



GLOBAL MARKETS REPORT “BOEING crisis”

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COMPANY'S HISTORY

Boeing is an American company, global co-leader in the sector of commercial airplane manufacturing. Nowadays, the company is based in Arlington, Virginia, and consists of three main divisions: Boeing Commercial Airplanes, Boeing Defense, Space&Security and Boeing Global. Today's company is the result of a merger with McDonnell Douglas in 1997.

It was established in 1916 by William E. Boeing, previously a timber merchant, in Seattle, initially with the name of Aero Products Company but renamed to Boeing Airplane company after a year. William Boeing and Conrad Westellwelt had developed the commercial airplane "B&W" seaplane shortly before the company was founded, and after the US entered WWI, Boeing supplied aircrafts to the Navy. During the 1920s and 1930s, it mostly supplied various planes and trainers to the US military, and in 1928, it expanded into airmail services, and the company was renamed Boeing Airplane&Transportation Company, encompassing both manufacturing and airline operations.

After a series of acquisitions (Avion, Steaman Aircraft, Sikorsky Aviation and engine manufacturer Pratt&Whitney among others) it changed again its named into United Aircraft, and in 1931, it combined four airlines under its property into United Airlines. The 1934 antitrust Air Mail Act separated the firm into three branches, Boeing Airplane company along with United Aircraft Corporation and United Airlines, both still active to this day (with United Airlines being one of the biggest US commercial airlines).

Prior to WWII, Boeing produced both civilian and military aircraft, among which we remember the bombers B17 and B29, highly decorated vehicles during the war effort. After the war, it developed other military bombers such as the infamous B52; but if the military manufacturing continued to be successful, its commercial planes were lacklustre compared to rivals' offerings. To revitalize this market, Boeing launched turbojet planes with a wider range than its competitors, revealing the 707 model, which was first adopted by Pan Am in 1958 and quickly rose to popularity. The 727 and 737 followed, with the latter entering service in 1968 and along decades of successes and some modifications, it remains in productions to this day.

A Boeing 737 Max



The next commercial airplane brought to the market by Boeing was the 747 Jumbo Jet, the world's first wide body (planes boasting a width of over 6 meters) aircraft, capable of hosting up to 400 passengers, whose development put the company under serious financial distress, but ultimately proved highly successful.

Meanwhile, Boeing remained active in the field of military applications and space exploration. It acquired the then-largest helicopter manufacturer of the world, Vertol, and also developed a number of ballistic and cruise missiles. It greatly contributed to NASA's effort of space conquest, by providing spacecrafts and rockets, participating in different projects such as the Apollo Program, the ISS and many others.

Boeing also briefly ventured into different fields in the 70s such as naval construction, energy production and agriculture, although it ultimately abandoned them to solely focus on aviation.

It launched the 767 and 757 in 1981 and 1982 respectively, on a project synergy, while the 777 debuted in 1994.

Jointly with Lockheed Martin and General Dynamics, Boeing constituted in 1996 a consortium for the development of the USAF's F22 Raptor, the first modern 5th generation, stealth, air-superiority fighter.

The next year, it merged with McDonnell Douglas another major player both for military and civilian aircrafts, having in its production lines the F15 and F18 fighter jets and the DC commercial line. McDonnell was forced into this merger after losing the contract for the next generation of fighter jets (awarded, as we said, to Lockheed, Boeing and GD). The merger, announced in late 1996 and ultimated in 1997, was slowed down by concerns of the European Union over possible antitrust concerns.

The latest commercial plane to be produced by Boeing is the 787 Dreamliner, a more efficient design of a wide body aircraft, highly requested by airlines around the world because of its innovative solutions that reduced fuel consumption and operative costs. It entered service in 2011 following a number of delays, over concerns about the design and composition of the aircraft, which has over the years effectively revealed a number of fallacies.

Nowadays, Boeing is a de facto duopolist in the commercial aviation sector with European rival Airbus, and stands 4th in the rankings of the largest contractors of the US Army, supplying a variety of products such as military aircrafts, rockets, satellites and missiles.

It employs 65,000 employees in 27 different countries, and its Everett production facility, used to produce the 747, 767, 777 and 787 is considered to be the largest manufacturing building in the world.

COMPETITION IN THE INDUSTRY

Airbus and Boeing – A History of Two Powerhouses

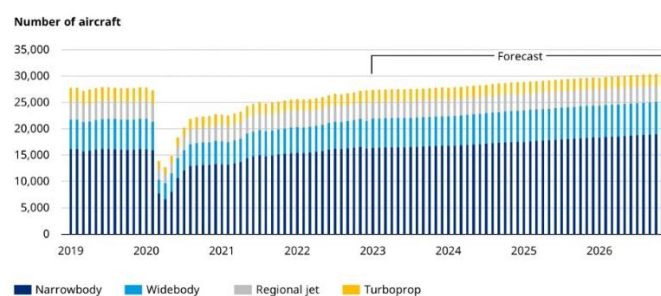
The competition between Airbus and Boeing has been characterised by a duopoly in the large jet market since the 1990s and is the result of a series of big mergers within the aerospace industry. While Boeing was absorbing other American companies such as McDonnell Douglas, Airbus began as a consortium between Spanish CASA, German DASA and French Aerospatiale-Matra. Thanks to their size advantage, they quickly began to take over other competitors and force them out of the market for commercial jets as can be seen in examples such as Lockheed Martin or Convair in USA, and British Aerospace and Fokker in Europe.

Market Strategies Between the Two Companies

Boeing currently produces 4 aircraft and competes in short-range and long-range distance travel. Airbus, however, manufactures 8, with a similar coverage. Boeing's status as a first mover in the industry has made it a world-leading company; however, the external environment and various pressures have allowed Airbus to emerge as a strong competitor and establish the well-known duopoly. Throughout its history, Boeing has embraced open innovation to source ideas and manufacturing externally. It has put the designing elements onto different companies, but faced challenges, particularly in controlling assembly. Excessive outsourcing and a focus on cost reductions led to challenges, including loss of control and reliance on external partners. The recent failures in the development of the 787 and the quality control of the 737 MAX underscore the importance of managing core functions internally and maintaining close relationships with partners.

Nonetheless, Boeing's strength lies in its risk-taking culture that has fuelled innovation and progress within the industry. Despite financial challenges, Boeing remains committed to R&D development and personnel training, emphasising the need for industry growth. The rivalry between Boeing and Airbus is very clear in their strategies towards aircraft size and operational models. While Boeing favoured efficient, smaller aircraft such as the 787 Dreamliner, Airbus took the route of large-capacity jumbo jets such as the A380. This also emphasised Airbus' investment into a hub-and-spoke model with big, connecting airports, rather than direct routes as seen with Boeing. However, advancements in fuel efficiency, as well as the development of the ETOPS regulations, allowing smaller planes to fly longer, trans-Atlantic routes, led to shifts in market preferences toward Boeing's planes. This decline in the jumbo jet market perfectly underscores the importance of adapting to changing industry trends which Boeing perfectly capitalised on.

Forecast of aircrafts in service, by type



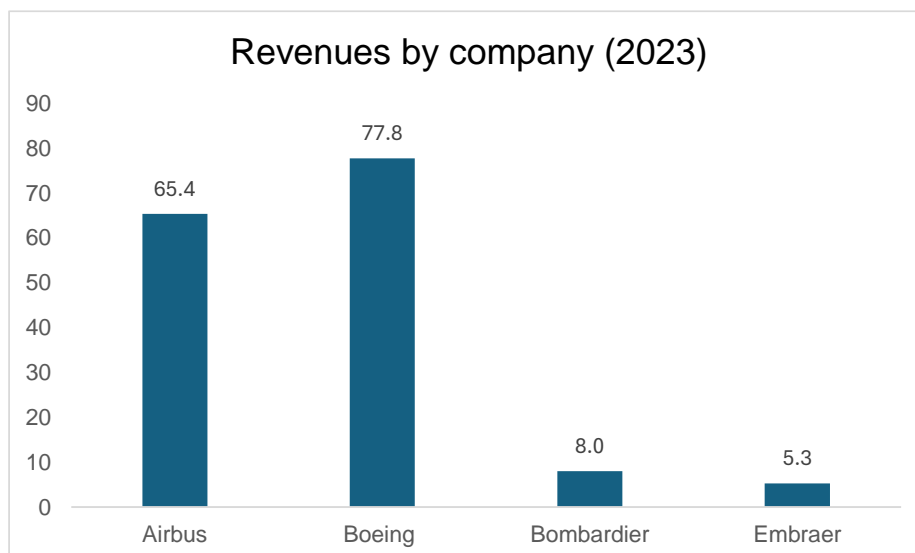
Source: Oliver Wyman

The challengers: Bombardier, Embraer and Comac

Although the aerospace industry is a classic example of duopoly, with Boeing and Airbus capturing around 2/3 of the market, there are still competing companies such as Embraer, Bombardier and Comac. The way they compete is by manufacturing and flying smaller, efficient planes on routes that even the 737 or A320 are too big for. Although both Boeing and Airbus tried to break into the small planes market, they both failed and left it to the competition. These aeroplanes are still crucial, especially in the US where a significant portion of travel is by plane, and smaller cities with short runways and low demand still need a method of transportation that the other companies cannot fulfil. Bombardier, which captures around 6% of the market, did exactly that with its recent C-Series aircraft, an efficient plane that is perfect for those types of routes. Even after Boeing's lobbying endeavours which put a 300% tariff on Bombardier's C-Series planes in the US market, Airbus stepped in, acquiring a 50.01% stake in the project, and put a hold on the tariffs due to the change in ownership, sourcing, and manufacturing process. Now Bombardier and Airbus are projected to deliver over 3,000 units worth billions of dollars which will put Boeing at a big disadvantage.

Another competitor that has recently shaken ground is Chinese Comac. A new manufacturer that has exploded in popularity in China and adjacent countries is growing in power and is aiming to break through the duopoly. Nevertheless, it has a long way to go as it is still a negligible contender due to its size, fleet, and localisation. Not only does it not provide anything special compared to its rivals, but also lacks necessary approvals from the American and European aerospace agencies, prohibiting it from operating in those regions. Additionally, a majority of its parts are sourced from American or European suppliers, not allowing for famous Chinese economies of scale and cheap labour. So far, Comac is only operating in local routes in China, as well as in Malaysia and Brunei. Analysts are skeptical about the possibility of entering Western markets in the near future as it lacks necessary support and maintenance operations in the West, making it very hard to effectively and safely operate these planes there.

Revenue of the selected companies



Source: Financial Statements of Boeing, Airbus, Bombardier, Embraer

OUTLINE OF THE CRISIS

Boeing's troubles began on 29 October 2018 with the tragic crash of a Boeing 737 MAX 8 plane into the Java Sea. None of the 189 passengers on the notorious Lion Air Flight 610 survived. However, this crash was soon followed by another disaster caused by a Boeing 737 MAX 8 aircraft—the Ethiopian Airlines Flight 302 on 10 March 2019, with 157 people killed on board. Both tragedies resulted from a malfunctioning Maneuvering Characteristics Augmentation System (MCAS). At the time, the MCAS was neither adequately documented in the pilot manuals nor used during simulator training, so many pilots could not fully grasp its effects and struggled with manually overriding the system. Furthermore, the MCAS relied on only one sensor detecting AoA data, which turned out to be erroneous in the two crashes, thus falsely activating the MCAS and plunging the planes into a dive. Following the two incidents, Boeing suffers its largest-ever quarterly loss.

Since then, the production and deliveries of the 737 MAX have been halted several times due to discoveries of new issues, such as non-compliant fittings and bulkheads with misaligned drilled holes. The US House of Representatives conducted an investigation that showed Boeing and the FAA share the blame for the two crashes. It was concluded the FAA failed to recognize and address safety issues due to conflict of interest as managers ignored some of their experts' opinions.

The most recent contribution to the crisis involved a door panel that blew off mid-air on a 737 MAX 9 aircraft on 5 January 2024. Although there were no casualties, the Alaska Airlines pilots had to perform an emergency landing because four bolts stopping the door plug from moving upwards were missing. In March, the FAA's audit of Boeing and Spirit AeroSystems (their supplier) "found multiple instances where the companies allegedly failed to comply with manufacturing quality control requirements."

The Blown Off Door Panel



Source: CNN

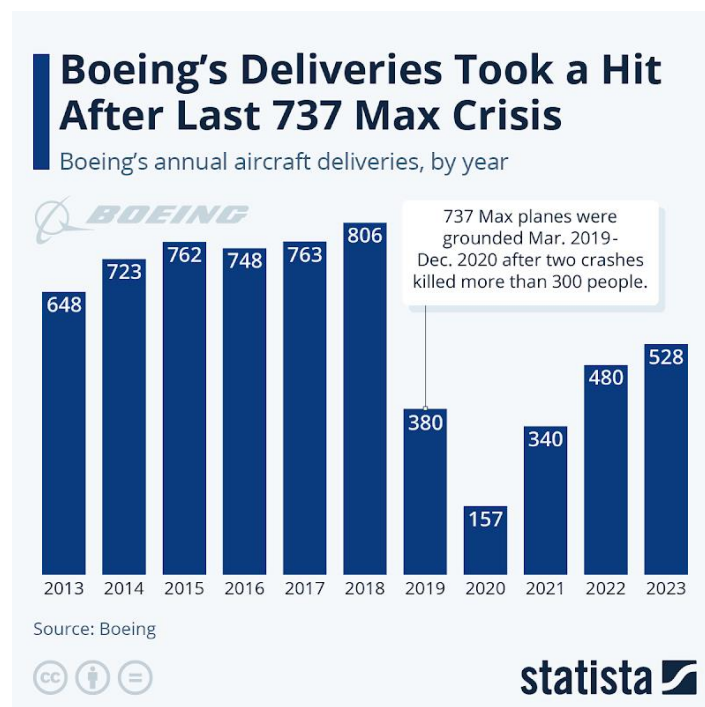
Boeing's Priorities and Response

Boeing has faced criticism on multiple occasions over its faulty manufacturing, leading many to believe that the company has prioritized its financial performance over the safety and long-term well-being of its customers. According to Richard Aboulafia, who works as a managing director at the consultant firm AeroDynamic Advisory, Boeing has employed too few people in attempts to

cut costs while keeping up with the high production output. Aengus Kelly, AerCap’s CEO, also stated that “the financial targets have to take a back seat for Boeing” and that the company “must now focus 100 percent on quality and safety metrics.” The FAA is currently investigating several claims as Boeing’s engineers and major clients, such as United Airlines, urge the company to resolve its quality and manufacturing issues.

In response to the deepening of the crisis, Boeing CEO Dave Calhoun and board chair Larry Kellner are soon stepping down while Stanley Deal, the chief of the commercial aeroplane division at Boeing, has promptly retired. Deal was replaced by the company’s COO Stephanie Pope. Moreover, Boeing has taken accountability by compensating United for \$200 million. United had to ground its Boeing 737 MAX 9 fleet for three weeks, following the Alaska Airlines incident in January, which triggered its loss of profits in the first quarter. Also, United now expects a delivery of 61 instead of 183 jets.

Boeing’s Deliveries



Source: Statista

The Whistleblowers

Several accusations made by Boeing whistleblowers further tarnished the company’s reputation amid the crisis. For instance, Boeing engineer Sam Salehpour said all of his attempts to voice concerns about manufacturing problems were ignored and he received threats: “This is not a safety culture, where you get threatened [for] bringing issues”.

John Barnett, a former Boeing quality manager, had found issues with the oxygen systems and accused Boeing of rushing the assembly process in 2019, jeopardizing safety. Boeing denied his claims that “sub-standard parts had even been removed from scrap bins and fitted to planes that were being built” to avoid production line setbacks. He had given a formal deposition, in which

he was interrogated by Boeing's lawyers. On 9 March 2024, when he was scheduled for further questioning, he was found dead due to a self-inflicted wound.

OUTLOOK OF THE COMPANY

Boeing's future revenue outlook is optimistic and challenging at the same time. The company has recently reported an increase in its yearly revenue to \$22 billion showing a positive trajectory, recovering from the pandemic shock. However, the company has faced \$30 million loss in the fourth quarter of 2023, mainly due to broader issues affecting the company's aerospace department. It was the result of supply chain disruptions and post-pandemic recovery dynamics, which have severely impacted Boeing's ability to deliver aircraft on time and manage its production costs effectively.

Regarding its current production, Boeing's 737 program has maintained a steady output of 38 planes monthly and its 787 program is now at five planes per month. These numbers show that despite the challenges that the company has faced these last couple of months, production is ongoing. In addition, Boeing's Space & Security segments are also seeing revenue growth, which contribute positively to future earnings.

Boeing is however facing challenges that put the company in a delicate position, more precisely in its manufacturing quality and safety culture leading to a mandatory increase in regulatory oversight, increasing costs. These challenges must be taken seriously and carefully because they can impact Boeing's ability to deliver on its backlog and affect future revenue streams.

Boeing will need to continue expanding its commercial volume in order to stay consistent in the market. It will need to focus even more on quality control issues and ensure that it can meet its delivery commitments to leverage its substantial backlog into realized revenue and maintain its reputation and customer trust.

In addition to this, the evolution of industry standards and regulatory framework will constrain the company to balance its production with new safety protocols and will be crucial to determine the company's revenue in the coming years.

Financial outlook & Stock Performance

Regarding Boeing's current Financial Health, its debt-to-equity ratio (MQR) is -314.05%, compared to the industry average of -105%, which indicates a higher level of financial leverage and additional risk taken from the company. It suggests that Boeing may face greater difficulty in managing its debt and financial stability. Boeing shows weak performance in terms of profitability and liquidity but manages to be stable in the short term given its current ratio (MQR) of 1.14 and operating margin (TTM) of 1.66%, which suggests that it generates modest profit from its core business activities after covering the costs of production.

Its stock performance in early 2024 reflects a cautious market outlook given the absence of a positive P/E ratio, -36.01, compared to the industry average of 19.91 indicating recent profitability challenges while a forward P/E ratio of 125.00 suggests expectations of future earnings improvement. By computing the Peter Lynch Fair Value Model on Boeing, we get a negative result of approximately -0.56, suggesting that the actual stock price may be undervalued. This valuation method suggests that the stock price is less than Lynch's estimated fair value, meaning it could potentially be a good investment opportunity if the company's fundamentals are strong. However,

the value obtained is negative which is due to the company's earnings being negative (P/E ratio of -36.01).

Company	The Boeing Company (BA)
Future EPS Growth	20
Dividend Yield	0
P/E ratio	-36.01
Results	-0.555401277

Investors' opinions on Boeing's future stock price will depend on its ability to generate positive cash flows, to be able to pay its debts and dividends to shareholders. Analysts expect growth in the coming years, and the company's commitment to take strategic measures such as enhancing its quality control and securing new contracts, will contribute positively to an optimistic outlook for Boeing's stock performance.

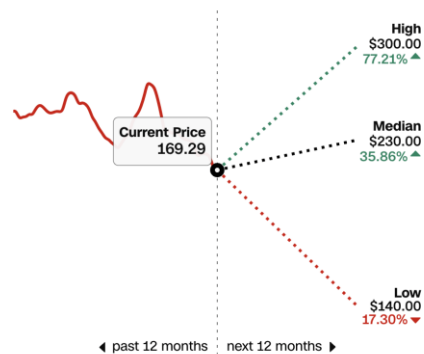
BA Forecasts

31 analyst ratings

● Buy 61% ● Hold 32% ● Sell 6%



1-year stock price forecast



Sources

Boeing's history, *Boeing.com*. <https://www.boeing.com/history>

Amir, R. A., Weiss, S. L., (April 9, 2024) Boeing Company. *Britannica*.
<https://www.britannica.com/money/Boeing-Company>

F22 Raptor, *Air Force*.
<https://www.af.mil/About-Us/Fact-Sheets/Display/Article/104506/f-22-raptor/>

Competition between Airbus and Boeing. (2024, April 17). In *Wikipedia*.
https://en.wikipedia.org/wiki/Competition_between_Airbus_and_Boeing

Airbus. (2024, April 19). In *Wikipedia*. <https://en.wikipedia.org/wiki/Airbus>

Boeing Commercial Airplanes. (2024, April 19). In *Wikipedia*.
https://en.wikipedia.org/wiki/Boeing_Commercial_Airplanes

Woo, A., Park, B., Sung, H., Yong, H., Chae, J., & Choi, S. (2021). An Analysis of the Competitive Actions of Boeing and Airbus in the Aerospace Industry Based on the Competitive Dynamics Model. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(3), 192.
<https://doi.org/10.3390/joitmc7030192>

Can China's Comac break up the Airbus-Boeing duopoly? (2024, April 10). In *Youtube, CNBC International*. <https://www.youtube.com/watch?v=qp7rnrCCQ6w>

The Little Plane War. (2017, November 7). In *Youtube, Wendover Productions*.
<https://www.youtube.com/watch?v=V1YMPk3XhCc>

Arvai, E. (2024, January 18). *Aengus Kelly has strong words for Boeing*. AirInsight. <https://airinsight.com/aengus-kelly-has-strong-words-for-boeing/>
(2024, February 7). *A timeline of Boeing's ongoing 737 Max crisis*. Gulf Business. <https://gulfbusiness.com/a-timeline-of-boeing-s-ongoing-737-max-crisis/>

Bushey, C., & Pfeifer, S. (2024, March 25). *Boeing CEO Dave Calhoun to step down as company battles safety concerns*. Financial Times. <https://www.ft.com/content/c064bfd5-ae19-4e3f-9aee-4de1ff7d2fa2>

CNN. (n.d.). [Image of NTSB investigation of Alaska Airlines Boeing 737-9 MAX]. Retrieved from https://media.cnn.com/api/v1/images/stellar/prod/240130161221-ntsb-investigation-alaska-airlines-boeing-737-9-max-0107.jpg?c=16x9&q=h_833,w_1480,c_fill

Gates, D. (2024, March 4). *FAA audit faults Boeing for multiple instances of quality lapses*. The Seattle Times. <https://www.seattletimes.com/business/boeing-aerospace/faa-audit-faults-boeing-for-multiple-instances-of-quality-lapses/>

Jolly, J. (2024, January 28). *After the latest MAX crisis, Boeing must focus on flight, not finance*. The Guardian. <https://www.theguardian.com/business/2024/jan/28/after-the-latest-max-crisis-boeing-must-focus-on-flight-not-finance>

Legget, T. (2024, March 11). *Boeing whistleblower John Barnett found dead in US*. BBC News. <https://www.bbc.com/news/business-68534703>

Liebermann, O. (2019, October 25). *Investigators spread blame in Lion Air crash, but mostly fault Boeing and FAA*. CNN. <https://edition.cnn.com/2019/10/25/world/lion-air-crash-report/index.html>

Sherman, N. (n.d.). *Boeing whistleblower says he was put through 'hell.'* BBC News. <https://www.bbc.com/news/world-us-canada-68834525>

Statista. (n.d.). [Infographic]. Retrieved from <https://cdn.statcdn.com/Infographic/images/normal/31542.jpeg>

Boeing (BA) Financial Ratios. (n.d.). Investing.Com. Retrieved April 21, 2024, from <https://www.investing.com/equities/boeing-co-ratios>

The Boeing Company (BA) Analyst Ratings, Estimates & Forecasts. (n.d.). Yahoo Finance. Retrieved April 21, 2024, from <https://finance.yahoo.com/quote/BA/analysis>

Boeing reports yearly revenue boost, despite Q4 loss in 2023 - UPI.com. (2024, January 31). UPI. https://www.upi.com/Top_News/US/2024/01/31/boeing-reports-revenue/8791706709702/