase airtime for each plane. Although better airplane management techniques and better aircraft autonomy might help increase airtime per plane, the growth of the air transportation industry is causing greater air traffic congestion. The added congestion will make improving airtime per plane harder each year.



Graph 18: Coefficient of Drag changing with speed.
 (Source: Skybrary)

²³ M_{crit} is equal to Mach 0.8. At this velocity, an aircraft begins to travel within the "Transonic Range". Source of Graph 18: https://www.skybrary.aero/index.php/Transonic_Flight



Graph 19: Delta's number of airplanes and AMFP, in million
(Source: Delta Report | Own calculations)

Historical data backs the notion that improving AMFP is very difficult. In the past 5 years, AMFP has remained constant at around 1.45 million miles. For these reasons, we feel comfortable to assume that the long-term trend for average miles per plane is around the values registered in the past 5 years.

This means that capacity is mainly driven by the other two factors: Number of Airplanes and Average Number of Seats per Airplane. To forecast both figures we analysed Delta's fleet composition, retirement of aircrafts and purchasing agreements, as well as overall market trends.

Delta is investing in two main types of aircrafts: narrow-body aircrafts for short-to-medium range²⁴ and wide-body aircrafts for long-range²⁵ travel. With the more efficient engines, the new narrow-body aircrafts are economically viable in a wider range of settings. This versatility allows Delta to replace smaller aircrafts meant for shorter routes by larger aircrafts like the Airbus A321-200neo. Additionally, the new wide-body aircrafts are slightly bigger than the fleet they are substituting. For these reasons, we expect an increase in average number of seats per plane of 0.5% per year until 2030 in line with the growth rate during the business plan. More details on fleet composition are available in the PPE section of the report.

▪ **Short-term Dip in ASM due to COVID-19**

Planes are going to be used less frequently in the next 3 years as the industry recovers from the pandemic and demand picks up. To calculate the impact of the pandemic on ASM more accurately, we analysed data from the Bureau of Transportation Statistics.

The available data from 2020 suggests that Delta's market share of capacity dropped slightly when compared to 2019 values. In real terms, this represents a forecasted 2020 ASM of 125 348 million miles, which is in line with our estimation using the previous method.

▪ **Passenger mile yield**

Passenger mile yield is a metric that tracks how much money an airline generates per client on a mile basis.

The second half of the 2010s has seen passenger mile yield increase to all-time highs on the back of demand caused by the US economic growth. In the 5 year stretch between 2015 and 2019 the metric grew at 1.76% CAGR.



Graph 20: Delta Air Lines ASM Estimation
(Source: Own calculations)

²⁴ Most important aircrafts: Airbus A321-200neo and Airbus A321-200 (321)

²⁵ Most important aircrafts: Airbus A330-900neo (339) and Airbus A350-900 (359)

Despite the negative impacts of COVID-19, we expect the metric to remain high in 2020. Due to the pandemic, Delta flew domestic flights almost exclusively, which are the flights with higher passenger mile yield. On top of that, the US airlines industry is highly consolidated, which prevents a steep downfall in terms of ticket fares. For this reason, we forecast 2020's mile yield per passenger at 17.3 cents per mile.

The real impact of COVID on passenger mile yield will occur when travel restrictions are lifted in the second half of 2021. Historically, international flights have produced passenger mile yields that are 30% lower than domestic flights. One of the reasons being that most of the flights are long-haul and they generally have less costs per ASM. And with international flights resuming, the average passenger mile yield will go down to levels around the ones in 2015.

Afterwards, we expect a strong rebound on the back of a swift economic recovery of the United States, reaching 16.8 by 2024. The domestic market will continue to be the largest in terms of capacity and revenue, and US economy growth directly enhances business and leisure travel.

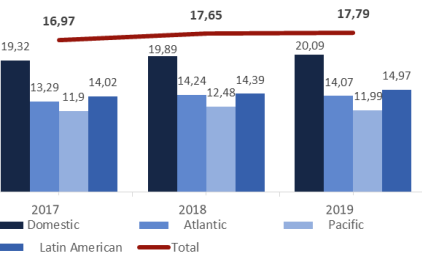
For the following period between 2024 and 2030, we expect a strong increase in capacity from APAC countries. As countries in the region develop, economic ties with the US tighten and leisure travel to the countries become more accessible.

▪ Load Factor

The Load Factor metrics captures how full an airline's airplanes operated during a specific period²⁶. This metric is mainly affected by passenger demand and route management. For the period between 2015 and 2019 (apart from 2016), Delta led the industry in load factor with numbers above 84.5%. The success is explained by its hub and spokes model, individual route management and overbooking strategy.

But as most other metrics, the Load Factor plunged during the COVID-19 outbreak to record lows on the back of low travel demand and sanitary restrictions. DAL took it a step further and implemented a company policy limiting seat availability until March 2021 to make people more comfortable when travelling²⁷. This policy is estimated to reduce maximum load factor capacity to 65%. As a result, load factor is forecasted to be 62% for 2021.

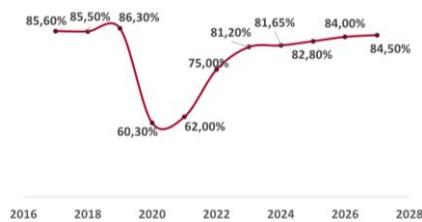
To forecast load factor recovery for the rest of the business plan and beyond, it is important to understand customer outlook on COVID-19. A study conducted in



Graph 20: Delta's Passenger Mile Yield: Domestic; International (Atlantic, Pacific and Latin America); and Total (Source: Bloomberg)



Graph 21: Passenger Mile Yield in \$ – Delta Air Lines (Source: Bloomberg | Own calculations)



Graph 22: Load Factor per year – Delta Air Lines (Source: Bloomberg | Own calculations)

²⁶ For example: a Load Factor of 85% means that, on average, the airline was able to book 85 out of every 100 seats.

²⁷ Delta Air Lines (2021). (<https://news.delta.com/delta-only-us-airline-block-middle-seats-limit-onboard-capacity-through-march-30-2021>)

June 2020 focused on aging population travel habits found that 60% of interviewees are likely to travel within the next 12 months. Additionally, researchers found that a working vaccine was one of the deal breakers in the decision-making process for the elderly population. This suggests that demand for leisure travel will not change much after the pandemic, even for the older population.

However, business travel is expected to take more time to recover due to budgetary cuts brought on by the economic recession and less propensity to travel from employees.

All-in-all, we expect Delta's load factor to recover by 2026. As for which value it will recover to in 2026 and beyond, we estimated that value to be 84.5%. This value is slightly below the average load factor of the past five year to account for the cyclical nature of the industry.

- **Loyalty Program**

Delta offers its customers discounts if they sign up to their SkyMiles loyalty program. Anytime they fly and use the program, they are rewarded with "miles". These miles are used to redeem discounts in air travel or other products like hotel accommodation.

Additionally, Delta partners with third party companies that offer Delta travel rewards in their products. Studies²⁸ have shown that travel rewards are one of the most popular reward types in credit cards. The value of a good partnership with an airline will only increase in the future since Millennials and Zoomers prefer travel rewards over.

We believe that Delta Air Lines is in prime position to take advantage of the trend. Companies in the credit card space and in the travel industry are eager to work with Delta due to its strong brand. The most notable partnership is with American Express, which offers four Delta SkyMiles credit cards. The partnership was renewed in 2019 and will extend until 2029.

For this reason, we believe that loyalty program revenue will continue to grow despite the short-term decrease in passenger revenue due to the pandemic. We expect loyalty program revenues to grow at a CAGR of 5% until 2030.

- **Ancillary Business and Refinery**

The caption is composed of Maintenance, Repair and Overhaul services provided to third parties, Refinery sales to third parties, Delta's vacation

²⁸ TSYS (2018). (www.tsys.com/Assets/TSYS/downloads/rs_2018-us-consumer-payment-study.pdf)

wholesale operations, and Delta’s private jet operations. Although the caption is relevant in the Delta’s financial result, not every component is.

In 2019, the refinery sector accounted for only 30% of all the revenue in the caption. This is because most of the oil refined products are used in the Airline segment operation, which is included in the company’s fuel cost. The excess is traded and sold at market values, which translates into a low operating margin of around 2%. Given its marginal impact on the caption, we disregarded the refinery segment in these calculations.

Similarly, vacation wholesale and private jet services representation in the caption is negligible. In the past 5 years, they accounted for less 15% of yearly Revenue of Ancillary Business and Refinery. Additionally, we do not expect explosive growth from either caption. Thus, we disregarded both factors as relevant business drivers.

This leaves the Maintenance, Repair and Overhaul (MRO) business unit as the largest driver of ancillary revenue. Delta TechOps²⁹ not only services Delta’s own fleet, but also does MRO to third parties. Their customers include other airlines, government organizations and military branches.

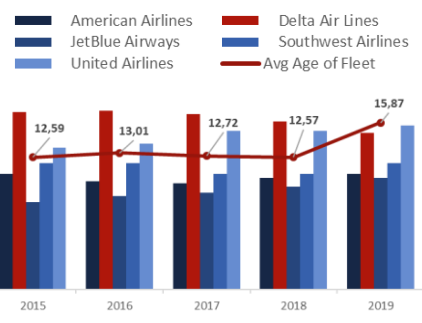
In 2020, the demand for MRO increased drastically. With airplanes grounded due to lack of consumer demand, many airlines took the opportunity to undergo major maintenance in their fleets. The third quarter report of 2020 suggests that MRO revenue will be up 25% when compared to 2019. This is a trend that we expect to continue until the end of 2021 as the pandemic restrictions are lifted and capacity increases once again. As a long-term trend for growth rate for the MRO segment, we expect a similar growth rate to the airline industry as a whole.

▪ PPE

Flight Equipment

Delta Air Lines’ aircraft purchases strategy has changed over the years. In the past, DAL opted to buy used aircrafts from other airlines instead of investing in brand new ones. This strategy decreased the initial capital investment per aircraft in exchange for slightly higher maintenance costs and shorter aircraft lifespan due to the advanced age of the aircrafts. Additionally, it provided the company with a cost-effective way to adapt the capacity supplied and grow the operations profitably.

On average, Delta’s fleet was 4 years older than the industry average for the period between 2015 and 2018.



Graph 23: Average Age of Fleet (Peers and Avg. of the Industry)
(Source: Bloomberg | Own calculations)

²⁹ MRO division of Delta Air Lines

However, older aircrafts have two major problems: 1) they don't provide the best experience to clients, which goes against DAL's goal of offering premium products; 2) they consume more fuel than newer models, thus affecting profitability and ecological footprint.

Currently, Delta is undergoing both a fleet renovation and a simplification process. The company is ordering new aircrafts instead of used ones and its order backlog has only six plane models, all of them manufactured by Airbus. Less airplane models from only one manufacturer allows the company to save on training costs for pilots and maintenance personnel, as well as saving in spare part inventory³⁰. At the beginning of 2020, the DAL's Airbus order totalled 247 aircrafts. These investments can be a double-edged sword since they will leave the company over reliant on few airplane models and on Airbus. If a major grounding like the one that occurred to the Boeing 737-max in 2019 hits one of the new Airbus models they are buying, the company can see a decrease in fleet size of 10% over night.

With the COVID-19 pandemic, the Delta's long-term commitment to receive 247 airplanes from the European Aircraft manufacturer was put on hold. The shift in the strategy can be seen by comparing the purchase commitment of the end of 2019 and the third quarter of 2020 side by side. The company opted to delay nearly all their orders to reduce cash out-flow in an uncertain post-covid recovery.

However, we do not expect aircraft orders to be altered further. Delta is aggressively retiring old airplane models to give space to newer, more efficient ones. In 2020 alone, the company retired 9 models, totalling up to 148 airplanes. With models like the Airbus A320-200 and Boeing 767-300ER reaching an average age close to 25 years, we expect a gradual retirement of said aircrafts. With this expected retirement scenario, we believe that DAL has no choice but to fulfil their aircraft purchasing commitments.

The last important figure to determine is capital investment on Flight Equipment is the price per airplane. Airplane prices are highly confidential and are negotiated with every airline separately. Thus, pricing will be difficult to estimate correctly. Nevertheless, it is a known fact in the industry that actual prices paid by airlines are below listed prices. The discount is usually around 50 and 65 percent. Given the size of Delta and the size of the aircraft order to Airbus, it is safe to assume that the discount was even greater. Using this assumption and Airbus's most recent list prices, the average cost per model was computed. The forecasted expenditure matched the estimates released in the 10Q reports, giving us confidence that the prices estimates are accurate.

Aircraft (in \$millions)	
	Price
Airbus A220-100 (221)	22,68
Airbus A220-300 (223)	32,025
Airbus A321-200 (321)	29,575
Airbus A321-200neo	45,325
Airbus A330-900neo (339)	118,56
Airbus A350-900 (359)	126,96
CRJ-900	16,275

Table 1: Price per Airplane Model - Estimate
(Source: Airbus | Own computations)

³⁰ We forecast a 2% increase in efficiency MRO costs per ASM flown until 2030

After the business plan, the growth rate of flight equipment is forecasted to stabilize at 5% from 2024 to 2030. This is in line with our growth expectations for the US airline industry and with the planned retirement age of the fleet. The expansion of the Asian market coupled with the increase in disposable income for Americans in the post pandemic years will drive the growth of the industry. Afterwards, the growth will drop slightly to 4%, which is in line with the growth rate of the US economy.

PPE excluding Flight Equipment

While not very big in relative terms, PPE excluding Flight Equipment is still a big portion of capital invested for Delta Airlines. These assets include Ground property and equipment, Information Technology-related Assets, Flight and ground equipment under finance leases, and Advance payments for equipment.

The forecast of this caption closely follows the forecast of the Flight equipment. Historically, Flight equipment represented around 76% of total PPE and we do not believe that the ratio will drastically change. The two main driver of PPE excluding Flight Equipment, Ground Property and Equipment and Information Technology-Related Assets, are directly linked with Delta’s growth of the airline business. Thus, the forecasted values for PPE excluding Flight Equipment are linked to Flight Equipment and the ratio between the two is constant at 76%.

Costs

- Aircraft Fuel and related taxes

Fuel price is always an important factor on an airline’s profitability. In the last 5 years, this caption hovered around 15.3% and 20.5% of Total Net Revenue. The final cost paid by the airline can be broken down into 3 components: Commodity prices, fuel efficiency of the aircraft fleet and total miles flown.

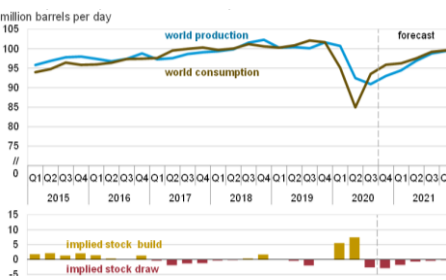
As mentioned before, we believe that oil prices will hover around \$50 to 60\$ for the next 3 years. As the global economy reopens, demand for oil products has picked up. The fear of a long recovery period of demand did not materialize, meaning that there will not be as many problems when it comes to short-term liquidity. The V-shaped recovery of Q3 and Q4 of 2020 makes it unlikely that major disruption in the industry occurs.

With the oil demand forecasted to reach its pre pandemic levels by the end of 2021, we expect a similar price range to the one during 2015 to 2019.

Note that share price can change a lot with small changes in oil price estimates. If prices are 2% lower each year, the target price for 2021 will increase 13.6% to \$56.46 per share.



Graph 24: World liquid fuel consumption
(Source: eia, U.S. Energy Information Administration. Short-term Energy Outlook, Dec 2020)



Graph 25: World liquid fuel production and consumption balance
(Source: eia, U.S. Energy Information Administration)

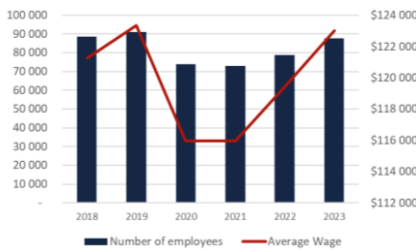
Regarding Aircraft Fuel Efficiency, we can see that it has been growing in the past 5 years at an average rate of 1.38%. Better route management and fleet renovation were the main culprits.

This is a trend that we expect to accelerate in the next 4 years due to early retirements of older aircrafts and the purchase of new, more efficient ones. Delta is investing in 143 new aircrafts until 2024. The highest ordered model is new Airbus A321-200neo, which Airbus claims that provides a 20% fuel saving per seat when comparing with previous models³¹. The other models have a similar efficiency gains over the planes they are replacing.

For the period until 2023, we are forecasting a yearly improvement of 1.5%. Afterwards, fuel efficiency will continue to improve, but at a lower rate of 1% per year since the proportion between new aircrafts and old aircrafts will shift.

▪ **Salaries**

The Salary expenditure is an expense that is closely related with the capacity output of the airline. The airline business is a labor-intensive industry that will not change anytime soon. Delta will continue to need the same number of pilots, flight attendants, ground personnel and maintenance experts in the future for a similar number of flights flown since these jobs are not easily automated or cut back. Looking at the ratio between ASM and number of employees, there is a balance between ASM and number of employees that remains stable over the years which corroborates the previous claim. Since we do not expect a big change in the labor market in the industry, we assumed that the ASM/number of employees ratio to remain the same for the future.



Graph 26: Number of employees and average wage forecast for DAL
(Source: 10K Reports | Own Calculations)

However, the COVID pandemic hit the airline business particularly hard and the recovery process includes a short-term downsize of the team. In 2020, DAL implemented two measures to control Salary expenses. First, Delta offered early retirement plans to employees. In total, close to 17000 employees signed up for the plan and retired on the 1st of October³². Second, the company proposed voluntary unpaid leaves for a period of up to 12 months. In its latest report³³, the company stated that around 50000 employees took unpaid leaves. Because of these cost saving measures, salary costs in 2020 were 23.6% lower when compared to 2019.

As capacity increases throughout the year of 2021, employees will be integrated back to the normal operation of the airline. We expect most of the employees that

³¹ <https://www.airbus.com/aircraft/passenger-aircraft/a320-family/a321neo.html>

³² Financial Times (2020) - Delta steers 17,000 staff into early retirement (<https://www.ft.com/content/e15a0e4f-cf51-42ee-8342-d9b13d484dc3>)

³³ 10Q report Delta Air Lines - 3rd quarter 2020

took the unpaid leave to return by the end of 2021 on the back of a 60% recovery in capacity. We forecast that, by 2024, the ratio between ASM and number of employees will match the long-term trend of 2.983 once again and remain stable thereafter.

As per salary growth, we expect salary stagnation until 2022. Despite the high levels of unionization in the airline industry, Delta stands out as one of the companies in the US with the lowest amount of unionized labor. This allows the company to hold back salary increases while the industry recovers.

Afterwards, we expect the salaries to grow 0.9% above inflation rate. One of the main drivers that for the salary increase is the pilot shortage that will hit the airline labor market³⁴. This pilot availability problem will be caused by three trends: the high number of mandatory age-related pilot retirements; the increasing demand of regional airlines for pilots; and the lower number of potentially qualified pilots applying for airline positions. With a limited supply of new pilots, it will become harder for carriers to fill their vacant spots, creating pressure for salaries to increase.

▪ Regional Carrier Expense

While composing a small fraction of the total ASM for Delta, Regional Carriers are essential in the US Domestic market. According to Pew Research Center, 14% of the US population lives in rural areas and 55% in Suburban areas. Often, the only viable way to serve these customers is with smaller Regional flights. And despite the small size of operations, the lack of competition means that passenger mile yields and load factors of these flights can be very attractive for the Airline.

Regional Carrier Expenses encompass all the expenses from Delta's operation of regional carriers, except fuel costs. To serve small and medium-sized cities in the US, Delta has capacity purchase arrangements with three regional carriers. The costs associated with these agreements are '*based on a determination of their cost of operating those flights*'. To estimate the cost of operating those flights, we resorted to capacity estimation.

In 2020, we estimate that ASM attributable to Regional Carriers will increase in relative terms to 13% due to the decrease in international flights. Afterwards, we believe that it will gradually decrease to pre pandemic values of around 10%.

³⁴ Lutte, Rebecca (2014). An Investigation of the United States Airline Pilot Labor Supply, from https://www.researchgate.net/publication/249315130_An_Investigation_of_the_United_States_Airline_Pilot_Labor_Supply. In a 2014 paper published on Journal of Air Transport Studies, researchers suggest that there will be a shortage of 35000 pilots between 2013 and 2035.

To estimate costs, we resorted to using an average dollar cost per ASM. By looking at the previous five years it is clear that regional flight expenses tend to hover around 14 cents per ASM. This is 5 cents above the average dollar cost of an ASM for the whole company, which is to be expected from capacity purchase agreement. Given the bargaining power that Delta has over its regional carrier partners, we expect an increase in price per ASM following the inflation rate.

- Ancillary Business and refinery

Ancillary Business cost is closely related to the revenue amount. Over the period between 2015 and 2019, its profit margin hovered around 5%. Even when demand spikes, profit margin remains steady. Since there is no major trend that makes us believe in an improvement in profitability, we expect no change in the profit margin for the future.

- Depreciation and Amortization

To forecast depreciation and amortization, we made two assumptions. First, the accumulated depreciation and amortization was split between flight equipment and non flight equipment according to the ratio between them. Second, the average life cycle of flight equipment was set to 25 years and 5 years for the non-flight equipment, in line with the reported guidelines by the company.

Note that in the 2018 and 2019, the company included the accelerated depreciation related to the early retirement of some of their aircrafts, skewing values for these years. That was not the case for the early retirements caused by the COVID pandemic in 2020. These losses in value were captured in the impairments caption of the balance sheet. That is why the values fluctuate across different periods.



Graph 27: Depreciation and Amortization
(Source: Own Calculations)

7. Valuation

Discounted Cash-Flow

- Cost of Debt

Cost of debt was calculated using the yield-to-maturity method. This method uses the following formula to calculate the return on the debt asset:

$$\text{Cost of Debt} = \text{Yield} - \text{Probability of Default} * \text{Loss Given Default}$$

Yield was calculated on their \$1.25 billion bond issuance that matures in January 2026 and its value was 3.8%. To estimate the Probability of Default (PD) and Loss Given Default (LGD) parameters, we opted to use two methods. First, we used the CDS market rates to obtain the implicit PD and LGD. The implicit market quotes suggest that PD and LGD is 2.43% and 70%, respectively. One concern we have using this method is rate accuracy due to low liquidity in the CDS market. However, given that DAL is a prominent company in the world with a market cap of \$25.6 billion, we feel that the market is liquid enough to provide good inputs. The second method used was by using a Moody's estimations given credit ratings. In October 2020, Standard & Poor's downgraded the credit rating of Delta to BB+. According to the estimates of Elton et. al³⁵, this rating is associated with a PD of 1.2% and a LGD of 60.92%.

We believe the CDS method provides the most accurate representation of the credit risk of the corporation, thus we ended up using that estimation in our model.

- **Cost of Equity**

The cost of equity required by Delta Air Lines investors is estimated to be 8%. This result was derived using the CAPM. Thus, the final estimate for cost of equity is a function of risk-free rate, Market Risk Premium (MRP) and the sensitivity of Delta to the market fluctuations.

To estimate risk-free rate we used the yield to maturity of the 10-year US bond as of 31/12/2020. Given the long-term investment horizon of the equity investment, we believe that the best estimate for risk-free rate is the yield of a high maturity bond. For Market Risk Premium, we used the estimates from A. Damodaran's team of 5.46%³⁶. This MRP is derived from the average cash-flow payments of the US stock market in the last 10 years.

For the market sensitivity, we first calculated the unlevered beta for DAL and a set of comparable companies by regressing each against their respective market index benchmark. By looking at the 2-year rolling beta graph we can see a spike in levered betas at the beginning of 2020 due to instability caused by Coronavirus. Delta's levered beta jumped from 1 in January to 2.2 in March, stabilizing at around 2 for the rest of the year. This jump is explained by the way the airline industry was affected by the pandemic. COVID-19 affect disproportionately the travel industry, making it more prone to price swings

³⁵ Elton, Edwin J., 2001. Explaining the Rate Spread on Corporate Bonds (http://people.stern.nyu.edu/eelton/working_papers/explaining_rate_final_JF.pdf)

³⁶ Value retrieved in December 2020. Source: <http://pages.stern.nyu.edu/~adamodar/>

whenever new information about the economic outlook and timeline for the vaccine reached the market.

For 2021 and beyond, the DAL stock is expected to vary with new market information but to a lesser extent. With the vaccination process under way in many countries, one of the biggest uncertainties in the stock market disappeared. With less uncertainty about the recovery timeline, there is less uncertainty to price in.

By looking at historical data, one can see that the average unlevered beta of the Air Transport industry falls between 0.6 and 0.9³⁷. Given the current circumstances, we believe that an unlevered beta of 0.9 reflects the added volatility short-term volatility introduced by the pandemic without overestimating the market correlation of the equity in the post-pandemic period.

Lastly, we submitted the model through a sensitivity analysis. As demonstrated by the sensitivity analysis, the share price swings 13.4% with a 0.05 swing in unlevered beta in either direction.

Target Price of \$49.70 for FY2021

Delta Air Lines' free-cash flows were forecasted until FY2035, when the cash-flows reached steady state. Since the capital structure will evolve across time, we opted to use the Adjusted Present Value method.

Using the APV method, we first discounted the cash-flows by the return on equity unlevered, which resulted in a present value of \$50.2 billion. To compute the remaining present value created by the capital structure of the company, we discounted tax shields generated by the debt using the return on assets (or return on unlevered equity) and not return on debt. This reflects our belief that the tax shields do not offer the same risk profile of debt since they are highly dependent on company profitability, which is uncertain in the current environment. The present value of tax shields totaled \$4.9 billion. After taking into account the current levels of debt and non core book value, the current value of equity is estimated to be \$31.7 billion.

Our target price is \$49.70 per share. The expected return equals 23.25% and it will come from capital gains since Delta Air Lines will not issue any dividends in 2021. Given this return profile, we recommend investors to **BUY**.

Lastly, we performed a sensitivity analysis with the two inputs of our valuation model: cost of equity and long-term economic growth. Results can be found in the table 3.

Inputs	
Ru	5,8%
Long term G	1,35%
Net Debt (@2021)	\$ 23 372
Shares outstanding (in millions)	637,73
Output	
Sum Present Value of Unlevered FCF	\$ 56 187
Sum Present Value of Tax Shields	\$ 4 895
Non core Book Value (@2021)	\$ (6 016)
Unlevered Enterprise Value	\$ 50 171
Levered Enterprise Value	\$ 55 067
Value of Equity	\$ 31 694
Share Price	\$ 49,70
Transaction with Shareholders (@2021)	0

Table 2: Summary of APV model output
(Source: Own computations)

G	Ru		
	5,6%	5,8%	6,0%
1,25%	53,06	48,42	44,17
1,35%	54,49	49,70	45,32
1,45%	55,99	51,03	46,51

Table 3: Sensitivity Analysis (in dollars)
(Source: Own computations)

³⁷ Source: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/Betas.html

Conclusion

The evidence put forward in this report indicates that Delta Air Lines will generate attractive returns for shareholders in the next fiscal year.

COVID-19 and its recovery process will dictate the profitability levels of the airline industry and, in turn, stock performance for 2021. After the terrible year of 2020, the start of the vaccination process in December helped to define the COVID-19 recovery timeline. Health experts suggest that herd immunity can be reached in the US as soon as June 2021, bringing hope to the airline sector. Travel restrictions in the US are forecasted to be removed by the end of 2021 and capacity is expected to fully recover to 2019's all-time highs in 2026.

Delta is in a prime position to take full advantage of this recovery period and retain its position as the most profitable airline in the US. For starters, the company has a strong financial position with a D/E of 71.2% and enough liquidity to operate during the recovery period. The capital availability brought on by the low leverage ratio will allow the company to fund investments that will yield higher profitability levels in the future. Regarding operational profitability, we do not forecast any surprises in cost structure. Aside from a sudden increase in fuel prices, no other cost caption should worry investors. Additionally, Delta has some diversification when it comes to revenue streams. Delta operates its own regional carrier, it has stakes in other international airlines and it operates business units tangentially related to its main operation³⁸. This diversification makes the company less reliant on main airline's passenger revenue for cash-flow.

The biggest threat to Delta Air Lines equity in the next 12 months will be a change in the recovery outlook. As you can see in scenario 2, if there are new lockdown measures that push the full recovery of the industry, we estimate a lower return of around 2.6% for 2021 (\$41.27 Target Price). By the same token, if demand recovers quicker than anticipated, shareholders can expect a return increase to 35.5% for the fiscal year of 2021 (Scenario 3, \$54.48 Target Price). It is important to stress that these are not unlikely scenarios due to market uncertainty.

To conclude, we believe that the company is undervalued at \$40.21 a share and, therefore, we recommend investors to **BUY** the equity.

Scenario 2

Load Factor	Pessimistic
Passenger Mile Yield	Pessimistic
Salaries	Optimistic
Tax Rate	As-is
Jet Fuel	Optimistic

Target Price	\$41,27
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Table 4: Share price forecast assuming a negative outlook
(Source: Own computations)

Scenario 3

Load Factor	Optimistic
Passenger Mile Yield	Optimistic
Salaries	Pessimistic
Tax Rate	As-is
Jet Fuel	Pessimistic

Target Price	\$54,48
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Table 5: Share price forecast assuming a positive outlook
(Source: Own computations)

³⁸Loyalty program and Ancillary Business and Refinery

Appendix

Financial Statements Income Statement Forecast

Income Statement Forecast In USD Million	2015 A					2016 A					2017 A					2018 A					2019 A					Business Plan					Annuity					Perpetuity				
	2020 F	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F																								
Core																																								
Total passenger revenue	34 782	36 814	36 947	39 755	42 277	13 101	20 375	29 073	35 254	36 649	38 370	40 680	42 788	44 758	46 840	49 048	51 010	53 051	55 173	57 380	59 675																			
Cargo	813	684	744	865	753	550	680	694	709	724	740	757	773	790	808	825	859	893	929	966	1 004																			
Loyalty program	1 584	1 110	1 289	1 459	1 962	1 429	1 500	1 575	1 654	1 737	1 824	1 915	2 011	2 111	2 217	2 328	2 421	2 518	2 618	2 723	2 832																			
Ancillary businesses and refinery	1 158	1 293	1 591	1 801	1 297	1 685	1 736	1 788	1 841	1 887	1 934	1 983	2 032	2 083	2 135	2 189	2 276	2 367	2 462	2 560	2 663																			
Total Net Revenue	38 337	38 901	40 551	43 880	46 289	16 765	24 291	33 130	39 458	40 997	42 868	45 335	47 604	49 743	52 000	54 390	56 566	58 828	61 182	63 629	66 174																			
	<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>				
Salaries and related costs	8 776	9 394	10 058	10 743	11 225	8 580	8 449	9 405	10 784	11 358	11 968	12 618	13 309	14 045	14 827	15 663	16 290	16 941	17 619	18 324	19 057																			
Aircraft fuel and related taxes	6 544	5 985	6 756	9 020	8 519	2 714	5 088	6 450	7 524	7 876	8 251	8 649	9 072	9 521	9 998	10 506	10 927	11 364	11 818	12 291	12 783																			
Regional carriers expense, excluding fuel	4 241	3 447	3 466	3 438	3 584	2 293	3 182	3 463	3 936	4 109	4 293	4 486	4 691	4 907	5 135	5 377	5 592	5 816	6 048	6 290	6 542																			
Contracted services	1 848	1 918	2 108	2 175	2 641	1 748	2 510	2 649	2 654	2 771	2 894	3 025	3 162	3 308	3 462	3 625	3 770	3 921	4 078	4 241	4 411																			
Depreciation and amortization	1 835	1 886	2 222	2 329	2 581	2 360	2 256	2 274	2 274	2 322	2 455	2 601	2 759	2 931	3 117	3 319	3 452	3 590	3 734	3 883	4 038																			
Passenger commissions and other selling expenses	1 672	1 751	1 827	1 941	1 993	579	900	1 285	1 558	1 620	1 696	1 798	1 891	1 978	2 070	2 168	2 254	2 345	2 438	2 536	2 637																			
Landing fees and other rents	1 493	1 472	1 501	1 662	1 762	1 595	1 644	1 667	1 690	1 764	1 843	1 926	2 014	2 107	2 205	2 309	2 401	2 497	2 597	2 701	2 809																			
Aircraft maintenance materials and outside repairs	1 848	1 434	1 591	1 575	1 751	648	1 098	1 286	1 309	1 534	1 622	1 718	1 823	1 936	2 060	2 193	2 281	2 372	2 467	2 565	2 668																			
Profit sharing	1 490	1 115	1 065	1 301	1 643	-	-	-	190	199	211	536	583	576	564	547	569	592	615	640	666																			
Passenger service	872	964	1 123	1 178	1 251	371	577	823	998	1 038	1 087	1 152	1 212	1 268	1 327	1 389	1 445	1 502	1 563	1 625	1 690																			
Ancillary businesses and refinery	-	1 182	1 495	1 695	1 245	1	1 649	1 698	1 749	1 793	1 838	1 884	1 931	1 979	2 029	2 079	2 162	2 249	2 339	2 432	2 530																			
Aircraft rent	250	285	351	394	423	394	394	394	394	403	412	421	430	439	449	459	477	496	516	537	558																			
Total Operating Core Expenses	30 869	30 833	33 563	37 451	38 618	21 282	27 748	31 395	35 060	36 787	38 568	40 813	42 876	44 994	47 241	49 634	51 620	53 684	55 832	58 065	60 388																			
% REVENUE	80%	79%	82%	86%	86%	127%	111%	93%	89%	90%	90%	88%	88%	87%	87%	86%	86%	85%	84%	84%	83%																			
Operating Income Before Taxes	7 468	8 068	6 988	6 429	7 671	4 517	3 457	1 735	4 398	4 211	4 300	4 522	4 728	4 749	4 758	4 756	4 946	5 144	5 350	5 564	5 786																			
Core Cash Taxes	695	1 272	2 929	112	685	772	602	196	602	626	616	612	667	675	668	665	697	724	751	781	814																			
Effective Tax Rate	695	1 272	2 929	112	685	772	602	196	602	626	616	612	667	675	668	665	697	724	751	781	814																			
Total Core Taxes	695	1 272	2 929	112	685	772	602	196	602	626	616	612	667	675	668	665	697	724	751	781	814																			
Non-Core																																								
Miscellaneous	0	2 367	549	587	558	710	729	749	765	781	798	816	834	852	871	890	909	929	950	971	992	1 014																		
Costs																																								
Restructuring charges																																								
CARES Act grant recognition																																								
Other	2 033	1 621	1 609	1 723	1 771	1 798	1 848	1 887	1 926	1 969	2 012	2 056	2 102	2 148	2 195	2 243	2 293	2 343	2 395	2 447	2 501																			
Non-Operating Expense Miscellaneous, net	164	255	70	160	238	242	248	254	259	265	270	276	282	289	295	301	308	315	322	329	336																			
Non-Core Operating Result Before Taxes	170	- 1 327	- 1 092	- 1 005	- 1 291	6 513	229	- 1 375	- 1 404	- 1 435	- 1 467	- 1 499	- 1 532	- 1 566	- 1 600	- 1 635	- 1 671	- 1 708	- 1 746	- 1 784	- 1 823																			
Non-core Taxes	51	675	138	230	293	1 368	48	289	295	301	308	315	322	329	336	343	351	359	367	375	383																			
Statutory Tax Rate	51	675	138	230	293	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%																			
Net change in derivative contracts	82	37	29	15	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																			
Net change in pension and other benefits	163	360	98	113	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																			
Net change in Core Deferred Taxes	-2053	-1697	357	-1399	-1102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																			
Non-Core Result	- 1 853	- 2 746	- 724	- 2 272	- 2 264	5 146	181	- 1 087	- 1 109	- 1 134	- 1 159	- 1 184	- 1 210	- 1 237	- 1 264	- 1 292	- 1 320	- 1 349	- 1 379	- 1 409	- 1 440																			
	<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>														
Financial																																								
Interest expense, net	481	368	396	311	301	1 500	1 714	1 810	1 286	987	938	878	964	879	902	932	965	1 001	1 041	1 084	1 131																			
Tax Shield	5,78%	5,29%	4,48%	3,18%	2,70%	4,29%	4,26%	4,29%	4,29%	4,29%	4,29%	4,29%	4,29%	4,29%	4,29%	4,29%	4,29%	4,29%	4,29%	4,29%	4,29%																			
Statutory Tax Rate	168	136	139	65	63	315	360	382	270	207	197	184	181	185	189	196	203	210	219	228	238																			
Net change in investments	45	36	142	-	-	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%																			
Gain/(loss) on investments, net	-	-	-	38	119	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																			
Financial Result	- 358	- 216	- 115	- 208	- 119	- 1 185	- 1 354	- 1 436	- 1 016	- 780	- 741	- 694	- 682	- 695	- 713	- 736	- 752	- 791	- 822	- 856	- 893																			
Total Comprehensive income	4 562	3 834	3 220	3 837	4 603	10 076	4 028	- 983	1 671	1 671	1 785	2 032	2 169	2 143	2 113	2 063	2 167	2 280	2 397	2 517	2 639																			
	<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>					<i>TRILE</i>														

THIS REPORT WAS PREPARED EXCLUSIVELY FOR ACADEMIC PURPOSES BY TIAGO JESUS SILVEIRA, A MASTER IN FINANCE STUDENT OF THE NOVA SCHOOL OF BUSINESS AND ECONOMICS. THE REPORT WAS SUPERVISED BY A NOVA SBE FACULTY MEMBER, ACTING IN A MERE ACADEMIC CAPACITY, WHO REVIEWED THE VALUATION METHODOLOGY AND THE FINANCIAL MODEL. (PLEASE REFER TO THE DISCLOSURES AND DISCLAIMERS AT END OF THE DOCUMENT)

Balance Sheet Forecast

Balance Sheet Forecast In USD Million							Business Plan					Annuity					Perpetuity						
		2015 A	2016 A	2017 A	2018 A	2019 A	2020 F	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	
Core																							
Assets:																							
Operating Cash	<i>% Revenue</i>	380	422	458	343	2297	2924	2924	2924	2924	2324	1724	1124	642	671	703	736	765	796	838	861	895	
		0.82%	1.08%	1.12%	0.78%	4.98%	12.44%	12.04%	8.83%	7.41%	5.67%	4.02%	2.48%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	
Accounts receivable, net	<i>Collection period</i>	2020	2064	2377	2314	2854	1516	1986	2421	2542	2286	2390	2527	2654	2773	2899	3032	3154	3280	3411	3547	3689	
		19	19	21	19	23	33	30	27	24	20	20	20	20	20	20	20	20	20	20	20	20	
Fuel Inventory	<i>% fuel consumption</i>	379	519	916	592	730	291	458	529	580	592	605	619	633	648	664	680	695	710	726	742	758	
		3.50%	12.32%	22.72%	14.33%	17.32%	15.37%	15.37%	15.37%	15.37%	15.37%	15.37%	15.37%	15.37%	15.37%	15.37%	15.37%	15.37%	15.37%	15.37%	15.37%	15.37%	
Expendable parts and supplies inventories, net	<i>Holding Period</i>	318	372	413	463	521	287	374	424	473	496	520	551	578	607	637	670	696	724	753	783	815	
		4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Property and equipment, net of accumulated depreciation and am	<i>Accumulated Depreciation and Amortization</i>	23039	24375	26563	28335	31310	26072	25259	25890	26355	27455	29029	30748	32620	34653	36858	39243	40882	42675	44626	46743	49030	
		33,910	36,837	40,660	44,159	49,337	45,459	46,302	49,807	52,947	55,369	59,339	64,317	69,949	73,913	79,234	84,339	90,036	95,438	101,664	107,234	113,668	
		10.87%	12.45%	14.09%	15.92%	17.02%	19.36%	19.64%	21.91%	23.19%	24.91%	26.91%	29.36%	31.56%	33.56%	36.32%	39.25%	42.37%	45.63%	49.15%	52.76%	56.53%	60.49%
Goodwill		9794	9794	9794	9794	9794	9753	9753	9753	9753	9753	9753	9753	9753	9753	9753	9753	9753	9753	9753	9753	9753	
Net identifiable intangibles, net of accumulated amortization		3180	3153	3004	3778	4114	4965	5104	5211	5321	5438	5557	5680	5805	5932	6063	6196	6332	6472	6614	6760	6908	
Core deferred tax assets, net		1143	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Liabilities:																							
Air traffic liability	<i>% Revenue</i>	4503	4626	4364	4661	5116	4618	4494	4473	4425	4598	4808	5084	5339	5579	5832	6100	6344	6597	6861	7136	7421	
		11.75%	11.83%	10.78%	10.62%	11.05%	11.75%	11.83%	10.62%	10.62%	11.21%	11.21%	11.21%	11.21%	11.21%	11.21%	11.21%	11.21%	11.21%	11.21%	11.21%	11.21%	
Accounts payable	<i>Average collection period (days of Core expense)</i>	2743	2573	3624	2976	3266	2216	2783	3030	3251	3271	3429	3629	3812	4001	4201	4413	4590	4773	4964	5163	5370	
		32	30	40	29	31	38	37	35	34	32	32	32	32	32	32	32	32	32	32	32	32	
Loyalty program deferred revenue	<i>% Revenue</i>	3881	3926	6321	6641	6728	7089	5344	4970	5327	5368	5613	5936	6234	6514	6809	7122	7407	7703	8011	8332	8665	
		10.12%	10.02%	15.53%	15.10%	10.53%	12.29%	12.00%	15.00%	13.50%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	
Accrued salaries and related benefits	<i>Accrued salaries and related benefits per employee</i>	3029	2769	2869	3137	3557	2073	2040	2791	3107	3174	3244	3317	3393	3473	3557	3644	3724	3806	3890	3976	4063	
		0.04	0.03	0.03	0.04	0.04	0.028	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
Fuel card obligation	<i>% of fuel cost</i>	-	431	1067	1075	736	1100	554	702	819	888	896	942	988	1037	1089	1144	1190	1237	1287	1338	1392	
		0.00%	7.20%	15.29%	11.52%	0.64%	10.53%	10.83%	10.83%	10.83%	10.83%	10.83%	10.83%	10.83%	10.83%	10.83%	10.83%	10.83%	10.83%	10.83%	10.83%	10.83%	
Core deferred tax liabilities, net		-	504	147	1546	2648	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Core Liabilities		14156	14828	18402	20036	22051	17095	15216	15965	16928	17268	17992	18908	19766	20603	21486	22423	23255	24118	25014	25945	26911	
Total Core Invested Capital		26147	25871	25923	25570	29586	28713	30642	31186	31019	31075	31587	32054	32919	34435	36090	37887	39023	40292	41697	43244	44938	
Non-Core																							
Prepaid expenses and other		2902	1247	1420	1156	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	
Other noncurrent assets		1428	1733	3309	3850	3766	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	4116	
Total Non-Core Assets		4330	2980	4729	5006	4816	5166	5166	5166	5166	5166	5166	5166	5166	5166	5166	5166	5166	5166	5166	5166	5166	
Liabilities:																							
Other accrued liabilities		3887	1907	1868	1117	1078	1078	1078	1078	1078	1078	1078	1078	1078	1078	1078	1078	1078	1078	1078	1078	1078	
Pension Benefits, Other Postretirement and Postemployment Ben		166	155	153	150	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	
Net Pension, postretirement and related benefits		8411	8119	7266	6728	6211	6211	6211	6211	6211	6211	6211	6211	6211	6211	6211	6211	6211	6211	6211	6211	6211	
Other noncurrent liabilities		1891	1878	2221	969	1386	2896	3749	3749	3749	3749	3749	3749	3749	3749	3749	3749	3749	3749	3749	3749	3749	
Total Non-Core Liabilities		14355	12059	11508	8964	8819	10329	11182	11182	11182	11182	11182	11182	11182	11182	11182	11182	11182	11182	11182	11182	11182	
Total Non-Core Invested Capital		10025	9079	6779	3958	4003	5163	6016	6016	6016	6016	6016	6016	6016	6016	6016	6016	6016	6016	6016	6016	6016	
Total Invested Capital		16122	16792	19144	21612	25553	23550	24626	25170	25003	25059	25571	26078	26903	28419	30074	31871	33007	34276	35681	37228	38922	
Financial																							
Excess Cash		1592	2340	1395	2405	1433	12641	13892	16072	6321	1991	1984	1975	1969	1961	1952	1941	1936	1931	1926	1920	1913	
Short-term investments		1465	487	825	203	-	5048	3534	2120	1166	-	-	-	-	-	-	-	-	-	-	-	-	
Operating lease right-of-use assets		-	-	-	5994	5627	5711	5871	5995	6121	6355	6399	6533	6677	6824	6974	7128	7284	7445	7608	7776	7947	
Debt and finance leases (including current maturities)		8329	7332	8834	9771	11160	35000	40000	42418	30000	23023	21881	20488	20150	20520	21047	21748	22511	23354	24280	25291	26388	
Current maturities of operating leases		-	-	-	959	801	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	
Noncurrent operating leases		-	-	-	5011	5294	5854	5956	5956	5956	5956	5956	5956	5956	5956	5956	5956	5956	5956	5956	5956	5956	
Debt		5272	4505	6614	7925	10195	18268	23372	24900	23062	21447	20173	18648	18173	18403	18789	19349	19959	20647	21415	22264	23197	
Equity		10850	12287	12530	13687	15358	5282	1254	270	1941	3613	5397	7429	8731	10016	11284	12522	13048	13629	14266	14964	15725	

Cash Flow Forecast

Cash Flow Map Forecast

In USD Million

	Business Plan										Annuity					Perpetuity					
	2015 A	2016 A	2017 A	2018 A	2019 A	2020 F	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F
Core result	8 608	6 796	4 059	6 317	6 986	- 3 746	- 2 855	1 539	3 796	3 585	3 684	3 910	4 061	4 074	4 090	4 091	4 250	4 420	4 599	4 783	4 973
Core invested capital	26 147	25 871	25 923	25 570	29 556	28 713	30 642	31 186	31 019	31 075	31 587	32 094	32 919	34 435	36 090	37 887	39 023	40 292	41 697	43 244	44 938
change in invested capital	-	276	52	353	3 986	- 843	1 929	545	- 167	56	511	507	826	1 516	1 654	1 797	1 136	1 269	1 406	1 547	1 694
FCF Core Business	8 608	7 072	4 007	6 670	3 000	- 2 903	- 4 784	995	3 964	3 528	3 173	3 403	3 236	2 558	2 436	2 294	3 114	3 151	3 193	3 236	3 279
																		1,2%	1,3%	1,3%	1,3%
Non core result	- 1 934	- 2 349	- 597	- 2 174	- 2 100	- 5 146	- 181	- 1 087	- 1 109	- 1 134	- 1 159	- 1 184	- 1 210	- 1 237	- 1 264	- 1 292	- 1 320	- 1 349	- 1 379	- 1 409	- 1 440
Non core invested capital	- 10 025	- 9 079	- 6 779	- 3 958	- 4 003	- 5 163	- 6 016	- 6 016	- 6 016	- 6 016	- 6 016	- 6 016	- 6 016	- 6 016	- 6 016	- 6 016	- 6 016	- 6 016	- 6 016	- 6 016	- 6 016
Change in NON CORE invested capital	-	946	2 300	2 821	- 45	- 1 160	- 853	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FCF Non-Core Business	- 1 934	- 3 295	- 2 897	- 4 995	- 2 055	- 3 986	1 034	- 1 087	- 1 109	- 1 134	- 1 159	- 1 184	- 1 210	- 1 237	- 1 264	- 1 292	- 1 320	- 1 349	- 1 379	- 1 409	- 1 440
FCF Operational	6 674	3 777	1 110	1 675	945	- 6 888	- 3 750	92	2 854	2 395	2 014	2 219	2 026	1 321	1 172	1 002	1 793	1 802	1 814	1 826	1 839
Total Invested capital	16 122	16 792	19 144	21 612	25 553	23 550	24 626	25 170	25 003	25 059	25 571	26 078	26 903	28 419	30 074	31 871	33 007	34 276	35 681	37 228	38 922
Financial result	- 313	- 252	- 257	- 208	- 119	- 1 185	- 1 354	- 1 436	- 1 016	- 780	- 741	- 694	- 682	- 695	- 713	- 736	- 762	- 791	- 822	- 856	- 893
Net debt	5 272	4 505	6 614	7 925	10 195	18 268	23 372	24 900	23 062	21 447	20 173	18 648	18 173	18 403	18 789	19 349	19 959	20 647	21 415	22 264	23 197
change	-	767	2 109	1 311	2 270	8 073	5 104	1 528	- 1 838	- 1 615	- 1 273	- 1 525	- 476	231	386	559	610	688	768	849	933
Equity	10 850	12 287	12 530	13 687	15 358	5 282	1 254	270	1 941	3 613	5 397	7 429	8 731	10 016	11 284	12 522	13 048	13 629	14 266	14 964	15 725
change	-	1 437	243	1 157	1 671	- 10 076	- 4 028	- 983	1 671	1 671	1 785	2 032	1 301	1 286	1 268	1 238	526	581	638	698	761
Comprehensive income	4 562	3 834	3 220	3 837	4 603	- 10 076	- 4 028	- 983	1 671	1 671	1 785	2 032	2 169	2 143	2 113	2 063	2 167	2 280	2 397	2 517	2 639
FCF Financial	- 4 875	- 3 416	- 1 125	- 1 577	- 781	6 888	3 750	92	- 2 854	- 2 395	- 2 014	- 2 219	- 2 026	- 1 321	- 1 172	- 1 002	- 1 793	- 1 802	- 1 814	- 1 826	- 1 839

Available Seat Mile Forecast

ASM Forecast

Method 1
Method 2

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
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Method 1

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Airplanes	1 241	1 294	1 336	1 312	1 340	1 181	1 187	1 228	1 251	1 268	1 286	1 304	1 324	1 344	1 365	1 388
Total seats	168 824	174 588	181 034	184 528	190 324	168 082	163 028	178 144	182 004	185 324	190 028	194 319	198 803	203 482	208 360	213 488
Average seats/plane	136	135	138	141	142	142	142	144	145	147	148	149	150	151	153	154
ASM (million)	246 764	251 867	254 325	263 365	275 379	125 582,87	200 387,27	234 932,96	261 540,21	267 172,32	273 070,19	279 237,44	285 680,13	292 403,85	299 414,23	306 783,33
Total miles flown (million)	1 816	1 867	1 849	1 873	1 939	882	1 407	1 630	1 738	1 837	1 937	2 037	2 137	2 237	2 337	2 437
AMFP (Average Miles Flown per Plane, milli)	1 463	1 443	1 405	1 427	1 447	0,747	1,186	1,329	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437

Assumption: All airplanes fly the same miles per year.

Average Miles Flown/plane (m)	1,437
Plane growth per year in anuit	1%
Average seats/plane growth p	0,8%
Airplane average price	50,061
Airplane price (forecast)	
aircraft investment (\$)	51,16201
# of new airplanes (forecast)	2,867
# of retired airplanes (forecast)	55
	53
	62
	65
	68
	71
	75
	80
	86
	92
	99
	106
	114
	122
	131
	140
	150
	160
	171
	182
	194
	206
	219
	233
	247
	262
	277
	293
	309
	326
	344
	362
	381
	401
	421
	442
	464
	486
	510
	534
	559
	585
	612
	640
	669
	700
	731
	764
	800
	836
	874
	914
	956
	1 000
	1 046
	1 094
	1 144
	1 196
	1 250
	1 306
	1 364
	1 424
	1 486
	1 550
	1 616
	1 684
	1 754
	1 826
	1 900
	1 976
	2 054
	2 134
	2 216
	2 300
	2 386
	2 474
	2 564
	2 656
	2 750
	2 846
	2 944
	3 044
	3 146
	3 250
	3 356
	3 464
	3 574
	3 686
	3 800
	3 916
	4 034
	4 154
	4 276
	4 400
	4 526
	4 654
	4 784
	4 916
	5 050
	5 186
	5 324
	5 464
	5 606
	5 750
	5 896
	6 044
	6 194
	6 346
	6 500
	6 656
	6 814
	6 974
	7 136
	7 300
	7 466
	7 634
	7 804
	7 976
	8 150
	8 326
	8 504
	8 684
	8 866
	9 050
	9 236
	9 424
	9 614
	9 806
	10 000
	10 200
	10 400
	10 600
	10 800
	11 000
	11 200
	11 400
	11 600
	11 800
	12 000
	12 200
	12 400
	12 600
	12 800
	13 000
	13 200
	13 400
	13 600
	13 800
	14 000
	14 200
	14 400
	14 600
	14 800
	15 000

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Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
Hold	Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period.
Sell	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

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