

Boeing: surviving business turbulence after black swan cataclysms

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The case was compiled from published sources and is intended to be used as a basis for class discussion rather than to illustrate either effective or ineffective handling of a management situation.

Introduction

On April 15, 2020, just a few days before the announcement of Quarter 1 results for 2020, the ramifications of the global economy's halt due to the coronavirus pandemic were already evident at one of the most important companies in the USA (Gelles and Kitroeff, 2020). The Boeing Company, commonly known as Boeing, was an American multinational corporation that designed, manufactured and sold airplanes, rockets, satellites, telecommunications equipment and missiles worldwide (Boeing, 2019, 2020a, 2020b, 2020c).

Boeing's stock price had plunged after March 2019 due to the grounding of its 737 Max airliner (La Monica, 2019) following two deadly crashes. The price plummeted further due to reduced air travel demand in the weeks leading up to April 15, 2020 (Exhibit 1). The company's current stock was trading at a much lower price than the 5-year average price of \$246.4 (<https://www.macrotrends.net/stocks/charts/BA/boeing/stock-price-history>). Actual and estimated financial metrics and capital structure were also reflecting the doldrums ahead for the company (Exhibits 3–6). According to the International Air Transport Association (IATA) (2020), the COVID-19 crisis would see airline passenger revenues drop by \$314bn in 2020, a 55% decline compared to 2019 (IATA, 2020). With most of the aviation industry's production stalled (Kitroeff and Vogel, 2020), it was hard for David Calhoun, the president and chief executive officer (CEO) of Boeing, to keep the company afloat.

David Calhoun became president and CEO of Boeing in January 2020. He had been part of Boeing's board of directors since 2009 and chairman of the board from October–December 2019. Calhoun had extensive expertise in strategic, business, safety and regulatory matters across several industries due to his executive, management and operational experience.

On April 14, 2020, Boeing reported 150 cancellations of its 737 Max jets, the most in decades (Aljazeera, 2020). That brought net orders removed from Boeing's order list in the first three months of 2020 to 307 planes, a sharp turnaround for a company that a year earlier aimed to increase output to meet strong demand (Josephs, 2020). Adding to the woes was the fact that the grounding of 737 had also invited lawsuits and penalties for Boeing – The latest was launched by Timaero, an Irish company that sells and leases aircraft, which filed a lawsuit seeking to cancel an order for 22 of Boeing's 737 MAX jets (Stroth, 2019).



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Earlier, on March 24, 2020, Calhoun had stated, “I think we’re going to weather this [storm] and weather it well” (Fox Business, 2020). As time passed, the situation looked grim for Boeing. On April 13, Ron Epstein, Managing Director of Aerospace and Defense at Bank of America Securities, said that he expected Boeing to report revenue of around \$21.5bn (a decline of 6.5% compared with the first quarter of 2019), an adjusted net loss per share of \$1.22 (compared with Q1 2019 non generally accepted accounting principles (GAAP) earnings per share [EPS] of \$3.16), and a GAAP net loss per share of \$0.79 (compared with Q1 2019 EPS of \$3.75) (Cohen, 2020). Jefferies analyst Sheila Kahyaoglu stated on April 10, 2020, that Boeing’s monthly burn rate was “\$4.3 billion. However, a large portion of that is fixed cost and supplier costs hence if Boeing cuts production rates the payment to suppliers may fall (NewsUs, 2020)”. There was no consensus on how much cash Boeing was losing each month: J.P. Morgan estimated it at \$1bn to \$2bn per month (Franck, 2019).

Calhoun knew that preserving and raising cash were immediate priorities for Boeing to maintain adequate liquidity to survive when revenues were depressed during the pandemic (Bangkok Post, 2020). Calhoun was responsible for spearheading a company with \$15bn cash reserves as of the end of March 2020 (Hemmerdinger, 2020), a grounded 737 Max airliner fleet, several stakeholders to answer to and a pandemic situation that had nearly paralyzed the whole aviation industry. Calhoun had turned around companies before, with a previous reputation for rescue work at General Electric, Nielsen Holdings PLC and Caterpillar Inc. (Royse, 2020). At Boeing, Calhoun had several options for raising the necessary capital and preserving existing cash until Boeing could generate positive cash flow from operations, but each had its pros and cons (Shepardson, 2020).

Industry by background and macroeconomic scenario

The commercial aircraft market mostly comprises aircraft for transporting passengers and cargo across various industries – including consumer electronics, government and foods – and is segmented based on aircraft size, use case and geography. Different types of aircraft with varying sizes and bodies are used by different airlines; these include narrow-body as well as wide-body aircraft (Madhwal and Avdeeva, 2017). The global commercial aircraft market, valued at more than \$191bn in 2018, was expected to grow at a compound annual growth rate (CAGR) of about 2.9% to be worth around \$255bn by 2028 (Research and Markets, 2018). Significant factors impacting the market include aircraft fleet development, increased demand for fuel-efficient aircraft, volatile oil prices and geopolitics, and advancements in aviation technology. Key players in the commercial aircraft market include Boeing, Airbus SE, Bombardier, Inc., Commercial Aircraft Corporation of China, Ltd., Embraer S.A., Public Joint Stock Company United Aircraft Corporation, GE Aviation, United Technologies Corporation, Lockheed Martin Corporation and Leonardo S.p.A (Sonawane, 2016). See Exhibit 2 for commercial delivery trends in narrow-body and wide-body aircraft of major aircraft manufacturers from 2015 to 2023.

Commercial aircraft sales contracts are mostly initiated years before the aircraft is delivered. To help account for economic fluctuations between the contract and delivery dates, aircraft pricing generally consists of a fixed amount modified by price escalation formulas derived from labor, commodities and other price indices (Boeing, 2019).

Four demand shocks have recently impacted global airline traffic, and the time it took for airline traffic to return to prior levels varied across these shocks and served as an indicator of how long it might take for airline traffic to return to normal after the pandemic (Molenaar et al., 2020). According to McKinsey’s estimates, in 2020 the airline industry revenues would be around 40% of the previous years. The sector is expected to be smaller for years to come; and the traffic will not return to 2019 levels before 2024 (Bouwer et al., 2021).

Even during the pandemic, demand for military equipment has been stable due to budgeted government expenditures and ongoing geopolitical tensions across the globe

(PwC, 2020). Global military expenditure was estimated at \$1.9tn in 2019. Global defense spending was expected to grow at a CAGR of about 3% over 2019–2023 to reach \$2.1tn by 2023 (Lineberger, 2020). While the USA administration's increased focus on strengthening the military was expected to be a key growth driver for defense spending in 2020 (Barnes, 2020), other large nations, such as China, Russia and India, were likely to embark on higher spending on defense equipment. Strong US foreign military sales (FMS) continued boosting export opportunities for defense contractors in the US (Shalal, 2019), although volatility in the dollar might have dampened FMS growth, as some European defense exporting nations become more price competitive. Amid the pandemic, Goldman Sachs Research has cut its 2020 global gross domestic product (GDP) growth forecast to 1.25%. The investment bank also forecasted that if coronavirus cases increased, the US economy would contract by 5% in the second quarter of 2020 (Godbole, 2020).

The Boeing company

Boeing is one of the world's major aerospace firms and is internally organized based on the products and services it offers (Boeing, 2019) as follows: Commercial Airplanes Segment; Defense, Space and Security; Global Services; and Boeing Capital. Reported revenues and operating profit for each segment for 2017–2019 and estimated revenues and operating profits for 2020–2024 are provided in Exhibit 3. The company's cash flow statement is in Exhibit 4, and its balance sheet in Exhibit 5. As far as the company's shareholding pattern is concerned, institutional investors hold majority ownership of BA through 61.31% of the outstanding shares they control. The top five company stockholders and the percentage ownership to date are as follows: The Vanguard Group, Inc. (6.95%), Newport Trust Co. (5.80%), Capital Research and Management Co. (5.41%), SSgA Funds Management, Inc. (4.63%), BlackRock Fund Advisors (4.45%) (CNN Business, 2020). The segments operate as follows:

- *Commercial Airplanes Segment:* Develops, produces and markets commercial jet aircraft and provides fleet support services, principally to the commercial airline industry worldwide. It is broadly split into two parts as follows: narrow-body planes ideal for running short-haul routes and wide-body planes for transcontinental flights. Sales volumes for narrow-body planes have increased substantially due to the rise of low-cost carriers (Morningstar, 2020). Revenue growth in this segment during 2017 and 2018 was mainly due to increased deliveries of the 737 and 787 models (Market Research, 2020).
- *Defense, Space and Security Segment:* Engages in research, development, production and modification of manned and unmanned military aircraft and weapons systems for the strike, surveillance and mobility, including fighter and trainer aircraft, vertical lift and commercial derivative aircraft. It also comprises cyber and information solutions, intelligence systems and satellite systems, including government and commercial satellites and space exploration. Its primary customer was the US Department of Defense (US DoD). Revenues from the DoD, including FMS through the US Government, accounted for approximately 84% of its 2019 revenues (Boeing, 2020). Other significant customers include the National Aeronautics and Space Administration and customers in international defense, civil and commercial satellite markets.
- *Global Services Segment:* Provides services to Boeing's commercial and defense customers worldwide and sustains aerospace platforms and systems with a full spectrum of products and services, including supply chain and logistics management, engineering, maintenance and modifications, upgrades and conversions, spare parts, pilot and maintenance training systems and services, technical and maintenance documents and data analytics and digital services.

- *Boeing Capital Segment*: Helps ensure that Boeing customers have the financing they need to buy and receive their Boeing products and manages overall financing exposure. Its portfolio consists of equipment under operating leases, sales-type/finance leases, notes and other receivables, assets held for sale or re-lease and investments.

In addition to owning a large intellectual property portfolio, Boeing also licenses intellectual property to and from third parties. Unpatented research, development, engineering skills, trademarks, trade secrets and other intellectual property rights contribute to Boeing's business. The commercial jet aircraft market remains extremely competitive, and Boeing faces aggressive international competition from Airbus and entrants from Russia, China and Japan. Boeing also has strong competition in Lockheed Martin Corporation, Northrop Grumman Corporation, Raytheon Company, General Dynamics Corporation, and SpaceX in the defense, space and security sectors.

Black swan events and turbulence for Boeing

Grounding of Boeing 737 MAX Planes Following Two Crashes: On March 13, 2019, the Federal Aviation Administration (FAA) issued an order to suspend operations of all Boeing 737 MAX aircraft in the US following two fatal accidents (Lion Air Flight 610 and Ethiopian Airlines Flight 302). On October 29, 2018, Lion Air Flight 610, a Boeing 737 MAX 8 aircraft, crashed after taking off from Jakarta airport, killing 189 people. Investigators identified problems with the anti-stall system, designed to stop the plane from pointing upwards at too high an angle ([Radio New Zealand, 2019](#)). On March 10, 2019, Ethiopian Airlines Flight 302 crashed near Bishoftu 6 min after takeoff, killing all 157 people aboard (BBC, 2020). Non-US civil aviation authorities issued similar directives as the FAA, and 737 MAX deliveries were suspended until clearance was granted by the appropriate regulatory authorities in the US and internationally. The grounding significantly reduced Boeing's revenues, operating margins and cash flows ([Boeing, 2019](#)). Boeing tried to get 737 MAX clearance by working with the authorities and made its way through 2019 by focusing on fulfilling existing orders of other models and in other segments. However, the COVID-19 pandemic of 2019–2020 changed everything.

COVID-19 pandemic: COVID-19 was first detected and reported to the World Health Organization (WHO) on December 31, 2019 (WHO, 2020a, 2020 b, 2020c), and the number of cases soon surged in various parts of the world (WHO, 2020a, 2020 b, 2020c). The combination of trip cancelations by flyers and country-specific and global restrictions on international and domestic flights had a staggering impact on the global airline industry, bringing it to a near standstill in early 2020 ([World Economic Forum, 2020](#)). Boeing was severely impacted. Within days, the strategic objectives of aircraft manufacturers changed from seeking growth opportunities to surviving the pandemic.

On March 20, 2020, Boeing announced several capital preservation decisions to support the company in navigating the pandemic. Major decisions included Calhoun and board chairman Larry Kellner forgoing pay for a year, and the suspension of dividends and any share repurchasing by Boeing ([Boeing, 2019, 2020a, 2020b](#)).

Options at hand

Calhoun knew that preserving cash was critical, but more so was arranging additional capital for Boeing to maintain adequate liquidity to survive. Options for raising capital included spinning off Boeing's Defense, Space and Security segment; special situation investment firms; issuing more stocks; taking on additional debt; or management buyout with the help of private equity (PE) investors; Each option had its modalities, conditions and uncertainties.

- *Spinning off Defense and Space Sector Business Segment:* Boeing was at a strategic vantage point in 2020 where it could have spun off its Defense, Space and Security segment into a new corporation (McIntyre, 2020). This segment's order backlog was \$62bn, of which 30% was from customers outside America. Revenue from these operations was almost certain to remain steady or rise (24/7 Wall St, 2020). If Boeing decided to spin off the segment, there were two ways it could happen (Kennon, 2019): selling it outright to a competitor, buyout group or through an initial public offering; or declaring a tax-free spin-off to existing shareholders.
- *Special Situation Investment Funds:* "Boeing is in a case of a special situation at the moment. Usually, such situations provide some exciting opportunities for investors who take advantage in times of market overreaction" (Vitalis, 2019). Boeing could reach out to special situation investors with the balance of opportunities (duopoly with Airbus, backlog of aircraft orders, government contracts) and challenges (grounded 737 MAX, air traffic hit due to COVID-19) it faced. Special situation firms invest in companies with a healthy core that are often profitable but either in a succession situation or in a situation of underperformance, balance sheet distress, untapped development potential or fundamental transition (SSVP, 2020). These investment firms use their specialized expertise to acquire the debt and/or equity of operationally sound, financially distressed companies to maximize risk-adjusted returns for their stakeholders (Carlyle, 2020).
- *Issuing Additional Stock:* Issuing additional shares to raise capital to fund operations was another option for Boeing (Ebbs, 2020). It would allow existing shareholders the right to subscribe to additional shares in the company at a discount to the current market price according to the proportion of their existing stock holdings.
- *Management Buyout with the Help of PE Investors:* In 2013, Michael Dell struck a deal to take Dell Inc private for \$24.4bn in the biggest leveraged buyout since the 2008–2009 financial crisis, partnering with the Silver Lake PE firm and Microsoft Corporation in an attempt to turn around the struggling computer company (Gupta et al., 2013). Calhoun could attempt a similar buyout with the backing of PE investors, who would believe in the company's turnaround prospects. The incoming PE investor (s) could explore the possibility of additional leverage supported by projected cash flows to amplify returns over a 5- to 10-year horizon.
- *Debt from Issuing Corporate Bonds:* By the end of March 2020, Boeing had \$39bn in debt, and SaP Ratings had changed the aircraft maker's credit rating to BBB from AA- (Scaggs, 2020). With strong business fundamentals and an active order pipeline, Boeing could reach out to debt markets and increase the size of its existing borrowing by issuing short-term and/or long-term bonds to raise capital. To augment investors' trust, Boeing could include attractive provisions for "increased" interest rates on borrowings if the company's operational performance did not improve (Sloan, 2020). Raising capital through debt during the pandemic depended wholly on investors' outlook on Boeing's ability to repay.

The way forward

In a letter to Boeing employees on April 2, 2020, Calhoun stated, "When the world emerges from the pandemic, the size of the commercial market and the types of products and services our customers want and need will likely be different" (Boeing, 2020). That was a worry for another time since Boeing first had to worry about surviving the pandemic, and for that, Boeing needed cash. Bulls of the capital markets believed that Boeing had a stable backlog of orders, a large installed product base that could generate sustainable aftermarket sales, a commercial aircraft duopoly with Airbus, and structural barriers to entry in aircraft manufacturing that would provide Boeing with leverage. However, market bears

remained concerned about the 737 MAX being grounded, the prolonged downturn in the global economy and aviation industry due to COVID-19, and Boeing's limited cash in hand. Calhoun had spearheaded turnarounds for previous companies, and Boeing relied on his abilities to weather the storm until the 737 MAX uncertainty and COVID-19 pandemic passed.

Notes

1. A stands for Actual.
2. E stands for Estimated.
3. Boeing uses program accounting, which inventories excess costs of production (vs an average margin assumption over a specific amount) and then releases then amortizes that costs over future deliveries.

References

24/7 Wall St (2020), "Boeing should spin off defense operations as 737 max troubles explode", Market Watch, 10 January, available at: www.marketwatch.com/story/boeing-should-spin-off-defense-operations-as-737-max-troubles-explode-2020-01-10

Aljazeera (2020), "Boeing suffers more cancellations of 737 MAX orders", 15 April, available at: www.aljazeera.com/ajimpact/boeing-suffers-cancellations-737-max-orders-200415014316384.html

Bangkok Post (2020), "Boeing to cut staff, output as pandemic batters airlines", 30 April, available at: www.bangkokpost.com/business/1910424/boeing-to-cut-staff-output-as-pandemic-batters-airlines

Barnes, J.E. (2020), "US military seeks more funding for pacific region after pandemic", New York Times, 5 April, available at: www.nytimes.com/2020/04/05/us/politics/us-china-military-funding-virus.html

BCG (2020), "Aerospace and defense", 18 May, available at: www.bcg.com/en-in/industries/engineered-products-infrastructure/aerospace-defense.aspx

Boeing (2019), "Annual report of Boeing for the year 2019", available at: https://s2.q4cdn.com/661678649/files/doc_financials/2019/ar/2019_Boeing_Annual_Report.pdf (accessed 13 April 2020).

Boeing (2020a), "Executive biography of david L. Calhoun", available at: www.boeing.com/company/bios/david-l-calhoun.page (accessed 29 April 2020).

Boeing (2020b), "Boeing announces actions to navigate COVID-19 crisis", 20 March, available at: <http://boeing.mediaroom.com/2020-03-20-Boeing-Announces-Actions-to-Navigate-COVID-19-Crisis>

Boeing (2020c), "Boeing CEO outlines voluntary plan to respond to current market conditions", 2 April, available at: <http://boeing.mediaroom.com/news-releases-statements?item=130651>

Boeing Company (2020), "Form 10-K", US Securities and Exchange Commission, 31 January, available at: www.sec.gov/Archives/edgar/data/12927/000001292720000014/a201912dec3110k.htm

Bouwer, J. Saxon, S. and Wittkamp, N. (2021), "Back to the future? Airline sector poised for change post-COVID-19", McKinsey & Company, 2 April, 2021, available at: www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/back-to-the-future-airline-sector-poised-for-change-post-covid-19

Carlyle, (2020) "Distressed & special situations: investment approach", available at: www.carlyle.com/our-business-global-credit/distressed-special-situations (accessed 19 April 2020).

CNN Business (2020), "Institutional ownership—boeing", 14 April, available at: money.cnn.com/quote/shareholders/shareholders.html?symb=BA&subView=institutional

Cohen, P. (2020), "5 Hurdles to solving boeing's cash problem", Forbes, 14 April, available at: www.forbes.com/sites/petercohan/2020/04/14/5-hurdles-to-solving-boeings-cash-problem/#4b64197978b7

Ebbs, W. (2020), "Boeing extorts Washington for a bailout, but equity holders should be diluted first", CNN, 17 March, available at: www.ccn.com/boeing-extorts-washington-for-bailout-but-equity-holders-should-be-diluted-first/

Fox Business (2020), "Boeing CEO: important for US government to reopen credit markets", 24 March, available at: <https://video.foxbusiness.com/v/6144333190001/#sp=show-clips>

Franck, T. (2019), "Boeing will still burn \$1 billion a month on 737 max even with production halt, JP morgan says", CNBC, 17 December, available at: www.cnbc.com/2019/12/17/boeing-will-burn-1bmonth-on-737-max-after-production-halt-jp-morgan.html

Gelles, D. and Kitroeff, N. (2020), "Boeing mirrors the economy. It doesn't look good", New York Times, 17 March, available at: www.nytimes.com/2020/03/17/business/economy/boeing-coronaviruseconomy.html?action=click&module=RelatedLinks&pgtype=Article (accessed 20 May 2020).

Godbole, O. (2020), "Goldman sachs has cut its 2020 global growth forecast", FXStreet, 18 March, available at: www.fxstreet.com/news/goldman-sachs-has-cut-its-2020-global-growth-forecast-202003180324

Gupta, P. Damouni, N. and Roumeliotis, G. (2013), "Dell to go private in landmark \$24.4 billion deal", Reuters, 6 February, available at: www.reuters.com/article/us-dell-buyout/dell-to-go-private-in-landmark-24-4-billion-deal-idUSBRE9140NF20130206

Hemmerdinger, J. (2020), "Boeing's calhoun defends boeing's financial health, pushes back against equity-for-aid government support", Flight Global, 25 March 25, available at: www.flightglobal.com/airframers/boeings-calhoun-defends-boeings-financial-health-pushes-back-against-equity-for-aid-government-support/137511.article

International Air Transport Association (IATA) (2020), "IATA reminds governments in latin america and caribbean on urgency of relief to the airline industry in face of COVID-19 crisis", AviationPros, 20 April, available at: www.aviationpros.com/airlines/press-release/21134581/international-air-transport-association-iata-iata-reminds-governments-in-latin-america-and-caribbean-on-urgency-of-relief-to-the-airline-industry-in-face-of-covid19-crisis

Josephs, L. (2020), "Boeing customers cancel staggering 150 max plane orders, deepening crisis as coronavirus roils air travel", CNBC, 14 April, available at: www.cnbc.com/2020/04/14/boeing-customers-cancel-staggering-number-of-737-max-orders.html

Kenyon, J. (2019), "Profiting from tax free spin-offs in your stock portfolio", The Balance, 25 June, available at: www.thebalance.com/profitting-from-tax-free-spin-offs-in-your-stock-portfolio-357626

Kitroeff, N. and Vogel, K.P. (2020), "Boeing's problems predate the virus. Should the US come to its rescue?", New York Times, 20 April, available at: www.nytimes.com/2020/04/12/us/politics/coronavirus-boeing-federal-aid.html

La Monica, P.R. (2019), "Boeing's stock continues steep slide as more nations ban 737 MAX 8 planes", CNN, 12 March, available at: <https://edition.cnn.com/2019/03/12/investing/boeing-stock-update/index.html>

Lineberger, R. (2020), "Global aerospace and defense industry outlook", Deloitte, available at: <https://www2.deloitte.com/global/en/pages/manufacturing/articles/global-a-and-d-outlook.html> (accessed 19 April, 2020).

McIntyre, DA (2020) "Boeing could spin off defense unit to salvage stock", 24/7 Wall St., 30 January, available at: <https://247wallst.com/aerospace-defense/2020/01/02/boeing-could-spin-off-defense-unit-to-salvage-stock/>

Madhwal, Y. and Avdeeva, Z. (2017), "Planning in aircraft industry based on prediction of air traffic", Procedia Computer Science No. 122, pp. 1047-1054, available at: www.sciencedirect.com/science/article/pii/S1877050917327254

Market Research (2020), "The boeing Co (BA)—financial and strategic SWOT analysis review", (accessed 15 April 2020).

Molenaar, D. Bosch, F. Guggenheim, J. Jhunjhunwala, P. Loh, H. and Wade, B. (2020), "The post-COVID-19 flight plan for airlines", BCG, 31 March, available at: www.bcg.com/en-in/publications/2020/post-covid-airline-industry-strategy.aspx

Morningstar (2020), "Boeing suspends dividend to conserve cash amid pandemic and 737 MAX grounding", 30 March

NewsUS (2020), "OPEC", + "Resurrection won't comfort an oil market flirting with \$10-20 prices", 14 April, available at: <https://newsus.app/opec-resurrection-wont-comfort-an-oil-market-flirting-with-10-20-prices/>

Pettibone, R. (2020), "Could boeing's woes finally be behind it?", Defense & Security Monitor, 20 February, available at: <https://dsm.forecastinternational.com/wordpress/2020/02/20/could-boeings-woes-finally-be-behind-it/>

PwC (2020), "COVID-19: what it means for the aerospace and defense industry", available at: www.pwc.com/us/en/library/covid-19/coronavirus-impacts-aerospace-and-defense.html (accessed 3 May 2020).

Radio New Zealand (2019), "Clear similarities' between crashes of ethiopian airlines flight 302 and Indonesian lion air flight 610", 18 March, available at: www.rnz.co.nz/news/world/384979/clear-similarities-between-crashes-of-ethiopian-airlines-flight-302-and-indonesian-lion-air-flight-610

Research and Markets (2018), "The global commercial aircraft market 2018-2028", May, available at: www.researchandmarkets.com/reports/4583619/the-global-commercial-aircraft-market-2018-2028

Roysse, D. (2020), "The challenges boeing's new CEO is facing", Benzinga, 10 January, available at: www.benzinga.com/analyst-ratings/analyst-color/20/01/15105929/the-challenges-boeings-new-ceo-is-facing

Scaggs, A. (2020), "Boeing's credit rating is downgraded because of a worsening cash outlook", Barron's, 17 March, available at: www.barrons.com/articles/boeing-credit-rating-downgrade-bbb-cash-outlook-737-max-coronavirus-51584449478

Shalal, A. (2019), "US foreign arms sales hit \$44.15 billion in first three quarters of FY2019", Reuters, 19 June, available at: www.reuters.com/article/us-franceairshow-usa-arms/u-s-foreign-arms-sales-hit-44-15-billion-in-first-three-quarters-of-fy2019-idUSKCN1TK1TO

Shepardson, D. (2020), "Boeing CEO does not want US to take stake in company after coronavirus stimulus", Reuters, 24 March, available at: www.reuters.com/article/us-boeing-737max/boeing-ceo-does-not-want-u-s-to-take-stake-in-company-after-coronavirus-stimulus-idUSKBN21B1WN

Sloan, A. (2020), "The real reason boeing didn't take government bailout money", Washington Post, 8 May, available at: www.washingtonpost.com/business/2020/05/07/real-reason-boeing-didnt-take-coronavirus-bailout/

Sonawane, K. (2016), "Commercial aircraft market by size (wide-body, narrow-body, regional), end user (government, private sector) – global opportunity analysis and industry forecast, 2014-2022", Allied Market Research, September, available at: www.alliedmarketresearch.com/commercial-aircraft-market

SSVP (2020), "Special situation funds", available at: www.ssvp.gg/ (accessed 20 April 2020).

Stroth, S. (2019), "Boeing sued by plane lessor to void contract for 22 max jets", Bloomberg, 18 December, available at: www.bloomberg.com/news/articles/2019-12-18/boeing-sued-by-irish-plane-lessor-to-void-deal-for-22-max-jets

Vitalis, I. (2019), "The future of boeing (BA) after the ethiopian 737 max crash", Tradimo, 4 July, available at: <https://news.tradimo.com/the-future-of-boeing-after-the-ethiopian-737-max-crash/>

World Economic Forum (2020), "This chart shows how airlines are being grounded by COVID-19", 21 March, available at: www.weforum.org/agenda/2020/03/this-chart-shows-how-airlines-are-being-grounded-by-covid-19/

World Health Organization (WHO), (2020a), "Rolling updates on coronavirus disease (COVID-19)", available at: www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen (accessed 13 April 2020).

World Health Organization (WHO), (2020b), "Coronavirus", available at: www.who.int/health-topics/coronavirus#tab=tab_1 (accessed 14 April 2020).

World Health Organization (WHO), (2020c), "Coronavirus disease 2019 (COVID-19) situation report –86", available at: www.who.int/docs/default-source/coronaviruse/situation-reports/20200415-sitrep-86-covid-19.pdf?sfvrsn=c615ea20_4 (accessed 1 May 2020).

Further reading

Barclays Equity Research (2020), "Why airbus looks better off than boeing post covid", 30 March.

BBC (2019), "Ethiopian airlines: 'no survivors' on crashed boeing 737", 10 March, available at: www.bbc.com/news/world-africa-47513508

Flynn, D. (2020), "Post-coronavirus, 'normal' travel may not resume until 2023", Executive Traveller, 15 April, available at: www.executivetraveller.com/news/post-coronavirus-normal-travel-may-not-resume-until-2023

FMJ (2019), "What does the ongoing trade war mean for the aviation industry?", June, available at: www.fmjlaw.com/trade-war-aviation-industry/

Franklin, J. and Shepardson, D. (2020), "Boeing raises \$25 billion in blowout debt sale, eschews government aid", Reuters, 1 May, available at: www.reuters.com/article/us-boeing-debt/boeing-raises-25-billion-in-blowout-debt-sale-eschews-government-aid-idUSKBN22C3SJ

Isidore, C. and Wallace, G. (2020), "Boeing offering buyouts as it projects recovery will take years", CNN, 2 April, available at: <https://edition.cnn.com/2020/04/02/business/boeing-buyouts-layoffs/index.html>

WhaTech (2020), "Explore the growth opportunities and business strategy of the global commercial aircraft market 2022", 23 February, available at: whatech.com/market-research/aerospace-markets/636843-explore-the-growth-opportunities-and-business-strategy-of-the-global-commercial-aircraft-market-2022

Ziady, H. (2019), "Boeing hit with another lawsuit over troubled 737 max", CNN, 18 December, available at: <https://edition.cnn.com/2019/12/18/business/boeing-sued-timaero-737-max/index.html>

Exhibit 1. Stockprice chart for Boeing 2018–2020 (In US Dollars)

Figure E1



Source: Retrieved by authors on April 16, 2020 from <https://stockcharts.com/h-sc/ui?s=BA>

Exhibit 2. Commercial aircraft delivery trends and forecast

| Table E1 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020E | 2021E | 2022E | 2023E |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Widebody | | | | | | | | | |
| 747(Boeing) | 304 | 274 | 242 | 209 | 185 | 181 | 171 | 158 | 145 |
| 767(Boeing) | 864 | 837 | 816 | 812 | 802 | 791 | 748 | 705 | 658 |
| 777(Boeing) | 1,327 | 1,413 | 1,462 | 1,494 | 1,523 | 1,486 | 1,381 | 1,275 | 1,172 |
| 787(Boeing) | 355 | 492 | 627 | 771 | 927 | 941 | 939 | 940 | 944 |
| A300(Airbus) | 247 | 235 | 226 | 221 | 216 | 209 | 192 | 175 | 158 |
| A310(Airbus) | 79 | 56 | 46 | 38 | 32 | 31 | 28 | 26 | 23 |
| A330(Airbus) | 1,190 | 1,241 | 1,296 | 1,331 | 1,357 | 1,329 | 1,242 | 1,152 | 1,062 |
| A340(Airbus) | 283 | 265 | 236 | 216 | 191 | 185 | 170 | 155 | 139 |
| A350(Airbus) | 15 | 64 | 142 | 235 | 347 | 366 | 385 | 410 | 433 |
| A380(Airbus) | 180 | 207 | 222 | 232 | 240 | 232 | 215 | 195 | 176 |
| DC-10 (McDonnell Douglas) | 4 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| L-1011 TriStar (Lockheed Corporation) | 6 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| MD-11 (McDonnell Douglas) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>Total Widebody</i> | <i>4,854</i> | <i>5,088</i> | <i>5,318</i> | <i>5,559</i> | <i>5,820</i> | <i>5,752</i> | <i>5,472</i> | <i>5,191</i> | <i>4,910</i> |
| Narrowbody | | | | | | | | | |
| A220 (Airbus) | 0 | 7 | 17 | 33 | 48 | 40 | 50 | 50 | 60 |
| A319(Airbus) | 23 | 4 | 10 | 8 | 4 | 4 | 4 | 0 | 0 |
| A320(Airbus) | 281 | 319 | 345 | 417 | 426 | 285 | 250 | 300 | 320 |
| A321(Airbus) | 184 | 222 | 203 | 201 | 206 | 160 | 130 | 150 | 160 |
| 737 MAX(Boeing) | 0 | 0 | 74 | 254 | 57 | 220 | 420 | 420 | 456 |
| 737 NG(Boeing) | 476 | 470 | 438 | 305 | 50 | 0 | 0 | 0 | 0 |
| BBD CRJ (Bombardier) | 43 | 46 | 26 | 19 | 26 | 25 | 4 | 0 | 0 |
| Embraer E-jet (Embraer) | 101 | 108 | 101 | 90 | 89 | 100 | 85 | 100 | 104 |
| Mitsubishi Space Jet (Mitsubishi) | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 9 | 10 |
| Sukhoi Super Jet (United Aircraft Corporation) | 20 | 21 | 24 | 28 | 6 | 0 | 0 | 0 | 0 |
| Tupolev Tu-204 (Aviastar-SP and Kazan Aircraft Production Association) | 2 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| Antonev An-148 (Antonov) | 6 | 1 | 4 | 1 | 2 | 0 | 0 | 0 | 0 |
| COMAC ARJ-21 (Comac) | 1 | 1 | 2 | 6 | 12 | 0 | 0 | 0 | 0 |
| <i>Total Narrowbody</i> | <i>1,137</i> | <i>1,202</i> | <i>1,246</i> | <i>1,363</i> | <i>926</i> | <i>834</i> | <i>945</i> | <i>1,029</i> | <i>1,110</i> |

Source: Created by authors based on the estimates in the Jeffries research report titled, "End of an Era: Cutting Widebody Production by 60%" published on March 31, 2020, and accessed on May 1, 2020

Exhibit 3. Income statement of the Boeing company (in million us dollars)

Table E2

| (\$M) | 2017A ^[1] | 2018A | 2019A | 2020E ^[2] | 2021E | 2022E | 2023E | 2024E |
|---|----------------------|----------|----------|----------------------|----------|----------|----------|----------|
| <i>BA Income Statement</i> | | | | | | | | |
| Revenue | | | | | | | | |
| Commercial Airplanes | 58,014 | 60,715 | 32,255 | 35,900 | 53,000 | 53,500 | 48,000 | 49,000 |
| Defense, Space and Security | 20,561 | 23,195 | 26,227 | 27,424 | 28,521 | 29,662 | 30,848 | 32,082 |
| Global Services | 14,581 | 17,018 | 18,468 | 15,698 | 14,913 | 16,404 | 18,045 | 18,947 |
| Boeing Capital | 307 | 274 | 244 | 200 | 200 | 200 | 200 | 200 |
| Unallocated, Elim's and Other | 542 | (75) | (635) | (635) | (635) | (635) | (635) | (635) |
| Total Revenues | 94,005 | 101,127 | 76,559 | 78,587 | 95,999 | 99,131 | 96,458 | 99,594 |
| % ch | 0.5% | 7.6% | (24.3%) | 2.6% | 22.2% | 3.3% | (2.7%) | 3.3% |
| Earnings from Operations | | | | | | | | |
| Commercial Airplanes (Prog Acct) ^[3] | 5,452 | 7,879 | (6,657) | (3,635) | 2,100 | 3,365 | 3,000 | 2,900 |
| Defense, Space and Security | 2,193 | 1,594 | 2,608 | 2,800 | 3,100 | 3,200 | 3,300 | 3,300 |
| Global Services | 2,246 | 2,522 | 2,697 | 2,143 | 1,986 | 2,284 | 2,612 | 2,793 |
| Boeing Capital | 114 | 79 | 28 | 28 | 28 | 28 | 28 | 28 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Segment Operating Profit | 10,005 | 12,074 | (1,324) | 1,336 | 7,214 | 8,877 | 8,940 | 9,021 |
| Total Unallocated Expense | 339 | (87) | (651) | 36 | 108 | 72 | 106 | 83 |
| Total Operating Profit | 10,344 | 11,987 | (1,975) | 1,372 | 7,322 | 8,949 | 9,047 | 9,104 |
| Operating Margins | | | | | | | | |
| Commercial Airplanes (Prog Acct) | 9.4% | 13.0% | (20.6%) | (10.1%) | 4.0% | 6.3% | 6.3% | 5.9% |
| Defense, Space and Security | 10.7% | 6.9% | 9.9% | 10.2% | 10.9% | 10.8% | 10.7% | 10.3% |
| Global Services | 15.4% | 14.8% | 14.6% | 13.7% | 13.3% | 13.9% | 14.5% | 14.7% |
| Boeing Capital | 37.1% | 28.8% | 11.5% | 14.0% | 14.0% | 14.0% | 14.0% | 14.0% |
| Segment Operating Margin | 10.6% | 11.9% | (1.7%) | 1.7% | 7.5% | 9.0% | 9.3% | 9.1% |
| Total Operating Margin | 11.0% | 11.9% | (2.6%) | 1.7% | 7.6% | 9.0% | 9.4% | 9.1% |
| Other income/(loss), net | 123 | 92 | 438 | 396 | 26 | (384) | (367) | (419) |
| Interest and debt expense | (360) | (475) | (722) | (1,500) | (1,400) | (1,300) | (1,000) | (800) |
| Pretax Income | 10,107 | 11,604 | (2,259) | 268 | 5,948 | 7,265 | 7,680 | 7,885 |
| Income Taxes | 1,649 | 1,144 | (1,623) | 43 | 952 | 1,162 | 1,229 | 1,262 |
| Effective tax rate | 16.3% | 9.9% | 71.8% | 16% | 16% | 16% | 16% | 16% |
| Net Income, adjusted | 8,458 | 10,460 | (636) | 225 | 4,996 | 6,102 | 6,451 | 6,623 |
| One time items, net of tax | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net Income, GAAP Cont Ops | 8,458 | 10,460 | (636) | 225 | 4,996 | 6,102 | 6,451 | 6,623 |
| Net Income, reported | 8,458 | 10,460 | (636) | 225 | 4,996 | 6,102 | 6,451 | 6,623 |
| EPS adjusted cont ops | 13.85 | 17.85 | (1.12) | 0.39 | 8.69 | 10.54 | 11.08 | 11.32 |
| One time items | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EPS, GAAP cont ops | 13.85 | 17.85 | (1.12) | 0.39 | 8.69 | 10.54 | 11.08 | 11.32 |
| EPS reported | 13.85 | 17.85 | (1.12) | 0.39 | 8.69 | 10.54 | 11.08 | 11.32 |
| Pension adjustment | (\$1.85) | (\$1.84) | (\$2.35) | (\$2.61) | (\$2.23) | (\$1.65) | (\$1.80) | (\$1.72) |
| "Core" EPS, adj cont ops | 12 | 16.01 | (3.47) | (2.22) | 6.46 | 8.89 | 9.28 | 9.6 |
| Avg Diluted Shares | 78% | 33% | (122%) | (36%) | (392%) | 38% | 4% | 3% |
| | 610.7 | 586.2 | 566 | 572 | 575 | 579 | 582 | 585 |

Sources: Created by authors based on the estimates in UBS Report titled "Is Boeing set to tap the Fed directly and take a 787 forward loss?", published on April 7, 2020, and accessed on May 1, 2020, and the Annual Reports for The Boeing Company which were accessed on May 1, 2020, from <https://investors.boeing.com/investors/financial-reports/default.aspx>

Exhibit 4. Cash flow statement of the Boeing company (in million us dollars)

Table E3

| (\$M) | 2017A | 2018A | 2019A | 2020E | 2021E | 2022E | 2023E | 2024E |
|--|----------|----------|----------|----------|---------|----------|---------|---------|
| Cash from operations | | | | | | | | |
| Net income | 8,197 | 10,460 | (636) | 225 | 4,996 | 6,102 | 6,451 | 6,623 |
| Share-based plans expense | 202 | 202 | 212 | 223 | 234 | 245 | 258 | 271 |
| Depreciation | 1,829 | 1,842 | 1,938 | 1,895 | 1,963 | 2,052 | 2,152 | 2,252 |
| Amortization of other intangibles | 240 | 272 | 333 | 306 | 299 | 285 | 266 | 266 |
| GAAP Pension Expense (Income) | (582) | (153) | (777) | (399) | (896) | (1,362) | (1,376) | (1,334) |
| Investments/asset impairment charges | 113 | 93 | 443 | 0 | 0 | 0 | 0 | 0 |
| Cust and comm fin val provision | 2 | (3) | 250 | 0 | 0 | 0 | 0 | 0 |
| Gain on disposition, net | (21) | (75) | (691) | 0 | 0 | 0 | 0 | 0 |
| Other charges and credits, net | 287 | 247 | 334 | 0 | 0 | 0 | 0 | 0 |
| Excess tax benefits from share-based pay | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Prepaid pension contribution | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Working Capital | | | | | | | | |
| Accounts receivables | (1,821) | (795) | 603 | 210 | (677) | (122) | 104 | (122) |
| Unbilled receivables | | (1,826) | 982 | 2,058 | (1,548) | (278) | 238 | (279) |
| Inventories (net of advances, progress billings) | (1,085) | 568 | (12,391) | (1,897) | 6,627 | 4,765 | 979 | 520 |
| Accounts payable and other liabilities | 703 | 1,206 | 8,760 | (6,644) | (1,728) | (252) | (416) | 496 |
| Advances in excess of related costs | 3,570 | 2,636 | 737 | (7,440) | (3,718) | (3,241) | 849 | 0 |
| Income taxes receivable, payable and deferred | 951 | (180) | (2,476) | 1,036 | 885 | 212 | (34) | (87) |
| Customer financing, net | 1,017 | 120 | 419 | 0 | 0 | 0 | 0 | 0 |
| Other | (258) | 708 | (486) | 0 | 0 | 0 | 0 | 0 |
| Total Working Capital | 3,077 | 2,437 | (3,852) | (12,678) | (158) | 1,084 | 1,720 | 528 |
| Net cash from continuing operations | 13,344 | 15,322 | (2,446) | (10,429) | 6,439 | 8,407 | 9,472 | 8,606 |
| Net cash from discontinued operations | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net cash from operations | 13,344 | 15,322 | (2,446) | (10,429) | 6,439 | 8,407 | 9,472 | 8,606 |
| Cash from Investing | | | | | | | | |
| Property, plant and equipment, net | (1,647) | (1,602) | (1,500) | (1,500) | (1,800) | (1,800) | (1,800) | (1,800) |
| Acquisitions | (324) | (3,230) | (455) | (4,000) | 0 | 0 | 0 | 0 |
| Proceeds from dispositions | 0 | 0 | 464 | 0 | 0 | 0 | 0 | 0 |
| Other | (129) | (80) | (140) | 0 | 0 | 0 | 0 | 0 |
| Contributions to investments | (3,601) | (2,607) | (1,658) | 0 | 0 | 0 | 0 | 0 |
| Proceeds from investments | 3,639 | 2,898 | 1,759 | 0 | 0 | 0 | 0 | 0 |
| Net cash from investing in continuing ops | (2,062) | (4,621) | (1,530) | (5,500) | (1,800) | (1,800) | (1,800) | (1,800) |
| Net cash from investing in discontinuing ops | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net cash from investing | (2,062) | (4,621) | (1,530) | (5,500) | (1,800) | (1,800) | (1,800) | (1,800) |
| Cash from Financing | | | | | | | | |
| New Borrowings | 2,077 | 8,548 | 25,389 | 26,000 | 0 | 0 | 0 | 0 |
| Debt repayments | (953) | (7,183) | (12,171) | (7,340) | (6,000) | (8,000) | (6,000) | (2,000) |
| Net share repurchases | (8,925) | (8,919) | (2,593) | 36 | 29 | 0 | 0 | 0 |
| Excess tax benefit from share-based pay | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dividends paid | (3,417) | (3,946) | (4,630) | (1,175) | 0 | (2,316) | (2,514) | (2,729) |
| Other | (132) | (222) | (256) | 0 | 0 | 0 | 0 | 0 |
| Net cash from financing | (11,350) | (11,722) | 5,739 | 17,520 | (5,971) | (10,316) | (8,514) | (4,729) |
| Impact from FX and Restricted Cash | 80 | (155) | 85 | 0 | 0 | 0 | 0 | 0 |
| Net increase in cash | 12 | (1,176) | 1,848 | 1,591 | (1,332) | (3,709) | (843) | 2,077 |
| Beginning of period cash | 8,801 | 8,813 | 7,637 | 9,485 | 11,076 | 9,744 | 6,035 | 5,192 |
| End of period cash | 8,813 | 7,637 | 9,485 | 11,076 | 9,744 | 6,035 | 5,192 | 7,269 |
| FCF/Share | 19.15 | 23.41 | (6.97) | (20.86) | 8.07 | 11.41 | 13.18 | 11.63 |
| Free Cash Flow, cont ops | 11,697 | 13,720 | (3,946) | (11,929) | 4,639 | 6,607 | 7,672 | 6,806 |
| Free Cash Flow after divs, cont ops | 8,280 | 9,774 | (8,576) | (13,105) | 4,639 | 4,291 | 5,157 | 4,077 |

Sources: Created by authors based on the estimates in UBS Report titled "Is Boeing set to tap the Fed directly & take a 787 forward loss?", published on April 7, 2020, and accessed on May 1, 2020, and the Annual Reports for The Boeing Company which were accessed on May 1, 2020, from <https://investors.boeing.com/investors/financial-reports/default.aspx>

Exhibit 5. Balance sheet of the Boeing company (in million us dollars)

| Table E4 | | | | | | | | |
|--|----------|----------|----------|----------|----------|----------|----------|----------|
| (\$M) | 2017A | 2018A | 2019A | 2020E | 2021E | 2022E | 2023E | 2024E |
| BA Balance Sheet | 8,813 | 7,637 | 9,485 | 11,076 | 9,744 | 6,035 | 5,192 | 7,269 |
| Cash and cash equivalents | | | | | | | | |
| Short-term investments | 1,179 | 927 | 545 | 545 | 545 | 545 | 545 | 545 |
| Accounts receivable | 2,894 | 3,879 | 3,266 | 3,056 | 3,733 | 3,855 | 3,751 | 3,873 |
| Unbilled receivables | 8,194 | 10,025 | 9,043 | 6,985 | 8,533 | 8,812 | 8,574 | 8,853 |
| Current portion cust/comm financing | 309 | 460 | 162 | 162 | 162 | 162 | 162 | 162 |
| Deferred income taxes/other | 2,417 | 2,335 | 3,106 | 2,606 | 2,106 | 2,106 | 2,106 | 2,106 |
| Long-term contracts in progress | 1,854 | 2,129 | 1,187 | 1,241 | 1,291 | 1,342 | 1,396 | 1,452 |
| Supplier advances | 3,189 | 2,453 | 2,202 | 1,854 | 1,602 | 1,422 | 1,242 | 1,062 |
| Unamortized tooling | 3,173 | 2,638 | 2,092 | 1,696 | 1,472 | 1,280 | 1,121 | 962 |
| Deferred Production | 25,358 | 22,967 | 18,716 | 17,788 | 16,528 | 15,448 | 14,368 | 13,288 |
| Other WIP | 5,337 | 4,885 | 6,056 | 5,156 | 5,156 | 5,156 | 5,156 | 5,156 |
| WIP | 30,695 | 27,852 | 24,772 | 22,944 | 21,684 | 20,604 | 19,524 | 18,444 |
| 787 | 37,057 | 32,943 | 29,066 | 26,494 | 24,758 | 23,306 | 21,887 | 20,468 |
| Unamortized tooling | 151 | 116 | 66 | 16 | 0 | 0 | 0 | 1 |
| Deferred Production | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 747 | 151 | 116 | 66 | 16 | 0 | 0 | 0 | 2 |
| Commercial cust consideration | 2,976 | 2,844 | 2,863 | 2,663 | 2,363 | 2,063 | 1,763 | 1,463 |
| 737MAX deferred/tooling | 845 | 934 | 1,834 | 4,784 | 7,034 | 8,484 | 9,434 | 10,134 |
| 777X inventory | 300 | 5,579 | 8,542 | 9,400 | 10,400 | 11,186 | 11,322 | 11,463 |
| Other BCA | 11,532 | 10,337 | 23,645 | 23,820 | 15,945 | 10,345 | 9,645 | 9,645 |
| Commercial aircraft programs | 52,861 | 52,753 | 66,016 | 67,177 | 60,500 | 55,384 | 54,051 | 53,175 |
| Comm'l spare parts, used a/c and other, net | 6,673 | 7,685 | 9,419 | 10,100 | 10,100 | 10,400 | 10,700 | 11,000 |
| Less advances and progress billings | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total inventories (net of adv, progress) | 61,388 | 62,567 | 76,622 | 78,519 | 71,891 | 67,127 | 66,148 | 65,627 |
| Total current assets | 85,194 | 87,830 | 1,02,229 | 1,02,949 | 96,714 | 88,641 | 86,478 | 88,435 |
| Customer and commercial financing, net | 2,756 | 2,418 | 2,136 | 2,136 | 2,136 | 2,136 | 2,136 | 2,136 |
| Property, plant and equipment, net | 12,672 | 12,645 | 12,502 | 12,107 | 11,944 | 11,692 | 11,339 | 10,887 |
| Goodwill | 5,559 | 7,840 | 8,060 | 12,060 | 12,060 | 12,060 | 12,060 | 12,060 |
| Other acquired intangibles, net | 2,573 | 3,429 | 3,338 | 3,032 | 2,733 | 2,448 | 2,182 | 1,916 |
| Deferred income taxes | 321 | 284 | 683 | 683 | 683 | 683 | 683 | 683 |
| Investments | 1,260 | 1,087 | 1,092 | 1,092 | 1,092 | 1,092 | 1,092 | 1,092 |
| Other assets | 2,027 | 1,826 | 3,585 | 3,585 | 3,585 | 3,585 | 3,585 | 3,585 |
| Total assets | 1,12,362 | 1,17,359 | 1,33,625 | 1,37,645 | 1,30,947 | 1,22,337 | 1,19,555 | 1,20,794 |
| Accounts payable | 12,202 | 12,916 | 15,553 | 12,909 | 13,681 | 13,930 | 13,513 | 14,009 |
| Accrued comp and employee benefit costs | 6,659 | 6,841 | 5,582 | 5,582 | 5,582 | 5,582 | 5,582 | 5,582 |
| Product warrant liabilities | 1,211 | 1,127 | 1,267 | 1,267 | 1,267 | 1,267 | 1,267 | 1,267 |
| Dividends payable | 1,005 | 1,160 | 1,159 | 1,159 | 1,159 | 1,159 | 1,159 | 1,159 |
| Legal, environmental and other contingency | 524 | 555 | 570 | 570 | 570 | 570 | 570 | 570 |
| Forward loss recognition | 622 | 1,488 | 9,070 | 5,070 | 2,570 | 2,070 | 2,070 | 2,070 |
| Other | 3,048 | 3,637 | 5,220 | 5,220 | 5,220 | 5,220 | 5,220 | 5,220 |
| Accounts payable and other liabilities | 25,271 | 27,724 | 38,421 | 31,777 | 30,049 | 29,798 | 29,381 | 29,877 |
| Advances and progress billings (was Advances in excess of related costs) | 48,042 | 50,676 | 51,551 | 44,111 | 40,393 | 37,152 | 38,001 | 38,001 |
| Income taxes payable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Short-term and current portion of LT debt | 1,335 | 3,190 | 7,340 | 6,000 | 8,000 | 6,000 | 2,000 | 2,000 |
| Total current liabilities | 74,648 | 81,590 | 97,312 | 81,887 | 78,442 | 72,950 | 69,383 | 69,878 |
| Deferred income taxes | 2,188 | 1,736 | 413 | 949 | 1,334 | 1,546 | 1,512 | 1,425 |
| Accrued retiree health care | 5,545 | 4,584 | 4,540 | 4,540 | 4,540 | 4,540 | 4,540 | 4,540 |
| Accrued pension plan liability | 16,471 | 15,323 | 16,276 | 14,630 | 13,515 | 10,810 | 9,435 | 8,100 |
| Deferred lease income | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other/Noncurrent income taxes payable | 2,015 | 3,059 | 3,422 | 3,422 | 3,422 | 3,422 | 3,422 | 3,422 |

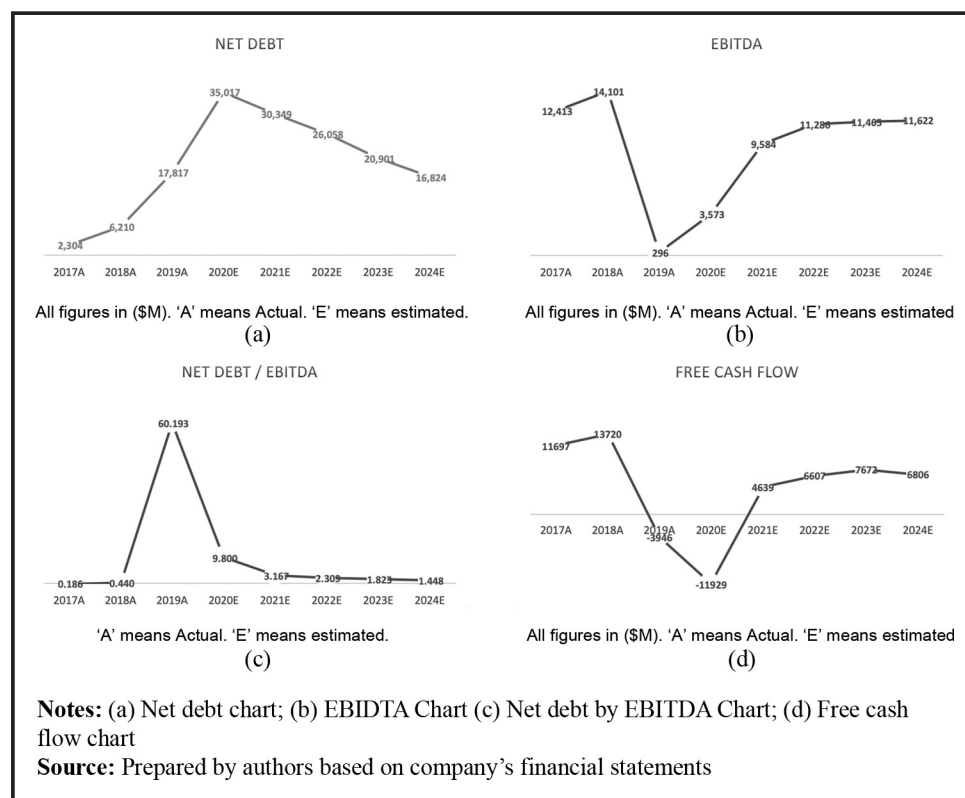
(continued)

Table E4

| (\$M) | 2017A | 2018A | 2019A | 2020E | 2021E | 2022E | 2023E | 2024E |
|---------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Long-term debt | 9,782 | 10,657 | 19,962 | 40,093 | 32,093 | 26,093 | 24,093 | 22,093 |
| Shares issued | 5,061 | 5,061 | 5,061 | 4,930 | 4,930 | 4,930 | 4,930 | 4,930 |
| Additional paid-in capital | 6,804 | 6,768 | 6,745 | 6,745 | 6,745 | 6,745 | 6,745 | 6,745 |
| Treasury shares | (43,454) | (52,348) | (54,914) | (54,878) | (54,849) | (54,849) | (54,849) | (54,849) |
| Retained earnings | 49,618 | 55,941 | 50,644 | 49,916 | 55,146 | 59,178 | 63,372 | 67,537 |
| Accum other compr income/(loss) | (16,373) | (15,083) | (16,153) | (14,906) | (14,686) | (13,344) | (13,344) | (13,344) |
| Total BA stockholders' equity | 1,656 | 339 | (8,617) | (8,193) | (2,715) | 2,659 | 6,854 | 11,019 |
| Noncontrolling interest | 57 | 71 | 317 | 317 | 317 | 317 | 317 | 317 |
| Total liabilities and equity | 1,12,362 | 1,17,359 | 1,33,625 | 1,37,645 | 1,30,948 | 1,22,337 | 1,19,555 | 1,20,794 |

Sources: Created by authors based on the estimates in UBS Report titled "Is Boeing set to tap the Fed directly & take a 787 forward loss?", published on April 7, 2020, and accessed on May 1, 2020, and the Annual Reports for The Boeing Company which were accessed on May 1, 2020, from <https://investors.boeing.com/investors/financial-reports/default.aspx>

Exhibit 6. Charts of Net debt, EDITDA, Net debt by EBITDA and free Cashflow for Boeing

Figure E2

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