Equity Research Report: The Boeing Company (BA)

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SUMMARY OF FINDINGS

Purpose of Report

- This paper was created as an equity research outline for The Boeing Company (BA). It analyzes factors like the company's history and background to the micro and macro-economic conditions that affect a company's overall performance. This paper dives deep into the historical data, present date and estimated future data as a model to project and predict the likelihood of favorable events happening for investors. It aims to analyze past information available to the public and make assumptions about future performance to determine whether the stock's relative performance is indicative to its intrinsic value. This exists as independent research that tries to compile information to create the best and possible scenario for an investor.

Conclusion and recommendation

- This data in this paper suggests the current stock price for Boeing is overpriced relative to its intrinsic value of $73 per share at a share price of $260.66 (12/29/23). Estimations firmly sit well below the current price of the stock. At a basic level this is because Boeing is underperforming YOY and finding its fifth consecutive loss. Other than the intrinsic valuation they face continuous backlash from the public for proposed unethical acts and under compensation from workers. As of now Boeing stands as a high-risk, high-reward investment. The intrinsic value is still far less than the current market price. Technical analysis becomes increasingly hard when you begin to add other factors of risks that are not measurable and mostly in a random walk. Certain events cannot be predicted beforehand and can be detrimental to your returns. Because the nature of this company is vital to infrastructure and is in the public eye, the volatility and sheer risk from holding equity is significantly high and volatile. For risk-averse investors, the recommended approach is to wait and monitor developments before taking a position. Although there are multiple risks associated with this stock, in other more redeeming ways Boeing has some positives that make it attractive. The defense segments revenue is guaranteed income backed by the full faith of the U.S. government. The default risk is virtually zero and revenue on average is higher as public entities have less costs constraints than a private company. Defense is a self-sustaining cycle. The current U.S. stance has a heavy influence on a perception of strength and power. The best of the best is often required by the U.S government, so this guarantees a sizable portion of income effectively future proofing the defense segment. There is little competition within the commercial airliner industry. Defense is more competitive, pushing Boeing down to a minority market segment holder. The barriers to entry are high and new entrants are unlikely to occur.

Key Graphs, Tables or Calculations

Major ongoing issues since 2018 (Last Profitable Year)

- In March of 2019, the 737 Max plane (Best-Selling Plane) was grounded after two fatal crashes. Deliveries were halted and orders were cancelled.
- Faced issues with the 787 Dreamliner and the 777X program that led to decreased sales.
- Faced major challenges during COVID following the mechanical issues with their planes. Supply chains were ruptured and demand for airliners took a nosedive.

- Boeing CEO stated, “It will take time to return Boeing to its former legacy, but with the right focus and culture, we can be an iconic company and aerospace leader once again."

How Boeing lost Market Share

- Airbus (Boeing’s Main Competitor) leveraged their new position after Boeing’s many mistakes and ramped up production and deliveries, surpassing them for the next 5 years.
- Airbus’ A320neo was a great addition to the market shifting focus to more fuel-efficient and cost-effective airliners.

The ongoing improvement process of operations

- In November of 2020, issues with the 737 Max (best-selling plane) have since been resolved and production has resumed its full capacity.
- In October 2024, Boeing issues a new stock package that raised an estimated $19 Billion to help cover their position and improve liquidity.
- Boeing predicts roughly demand for planes through 2043 to be 44,000 new planes.

Layoffs and Strikes

- Late September 2024 Boeing’s union worker decide to go on strike demanding higher pay, better benefits, and reinstated benefits.
- Production for the 737, 777, and 767 halt delaying deliveries in an already polarizing environment.
- New labor Contract: November 2024 (7 Weeks)
  - 38% pay rise over the next 4 years.
  - $12,000 Ratification bonus
  - Reinstatement of annual bonus scheme
- Boeing announced $5 billion in losses for Q3 2024 and announced a one-year long delay for the 777X airliner.
- In response to financial strain, Boeing cut 17,000 jobs or roughly 10% of the workforce globally showing concerns for employment security.

External Investigations

- The Federal Aviation Administration (FAA) initiated investigations into Boeing’s manufacturing following the allegations.
- The Department of Justice (DOJ) sent a grand jury to a criminal investigation into Boeing.
- In March 2024 Boeing CEO Dave Calhoun announced his resignation effectively at the end of the year.

Whistleblowers

- John Barnett: A former Boeing quality manager. Barnett raised many safety concerns in the 787 Dreamliner. In March 2024, he was found dead for an apparent self-inflicted gunshot wound.
- Joshua Dean: An auditor at Spirit AeroSystems, Dean reported issues with the 737 Max production line. He passed away in May 2024 due to MRSA bacterial infection.

- Sam Salehpour: A Boeing engineer, Salehpour alleged critical structural flaws in the 787 and 777 jets, claiming a possibility for a mid-air breakup. He testified before the U.S Senate, notably highlighting a culture full of retaliation against employees raising safety concerns.

Litigation

- 737 MAX crash, victims' families from Lion Air (2018) and Ethiopian Airlines crashes, filled lawsuits alleging design flaws, most of the cases were settled whilst some remain ongoing.
- Shareholders alleged Boeing made false and misleading statements about the safety of the 737 MAX, litigation remains unsettled.
- False Claims Act: in 2023, Boeing paid $8.1 million to resolve allegations of submitting false claims for contracts related to the V-22 Osprey.
- Age Discrimination: Boeing faced an age discrimination lawsuit *(Bonomo V. Boeing)* in 2023, which was ultimately dismissed by the courts.
- Criminal Charges: In 2021, Boeing entered a deferred prosecution agreement with the DOJ, agreeing to pay $2.5 billion to resolve a conspiracy to defraud the FAA during the 737 MAX certification.

Potential Future Impacts

- Moving forward there will be many challenges that await regarding deliveries and supply chain bottlenecks as the employees continue to settle in again.
- While the new contract improves the terms for the unionized workers, the workers who are laid off or not in the union may unintentionally hurt morale and could cause even more labor shortages leading to decreased efficiency.
- Their current ability to invest in new projects is limited. They are already overleveraged and as of now they need all hands-on decks to restructure capital.
- The strike has now further strengthened Airbus's dominance, especially in the narrow-body aircraft market, which can hurt Boeing's long-term market share and performance.
- The prolonged production delays, operational issues, employee sentiment, and public perception may turn away valuable customers for Boeing, so a rebuilding of reputation is key to future performance and success.

KEY GRAPHS, TABLES OR CALCULATIONS

Revenues:

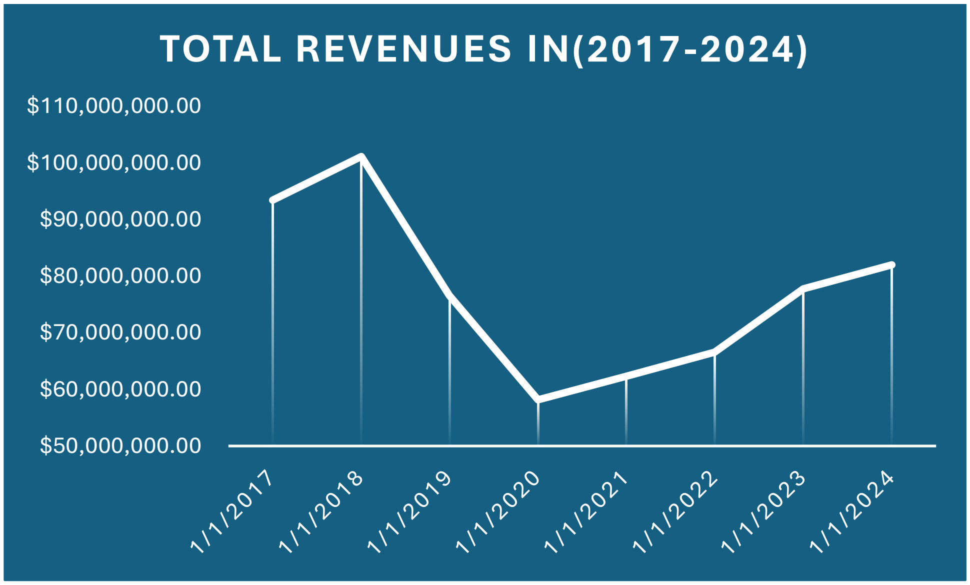


Figure 1 Boeing Total Revenue in Thousands

Revenues in 2018 into 2019 began to subside as demand for more planes from Boeing fell. Boeing's revenue shrank by 42% from the beginning of 2018 to the beginning of 2020. From 2020-2023 Boeing increased their revenue by a mere 34%. When you consider the estimated revenues for 2024, there is a 41% increase since Boeing's lowest point in 2020. In all Boeing shows stable revenue growth even after a myriad of events and is slowly on track to greater earnings.

Net Earnings:

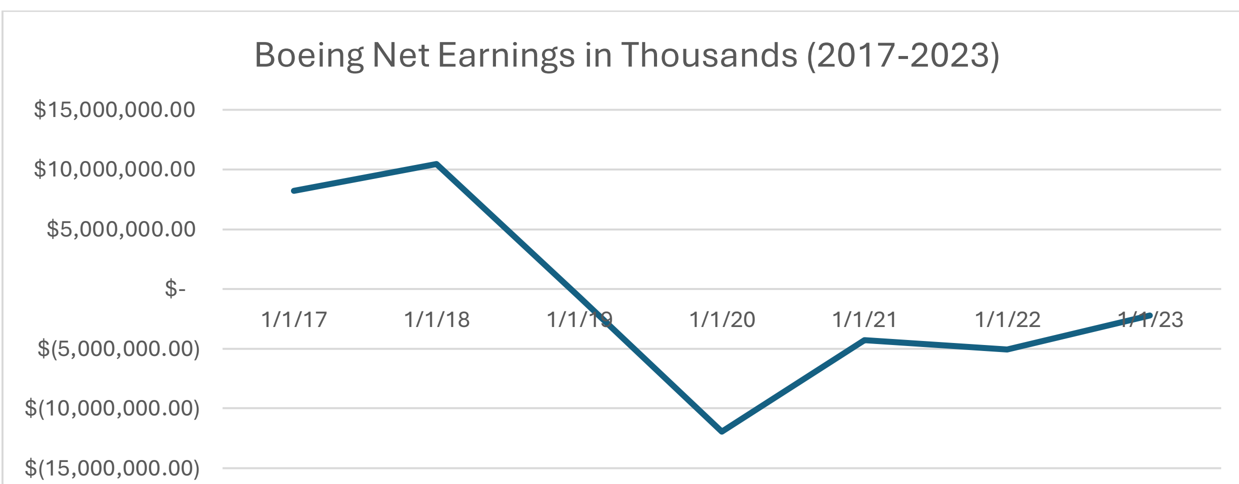
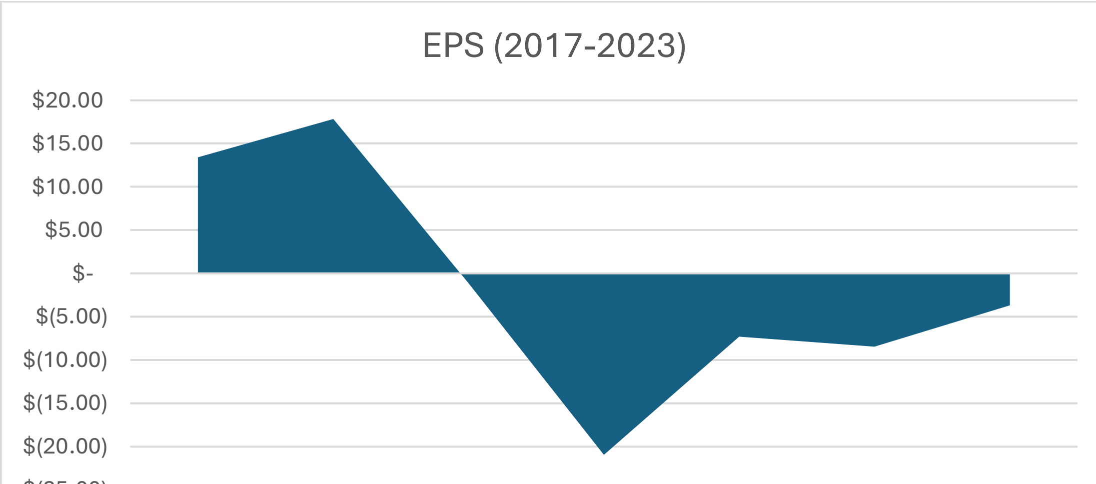


Figure 2 Boeing Net Earnings in Thousands

Boeing has experienced a sharp decline in net earnings at the end of 2018 and into late 2020. The sudden decline in profit in 2018 can be attributed to the 737 Max Grounding. Immense refunds and compensation to airlines for undelivered planes. Increased production costs due to halted and resumed production cycles. Aswell as legal settlements and fines from regulatory agencies. At the end of 2020 the COVID-19 Pandemic hit causing cancelled orders and delays and inventory write-downs for unsold aircraft. Additionally, Boeing faced major challenges for regulatory compliance from fines, and compliance costs. Research and Development (R&D) Expenses surged for the development of the 777x that faced delays and cost overruns.

Earnings Per Share:

Basic EPS (2023): *-3.70* Diluted EPS: *-3.70*



	2017	2018	2019	2020	2021	2022	2023
EPS	$13.44	$17.85	$(1.13)	$(20.99)	$(7.30)	$(8.49)	$(3.70)

Figure 3 Based on Net Earnings Year End Divided by Shares Outstanding Year End

EPS, like other measurements of profit, shows a sharp decline. The area chart helps illustrate the significant risks Boeing faced reaching a whopping -$20.99 EPS marking Boeing's worst performance on record. Boeing's EPS has underperformed slightly in terms of net earnings, but this is primarily due to share dilution.

Shares Outstanding:

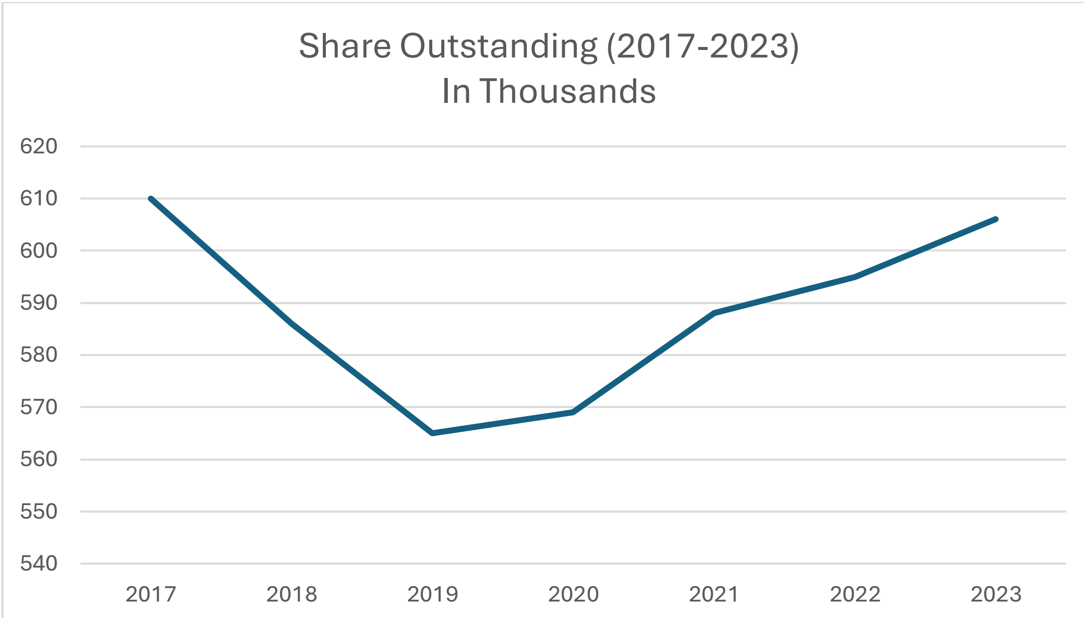


Figure 4 Shares Outstanding 2017 - 2023 Year End (Yahoo Finance)

The increase in shares outstanding from 2020 onward directly explains why Boeing's EPS did not recover as strongly as its net earnings. This shows Boeing's urgency to issue more equity to avoid even more excessive leverage. This is a clear demonstration of prioritizing survival over short-term shareholder returns. This decision was necessary; however, the diluted EPS highlights the challenges to come ahead for Boeing in restoring profitability and shareholder value.

Return on Assets:

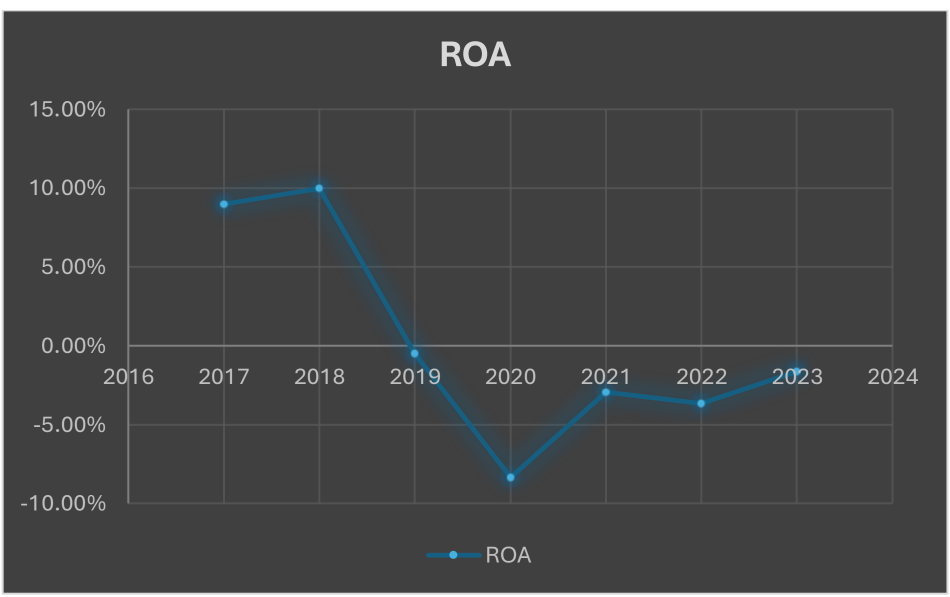


Figure 5 Net Earnings for a Given Period Divided by Average Assets Current Year - Previous Year

At face value it appears Boeing's overall ROA had decreased sharply with other profitability metrics. However, Boeing suffered significant losses which will skew the overall reliability of ROA at face value. Next is a graph displaying the change in total assets which will give us a better understanding of Boeing's position.

Change in Assets:

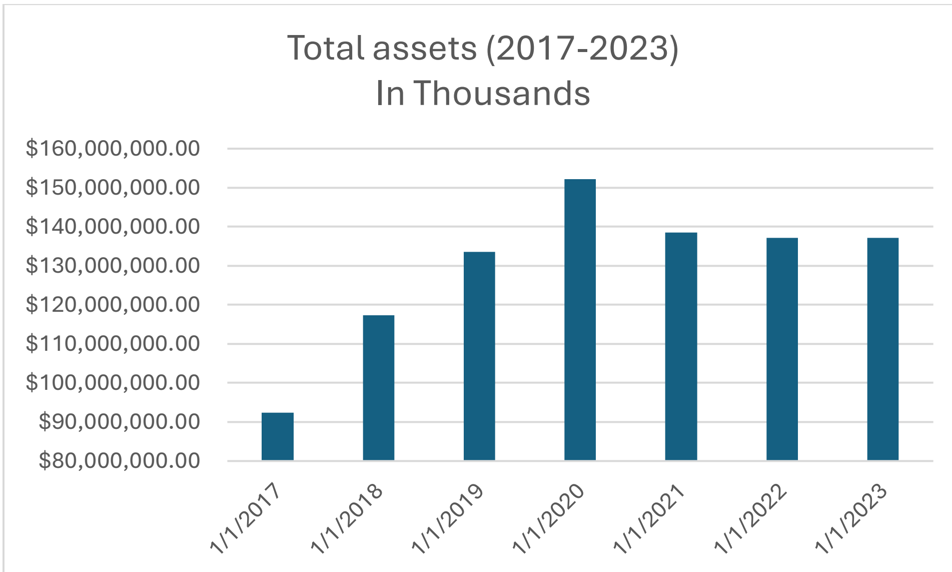


Figure 6 Total Assets 2017 – 2023 in thousands.

Pre 2020 Boeing operated efficiently with a strong ROA and stable asset base. In 2020, ROA plummeted due to massive net losses, despite an increase in overall assets, reflecting inefficiency during the downturn. Post-2020, assets increased as Boeing raised liquidity to gain a better position, but profitability improvements were slower, keeping ROA in an artificial decline. At present, the growing asset base signals long-term thinking, however net earnings will need to improve before we see a positive net return on assets.

Return on Equity:

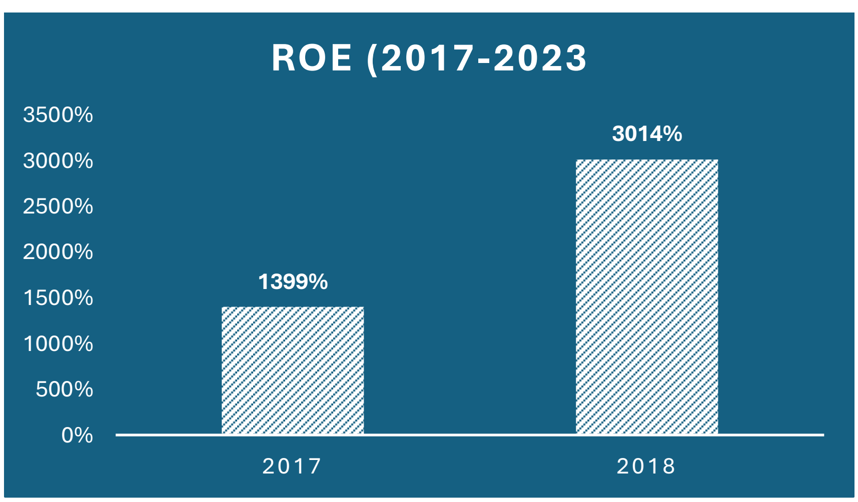


Figure 7 ROE is not meaningful for years with negative equity. Boeing's negative equity reflects financial distress caused by ongoing losses and high debt levels.

In fiscal year 2017 and 2018 Boeing reached 1399% and 3014% ROE. It is important to note that the main cause of a high ROE in this scenario is mainly due normal net earnings for the year and a relatively lower than normal average equity for the current year. And again, going into 2018 net income at this point is still growing slightly but average total equity is still considerably lower than we would like to see. This seems to be a good example of financial engineering rather than an actual ROE. Referring to the above, we will investigate average total equity to get a glimpse into the equity component like the return on assets.

Average Total Equity:

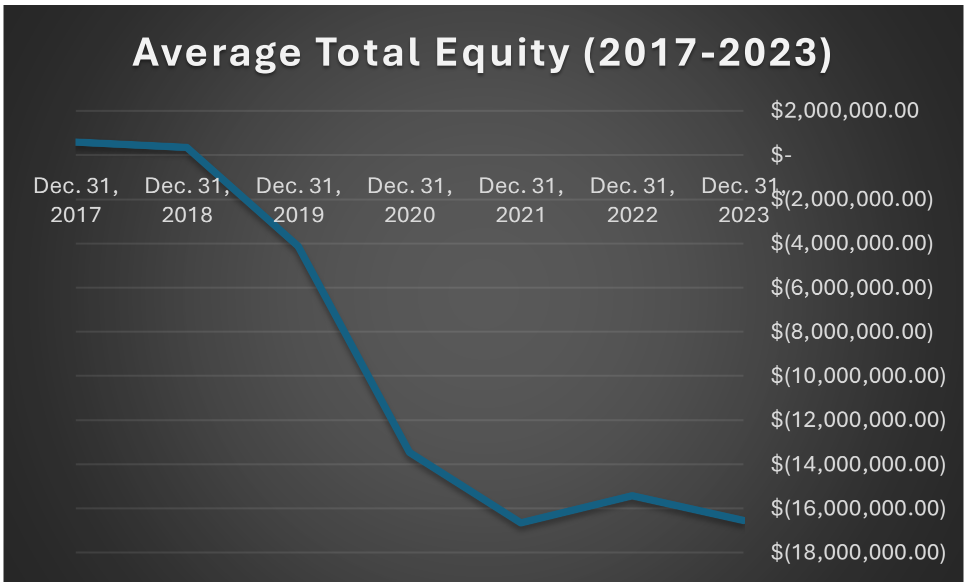


Figure 8 Average Total Equity Calculated as the Average of Current Year Ended Equity and Previous Year Ended Equity

Given the average total equity graph, we can see that starting in 2017 Boeing already has an artificially low total equity. This lower-than-normal average equity year-over-year was for aggressive shareholder returns. Boeing spent an estimated 43.4 billion on share repurchases between 2013 – 2019 to increase EPS. Boeing maintained high dividend payments further reducing retained earnings and overall equity, eventually contributing to a significant drop in average total equity of roughly -29.25%. In efforts to fund Boeing's expenditures and R&D they shifted focus debt financing, rather than equity financing. This has caused Boeing to be over leveraged and undercapitalized, making them more susceptible to market conditions and investor sentiment. In a market in all a culmination of factors contribute to negative equity from financial engineering, external crises, and the inherent risk of a capital-intensive industry. While this does not necessarily mean insolvency, it does assist in understanding Boeing's financial fragility. Addressing issues as major as this, however, will take significant and immediate action along with time before, we can even think about bouncing back.

COMPANY OVERVIEW

The Boeing Company encompasses many diverse industries while primarily focusing on Commercial Derivatives, Military Rotorcraft, Human Space Exploration, Satellites, and autonomous systems and services. The Boeing company leverages its expertise to continuously gain market share in the commercial aviation industry. With over 10,000 commercial Jetlines in service, 5,700 on order, and over 60,000 current active employees, Boeing serves as vital role in the commercial industry. Boeing also has a significant presence in the defense industry offering a wide range of aviation from the President's Air Force One to F/A-18 Super Hornet fighter jet. At the forefront of the industry, Boeing takes significant action and investment towards ESG currently working to become carbon neutral by the year 2050. Boeing tries to tackle anything aviation related. With their significant power over many competitive markets the future of Boeing looks bright and are backed by the U.S. Governments spending eliminating majority of the risk.

Trading Symbol: BA

Primary Trading Platform: New York Stock Exchange (NYSE)

Primary Sector: Commercial and Defense

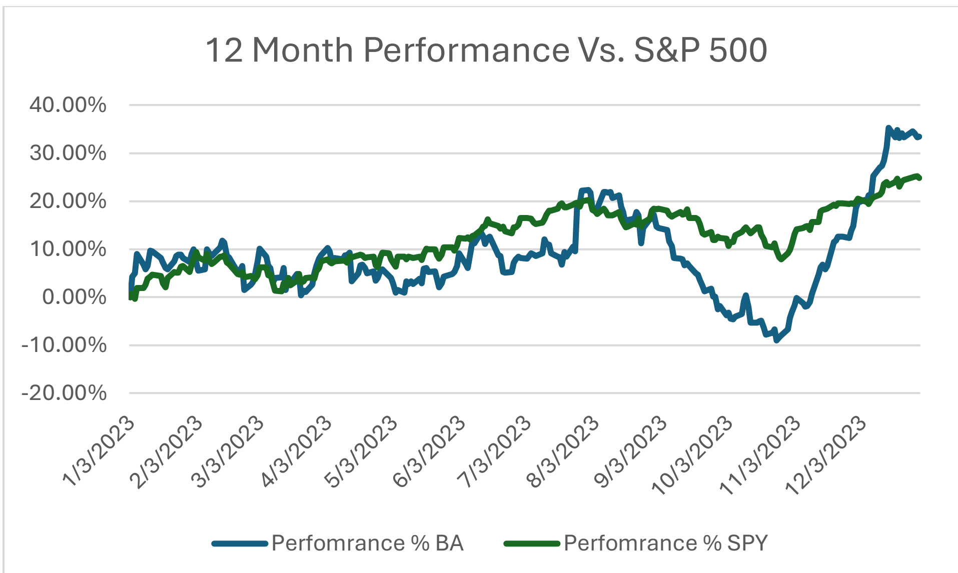


Figure 9 Performance Comparison: Boeing (BA) vs. S&P 500 (SPY)
This graph compares the cumulative percentage performance of Boeing (BA) stock and the S&P 500 (SPY) ETF in 2023, based on daily price closing value compounded over time.

Volatility:

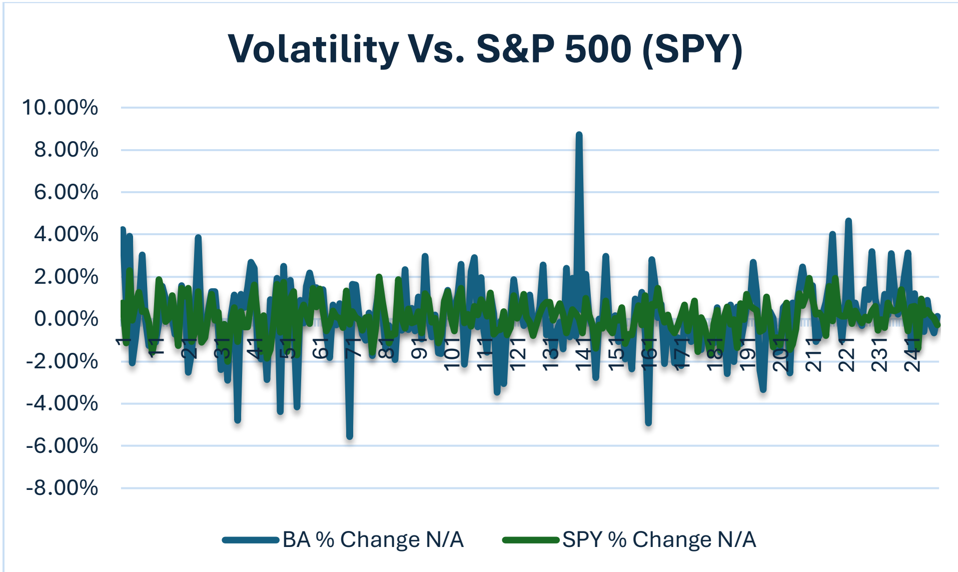


Figure 10

Boeing has a calculated beta of 1.57 which is clearly shown in this example. Relative to the S&P 500 (SPY), Boeing is 57% more volatile than the market. This suggests Boeing is inherently riskier than the market. Boeing is more sensitive to market fluctuations notably because of their position in a sought-after commodity like commercial flight. Boeing will offer more returns to compensate for the greater risk, suitable for more risky portfolios, or diversification.

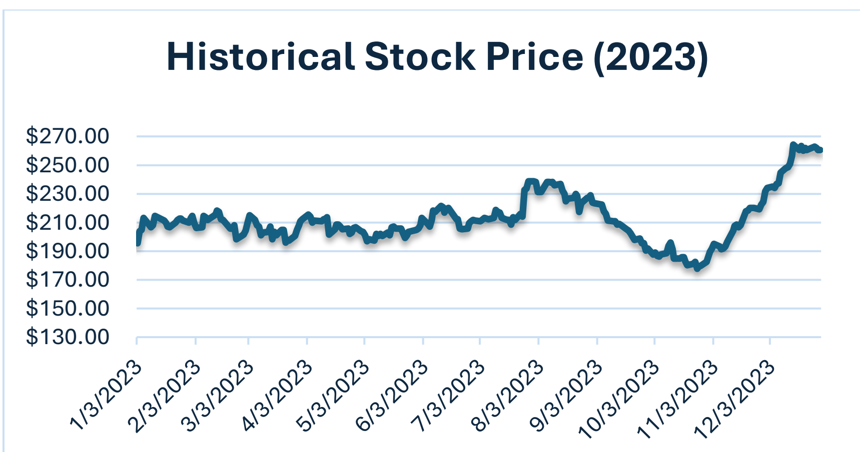


Figure 11. Historically Closing Stock Price of Boeing FY 2023

52 Week Low: *$177.73* **52 Week High:** *$264.27* **52 Week Spread**: *$86.5*

Beginning Price: *$195.39* **Ending Price:** *$260.66* **52 Week Average:** *$212.07*

This chart shows Boeing's stock price for fiscal year 2023. From the graph we can see a volatile stock price, with a $86.54 spread of the 52-week lows and highs. Boeing could easily make or break a portfolio with such volatility in a short time. The strong upward trend from 10/25 – 12/29 saw an $82.93 appreciation in the stock price in a two-month period. This is most likely a reaction based on positive news around Boeing's future returns. A price appreciation of 47% over a short period shows an extremely strong investor sentiment quickly after a downturn. Low points and low volatility from quarter 1 to quarter 3 shows typical supply and demand with relative shifts in demand and supply curves displaying a small change in investor sentiment.

Boeing Stock Price 2024:

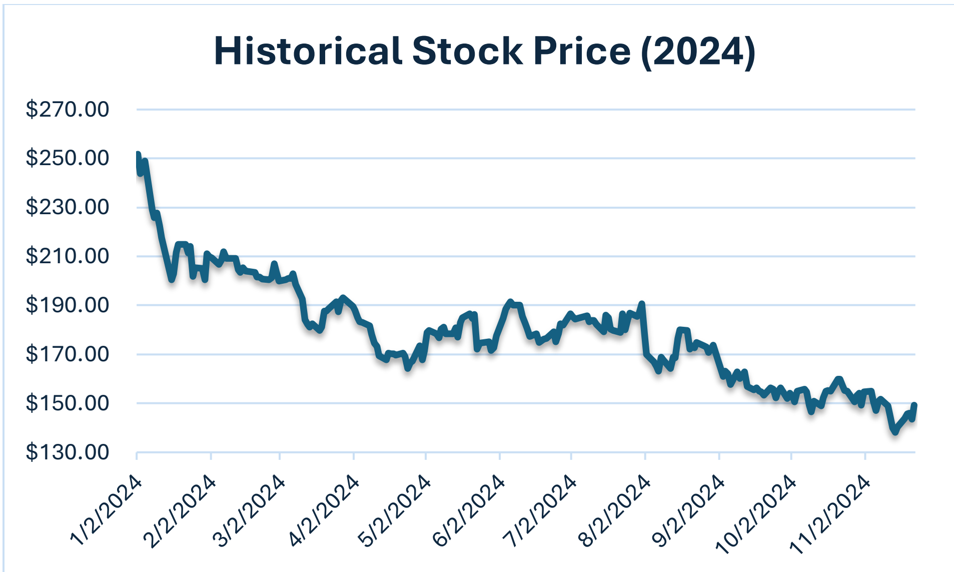


Figure 12 Boeing Historical Closing Stock Price in 2024

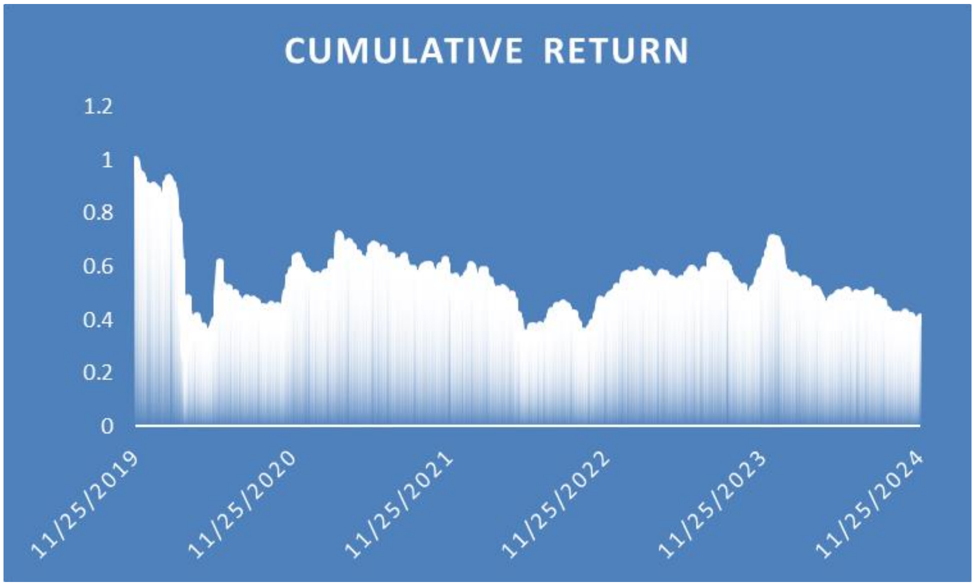
47 Week Low: *$138.14* **47 Week High:** *$251.76* **47 Week Spread**: *$113.62*

Beginning Price: *$251.76* **Ending Price:** *$149.29* **47 Week Average:** *$178.94*

In 2024, the stock price for Boeing shows a completely different story. With a cumulative return on the year of -41% from 1/2/2024 – 11/25/2024. This graph directly asserts that Boeing was overpriced at year end 2023. Falling to a much closer estimate of $73 per share at the year end 2023. Boeing had many ongoing and contemporary issues with operations delays and supply chain constraints. Boeing has faced increased challenges with its main competitor Airbus further inducing doubt for future growth. Boeing is overly sensitive to economic cycles as airlines rely primarily on demand which inadvertently affects Boeing's overall growth. Consumer demand and consumer sentiment declining sharply can be shown in Boeing's relative performance. Specific events such as the Machinists' strike on September 13, 2024, when over 33,000 machinists initiated a strike after rejecting a contract offer. In October of 2024, Boeing reported its sixth consecutive loss at $6 billion, directly causing plans to lay off 17,000 employees, or roughly 10% of its global workforce. Boeing's 777x was again delayed since 2020 and is now set for delivery no earlier than 2026. Boeing decided to cancel its 767 Freighter program further causing a $400 million loss in quarter three. Boeing On a positive note, in August of 2024, Kelly Ortberg became Boeing's new CEO. He highlighted internal conflicts and a negative connotation of the company. Ortberg has firmly emphasized the need for unity and productivity. However, it does not seem investors are confident in Ortberg's ability to turn Boeing's operation around. It will take more time to see Boeing's foundational and operation changes to take noticeable effect.

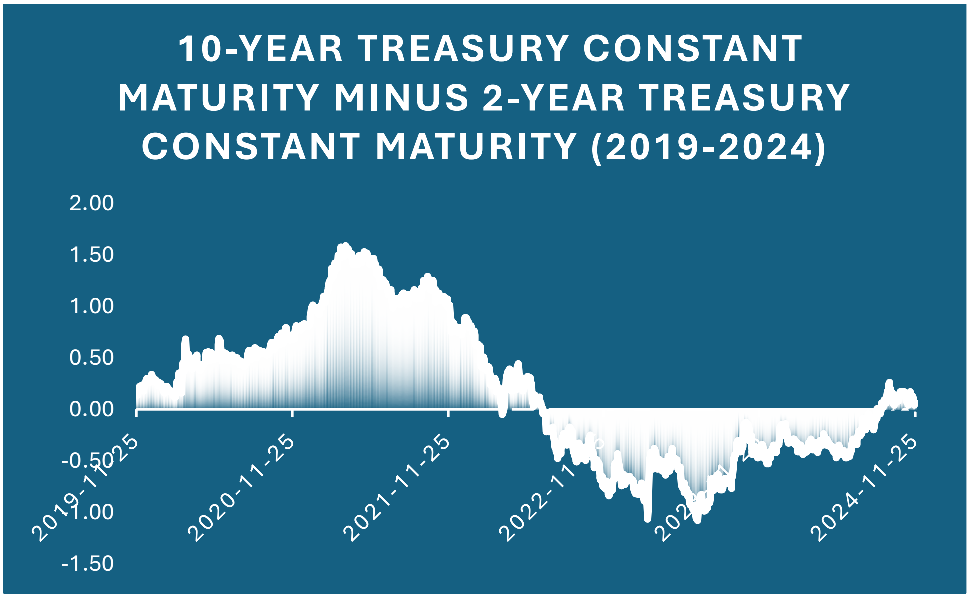
Boeing 5 Year Performance:

Cumulative Return (BA):



Above is the cumulative return for Boeing starting from 11/25/2019 through 11/25/2024. I have decided to include Boeing's cumulative return to show the macroeconomic trends and that correlates to consumer demand for Boeing's stock. Refer below where we display the 10-Year Treasury Constant Maturity Minus 2-Year Treasury Constant Maturity, Percent, Daily, Not Seasonally Adjusted.

10-Year Treasury Constant Maturity Minus 2-Year Treasury Constant Maturity, Percent, Daily, Not Seasonally Adjusted:



Market conditions and future sentiment for an economic downturn represented by the inverted 10 – year – 2-year treasury yield gives us important insight into Boeing's relative long-term growth in relation to consumer demand and share supply. A yield curve inversion represents a lack of trust in long-term growth among investors by demanding less yield for long-term investments relative to short-term ones. Below we will compare the Cumulative Return (BA) against the 10-Year Treasury Constant Maturity Minus 2-Year Treasury Constant Maturity, Percent, Daily, Not Seasonally Adjusted.

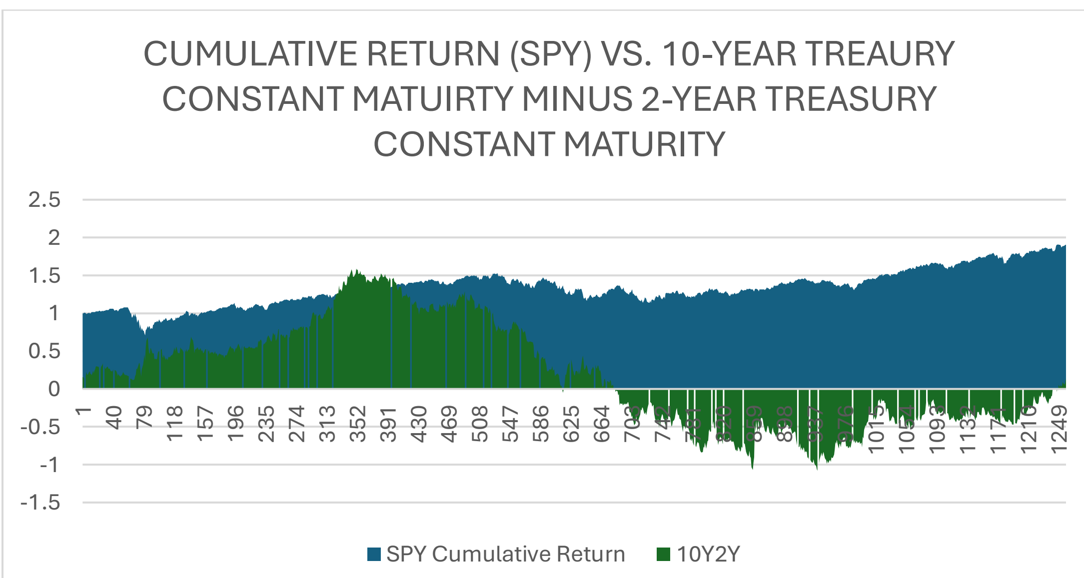


Figure 5 illustrates the cumulative returns of SPY starting at 1. While the inverted 10Y2Y spread is often indicative of a probable future economic downturn, it is important to acknowledge the inherent limitations of this comparison. The effects of the 10Y2Y inversion are typically delayed, with impacts observed between 6 months to 2 years after the inversion. However, SPY's performance incorporates multiple market factors beyond the yield curve, including investor sentiment, macroeconomic policies, and global market conditions. This model is therefore limited by its reliance on a single economic indicator and does not account for these broader influences, which may dilute or obscure the 10Y2Y's predictive power. This highlights the need for caution when drawing direct correlations between SPY returns and 10Y2Y inversions.

In this graph we can see a clear small dip in the overall price for (SPY) as it slowly follows the 10Y2Y back to its normal market returns. This graph is meant to show how macroeconomic events affect investors. In this case, the SPY is not the best option, however SPX is near impossible to find historical data from, at least for a method available to me. SPY is an ETF, and therefore has fees and dividends, tracking errors or cash drags, which may distort what is occurring with the market. Given the lackluster situation, the SPY is still indicative of market performance regardless, we should expect Boeing to follow a more extreme version of this pattern, according to a beta of 1.57. Beta reflects the S&P 500 Index Fund (SPX), or (^GPSC). In this analysis for the sake of simplicity and cohesion we will use (SPY) especially because of its liquid nature compared to (SPX) less liquid nature.

CUMULATIVE RETURN (BA) VS. 10-YEAR TREAURY CONSTANT MATUIRTY MINUS 2-YEAR TREASURY CONSTANT MATURITY (2019-2024):

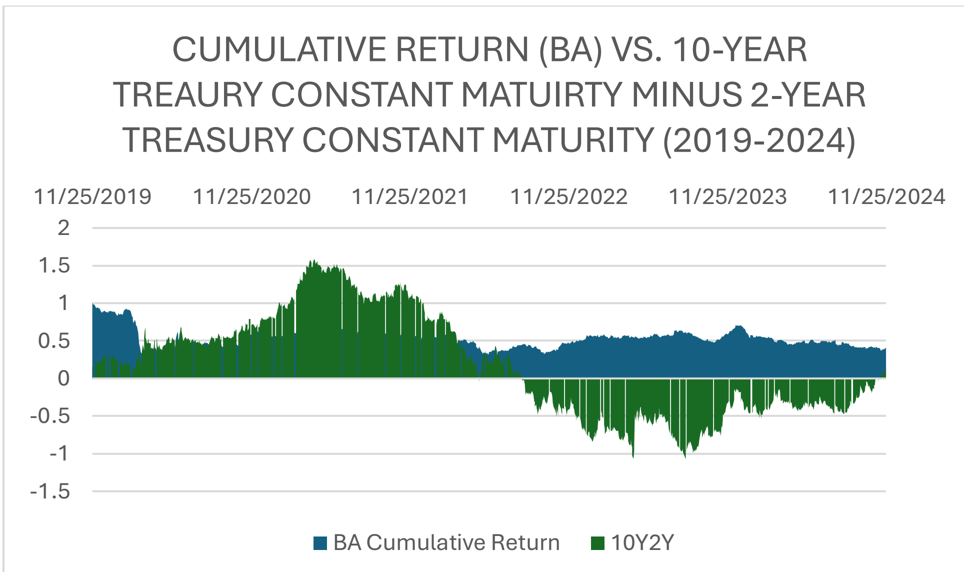


Figure 13 Due to complications in calculations, the Cumulative Return is contingent on the day return being 1. 10Y2Y displays its data starting from 0. Take this graph with heavy consideration.

This comparison exists to display Boeing's correlation to overall market conditions and sentiment. The dual-chart analysis explores the relationship between macroeconomic trends and investor sentiment around Boeing. During the start of the yield curve to the end of the yield curve, it is evident that Boeing did not follow the traditional movement of a stock with a beta of 1.57 compared to SPY and SPX. It is important to note that this characterization has its flaws as other factors can contribute to the price of a stock. Yield curve inversions historically show signs of a recession, which does not take effect for a considerable amount of time after the inversion of the yield curve. At face value, this discrepancy is best attributed to Boeing's revenue diversification. Support from defense contracts seems to level out this decrease as it is no surprise that Boeing's performance does hinge on market performance. Given Boeing's portion of stable income, shareholders are confident in their current position but may decline especially as the 10Y2Y comes to fruition.

Market Capitalization:

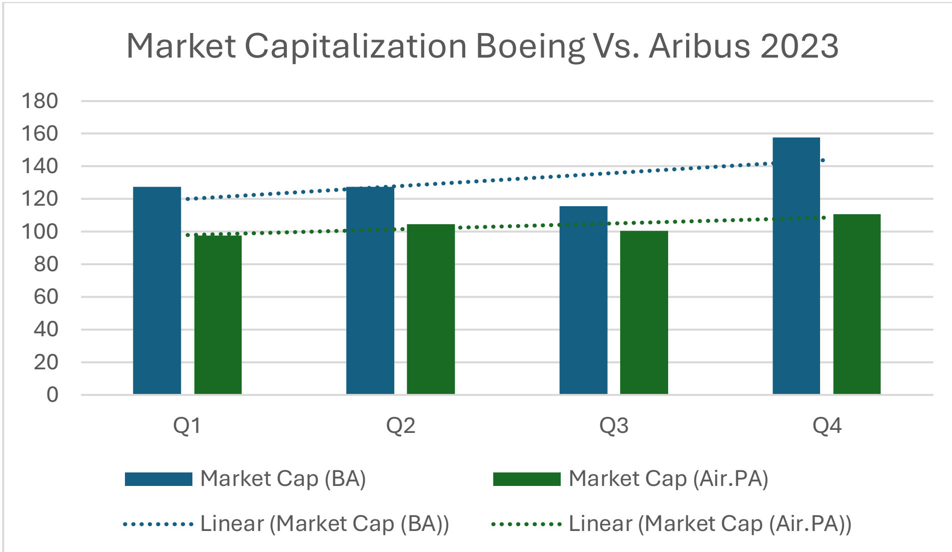


Figure 14 Data is pulled from an online figure. Shares outstanding for Airbus are difficult to find as it is a European based company.

- The graph shows the growth of market capitalization over time. This is a good indicator that a company is still functionally well-off. Because market cap encapsulates both share price and shares outstanding it can be hard to see the relative components. Boeing had seen a stable stock price for the first three quarters of 2023 then dropped significantly in the last quarter. This suggests that Boeing has issued an immense amount of equity to make up for their net loss. We know this because their growth percentage has far surpassed that of the stock price, so for market cap to grow, that would have to be offset by equity. Airbus's stock price has appreciated, and their overall market growth has increased, suggesting Airbus is slowly issuing more equity to cover their position. Airbus is regulated via the Netherlands (Main Location) and the European Union (EU). Airbus is funded by their generated revenues but are also supplemented by the government. This friction does not allow Airbus to issue an absurd amount of debt, instead they rely exclusively on equity financing. The difference in capital structure is more than just regulation, but also what Airbus and its constituents believe to be best. Boeing saw a 23.89% increase in the market cap and Airbus had 13.63% increase in market cap over the 2023 fiscal year. In all Boeing and Airbus show stable growth in the market, even with a stark variance in share prices throughout the year.

Target Stock Price:

Low: $85.00. **Average:** $190.11. **High:** $250.000. **Actual YE:** $ 152.40

The wide range of prices suggest uncertainty about the future from the tangible issues laid out in this paper such as litigation, delays, and regulations. The YE difference between the Average stock price and Actual YE stock price is $37.71. This suggests an overestimate and underperformance. The abnormally high price shows a sense of hopefulness, in that Boeing in the right circumstances could quickly start to make a recovery. The extremely low price of $85.00 suggests that analysts accounted for significant risks or major changes to operations. A stock price of $85.00 would be Boeing's lowest stock price in almost three decades. It is evident analysts were very conservative in their estimates leaving room for potential catastrophic future issues while also leaving room for realistic and unrealistic improvement.

Liquidity & Float:

Current Majority Shareholders:

Approximately 55.77% of Boeing's shares are held by institutions, indicating significant institutional ownership and market confidence.

Top Institutional Holders	*# of Shares Held*	*% Shares Held*
Vanguard Group Inc.	51.8	8.38%
Blackrock Inc.	34.87	5.64%
Newport Trust Company, LLC	30.61	4.95%
State Street Corporation	27.78	4.49%
Capital Research Global Investors	25.81	4.18%

Last Dividend Paid Out - 3/6/2020.

- Boeing has been running a net loss since late 2019, they have opted to not pay dividends and instead put all their focus ahead on rebuilding the capital structure. This makes it harder to find an intrinsic value. There is no dividend discount model possible, so we need to rely on other methods and comparisons to find an approximate value.

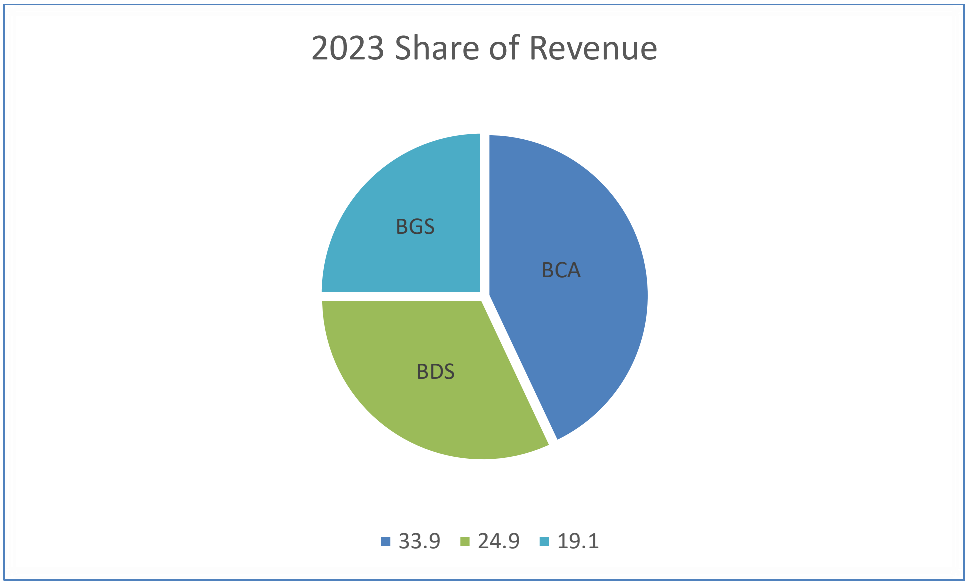
MACRO ECONOMICS AND MARKET DYNAMICS OF THE BOEING COMPANY:

REVENUE STREAMS

The Boeing Company occupies numerous sectors across a diverse array of industries, including the private and public sectors. Although most of Boeing's performance is contingent around a finite number of those industries, Boeing has some diversification. Boeing’s two main industries include commercial and defense. Boeing’s commercial industries are highly influenced by current market dynamics and overall perception of the company. Factors like consumer spending/saving, travel restrictions, user error, supply chain issues, and technological issues all impact Boeings bottom line on a day-to-day basis. These revenues are highly contingent on normal operations running smoothly with little to no issues in relation to overall day-to-day performance. Several of these factors are completely out of Boeing’s control, making for volatile day-to-day operations leading to profitable days and not so profitable days. Other than what occurs in U.S territory (Main Area of Operations). Geopolitical conflicts severely impact Boeing’s market reach and profitability, especially in regions that initiate travel bans and lucrative market tactics to disincentivize trade. While these geopolitical relations only make up a fraction of the overall bottom line, they are still a major factor in Boeing’s future cash flow. Boeing makes money from the initial sale of the aircraft and offers other services such as in-flight services, maintenance, and other miscellaneous things.

BREAKDOWN OF REVENUE

According to Boeing Global Services, in 2023, commercial airplanes (BCA) generated around $33.9 billion, accounting for approximately 43% of total revenue. Defense, Space & Security (BDS) contributed about $24.9 billion, representing 32% of total revenue. Global Services (BGS) reported revenues of $19.1 billion, reaching 25% of total revenue.



Defense VS Commercial

Defense Spending is not as subject to overall market dynamics as one might expect. The entire industry is based on a few factors that can determine overall profitability. For instance, the U.S. government outsources most of its federal expenditures to third-party companies such as The Boeing Company. In doing so, the government has many resources to compensate for the services provided. In many of these cases, defense spending yields a higher profit margin than in a typical industry controlled by supply and demand, and often are determined by details in a contract. Because the U.S. aims to remain the world superpower, as far as defense spending, you can count on that to continue unless there is a radical shift in the core values. Boeing also offers services to foreign countries paid for through Foreign Military Sales (FMS), and Direct Commercial Sales (DCS). FMS are funded solely by U.S. Taxpayer dollars, as subsidies and aid to foreign countries are required to be spend by defense contractors on U.S. soil. DCS, however, is financed by foreign countries, which is often less than FMS. Boeing benefits from anything defense related as well as geopolitical tensions, assuming that money is spent through the company itself. Contrary to their commercial industry that may have a negative return in uncertain market conditions, the defense sector is the exact opposite. In many ways Boeing sits between two major industries that are not correlated causing for effective diversification across industries, strengthening Boeing for today and the future.

Boeing Global Services (BGA)

Boeing Global Sources (BGA) is another significant part of Boeing's revenue stream. Boeing is a plane manufacturer thus they make most of their money up front from the sale or contracting of the aircraft. (BGS) attempts to bridge this gap by focusing on after-market support and services to customers. These services come in a wide range like maintenance, repair, upgrades, training, and operational support. Boeing notably offers digital services like flight planning tools and data analytics. With such a complex piece of machinery, training is extremely important to make sure pilots have all the tools necessary for their designated job. Because the aircraft are built from the ground up with goals in mind, manufacturers often must find workarounds. This may unintentionally change the position of a lever or a button that was in a different place in a previous aircraft. Most commercial pilots fly one type of plane to minimize the room for human error. This inherent complexity is what gives Boeing more opportunity to generate revenue where it previously would not have been possible.

ECONOMICS OF EXPENDITURES:

Boeing is best known for its commercial aviation and remains their core business model. The airline industry is extremely complex and full of regulations that can eat up the bottom line. The biggest factor of expenditure over a calendar year is the demand for flights from consumers. In an economic downturn the demand for flights is lower, resulting in less revenue from passengers and less revenue for Boeing in all. Airlines operate heavily on fixed costs and rely on consumer volume to help offset the costs. Along with other opportunity costs and inadvertent expenses can reveal themselves when demand for airlines subside or even decrease. In a market dominated by few competitors it is important to constantly innovate to stay ahead of the competition and maintain market share. Currently, with a major focus on less emissions and greater fuel efficiency these both serve as a major expenditure that will hopefully pay for itself in the future. Boeing is also subject to volatile oil prices that can make or break the bottom line in some areas. Even in scenarios where fuel contracts are in place there are many market risks in place that can also result in unexpected losses. Supply chain issues can lead to unexpected losses over prolonged periods of time if not addressed quickly. With the implication of the COVID-19 Virus, supply chains across the globe were heavily disrupted and are continually improving as time goes on. Because Boeing operates in other regions, there is also a risk of a foreign currency exchange loss depending on how it weighs on the U.S dollar at the time. Approximately 33% (57,000) of Boeings current workforce are unionized which can result in work stoppages. Approximately 65% of all revenue from BGS (Boeing Global Service) comes from fixed prices contracts which can result in unexpected losses. Other factors such as oil costs. While oil costs do not directly affect Boeing's bottom line, in can in fact change the demand for the type of aircraft needed. For instance, if the price of oil rises, then the desire for a more fuel-efficient plane becomes greater. Like the rest of the U.S. economy Inflation has been a major issue for Boeing as well. Inflation becomes a major issue whenever the fair value of a product is larger. Coupled with the fact of poor overall market performance from Boeing have made the challenge all the much harder. Interest rates are a key component for Boeing as leveraging capital is necessary in such a high-cost industry. Because the principal payments for these loans are abnormally large, the interest payment increases exponentially.

DEFENSE SEGMENT:

Defense Spending is Soley contingent on U.S. Government spending thus is highly reactive to shifts in Fiscal policy and even monetary policy. Most government contracts are cost-plus profit. Military research requires multiple years of investment across many different mediums that can prove to be costly. Of the resources needed for R&D, there are many other substantial costs involved with the actual production. Sometimes there must be entire processes, new machinery and material, extremely precise tools that would not have existed otherwise. These projects can easily reach Billions of dollars in investments. Due to an increasingly sophisticated process from the start of a project to the end, supply chains can quickly become an issue. Not only must they have the logistical part of the process down, but other costs are associated with finding favorable terms with the right supplier. Even creating numerous specialized components that for highly classified or unique components. Due to the inherent riskiness of selling defense products internationally, there are numerous laws and regulations in place to ensure safe distribution. Along with these regulations comes the cost to cover them like managers, training, and sometimes even legal counsel. Additionally, because the information transferred is vital to the integrity not only to Boeing but also the United States, cyber security becomes essential for secure and safe transactions. A rise in geopolitical tensions can increase the overall costs of daily operations and increase the costs associated with rapid production, especially over the long term. Tensions in some regions can result in an outright exit from that market if things do become unexpectedly bad. Because of this, technological advancement along with R&D are a necessity in defense contracting as it is imperative to stay ahead of the competition.

INDUSTRY OVERVIEW AND COMPETITIVE ANALYSIS (PORTER'S FIVE)

Industry Overview

ESG

Environmental, Sustainability, and Governance pioneered by Paul Clements-Hunt, with the goal of bringing ethics to big business. Airlines are forced into rigorous testing and regulations to reduce the total carbon emissions specifically from the creation of the aircraft. Initiatives such as clean jet fuel, hybrid planes, and more fuel-efficient planes are at the forefront of ESG. Largely enforced indirectly mostly through private equity firms like Blackrock and Vanguard, who maintain a sizable portion of equity. Boeing has pledged to achieve carbon neutrality by 2050. Non-compliance with ESG expectations could lead to reduced capital allocation from institutional investors.

Demand for "Narrow-Body Aircraft"

Airlines have seen a shift to more narrow-body aircraft like the Boeing 737 Max and Airbus a320neo, which offer more cost-saving benefits for short-to-medium distance flights. Increased focus on lower emissions has further shifted the demand curve to the right as the "narrow body" aircrafts are more aerodynamic and offer vastly more fuel per nautical mile.

Post-COVID19 Recovery

Global traffic recovery varies by margins: Domestic travel leads whilst long-haul travel lags behind's considerations are directly influencing travel demand by reducing carbon footprints such via less employee travel.

Competitive Rivalry (High)

Boeing makes up a significant sector of the commercial aviation industry, roughly (38% of total market share). Their main competitors would be Airbus and new entrants from China such as (COMAC) or (UAC) in Russia, producing many commercial aircraft, especially for international travel. In the defense sector their main rival is Lockheed Martin Corporation, Northrop Grumman Corporation, Raytheon Technologies Corporation as they are the forefront of defense spending by domestic and foreign military funding.

Company Name	City	Sales	Employed
THE BOEING COMPANY	ARLINGTON, VA	77794000000	171000
THE AVIATION INDUSTRY CORPORATION OF CHINA, LTD.	BEIJING, CHINA	76986573049	1869
AIRBUS NETHERLANDS B.V.	LEIDEN, NETHERLANDS	71137904066	2499
AVIATION INDUSTRY GENERAL COMPANY	SHENYANG, CHINA	52276430524	542236
AIRBUS	BLAGNAC, FRANCE	48869957906	5000

Threat of New Entrants (Low)

The threat of new entrants is low due to high barriers of entry. The immense amount of costs and resources required to enter the industry is only possible for a select group of individuals or investors willing to take on a substantial amount of risk. There is an immense amount of regulation making it difficult for an inexperienced entrepreneur. R&D and manufacturing is in the Billions of dollars, all of which comes before the revenue is ever seen.

Bargaining Power of Suppliers (High)

Suppliers have significant leverage in bargaining as most of the parts require specific tools that only very few suppliers make. For instance, GE and Rolls Royce make most of the aircraft important systems including but not limited to the massive engines on the plane. The only other main competitor is Airbus, so Boeing has a ton of advantage over its buyers. Suppliers may also face their own ESG requirements indirectly affecting Boeing’s costs.

Bargaining Power of Buyers (Medium to High)

Airlines and Federal Governments have significant power when negotiating terms. Airlines specifically buy planes in bulk with different terms attached to each purchase. Because there are very few buyers the price is subject to change significantly. In defense spending often Federal Governments are overpaying when it comes to the actual intrinsic value. Institutional investors like Blackrock and Vanguard will continue to push Boeing further and further eating into their bottom line.

Threat of Substitutes (Medium)

In the commercial aviation industry, the threat of substitutes is in the middle such as a high-speed rail, or cheaper and faster alternatives. Assuming these prices out the airlines, then one could see a significant reduction in overall growth. However, in the defense sector the threat is low as Boeing already has the necessary equipment, expertise, experience, and leverage that would make it significantly hard for any substitutes to compete. ESG scrutiny can further induce increased costs and can hurt the longevity of defense contracts.

PRODUCTION, PRICING, DISTRIBUTION AND STABILITY

- Production in the commercial aviation industry is complex. It requires many resources from skilled workers, competent managers, and upper management as well as innovative technology and supply chains to keep production running on time and efficiently.
- Production in the defense segment is just as if not even more complex to meet the military's demands, along with classified information, supply chains can struggle. Because of the inherent complexity and reliability, significant safety measures and regulations must be followed, hurting overall efficiency and allocation of resources.

- Pricing can vary widely between market-based pricing, cost-plus-profit pricing, and fixed contract pricing in government contracts. Depending on the intrinsic cost of the raw materials, the amount of profit can decrease significantly, but they often sell at a much higher price because of the extrinsic value. This is not so much the case with government contracts. They normally have a strict budget on what the military can spend, thus they can eat into the margins of Boeing themselves. This creates significant risks for Boeing, especially if they are developing technology in uncharted territory. The U.S. government will either offer some variability within the contract or it will cover the risk of such a large investment.

- Distribution of their private aviation products goes to airlines, and leasing companies alike. Because of the large nature of planes, the regulatory hurdles, and supply chains, distribution can quickly become a bottleneck and/or halt completely in some cases.
- The U.S. government often has more ambitious, smaller, more agile, and more sophisticated projects that functionally are easier to get from point A to point B. That does not account for the regulatory hurdles, and geopolitical tensions that may contribute to a delayed or inefficient supply chain and allocation of resources. As the projects are typically innovative technology, it is important that Boeing also offers training or introduction at the time of delivery. The engineers built the project from the ground up, and often have completely different UI, software, hardware, etc. and thus require training.

- Remaining stable commercially is contingent on many distinct factors and is the riskiest factor of this industry. Demand for travel relies on several factors that are often cyclical year-round, leading to good and bad quarterly earnings. In these cases, it is important to remain a good competitor amongst the other competitions that are always fighting for their customers.

Risk Analysis (Firm Specific Risks)

This Analysis evaluates potential risks affecting the Boeing Company's operations, financials, and market positions.

Production and Quality Control Challenges

Financial Risks

Regulatory and Legal Risks

Market and Competitive Risks

Strategic and Management Risks

PROFITABILITY RATIOS (2023)

Return on Assets (2023)

-1.61%

A negative return on assets and a negative return on equity suggests Boeing is currently unprofitable. For every one dollar of assets the company has they lose 1.61, and for every dollar invested the company loses 14.91. Boeing has had a negative profit since late 2019.

Return on Equity

-14.94%

Although a negative average total equity voids the standard ROE equation, it still gives us insights into their performance. If a company's liabilities exceed its assets, it results in negative shareholders equity. In this case Boeing is generating significant losses from financial instability

LIQUIDITY RATIOS (2023)

Current:

1.14

A current ratio of 1.14 means that for every $1 in current liabilities, Boeing has $1.14 in current assets. This is a good sign that Boeing can cover its short-term obligations, but the margins are increasingly small.

Quick:

0.25

A quick ratio of 0.25 suggests that for every $1 in current liabilities, Boeing has only $.25 in quick assets (excluding inventory). This shows us Boeing relies heavily on inventory to meet their short-term obligations. This shows poor immediate liquidity and can result in some friction without converting inventory into cash.

Cf from Operations: $*5,900,000,000*

Positive liquidity ratios are a good sign that they can cover immediate expenses and have a bit of a liquidity buffer. The quick ratio is lower than the current ratio, this suggests that most of the assets are highly liquid and less focused on things like inventory. The cash flow received from operations is still very high and shows strong signs of resilience despite a rough few years.

Debt-to-Equity Ratio & Moving Average

D-E: *N/A*. D-E (MA): *N/A*. LTD-E: *N/A*

Boeing has negative equity; in this case you cannot solve this ratio. However, we do know the ratio would be negative. Negative Debt to equity implies a few different things. For one it means the total liabilities outweigh the total assets. Often a in a negative ratio it suggests a stream of consistent losses over time, which Boeing has been doing since 2019. Boeing now relies mostly on debt financing rather than equity financing. Over the long term, with liabilities already exceeding assets, and heavily leveraged, and a negative profit over time will make it hard to recover.

INTRINSIC VALUATION

Estimating Cost of Capital (WACC)

Note: Beta is calculated using bottom-up, Rf was from the final rate at the end of the 2023 calendar year.

WACC has a calculated 10.20%, with analyst estimates for WACC between 8.24% - 10.74%. The bottom number was calculated using a bottom-up beta. Using various other betas across the industry at .98, while the 5-year moving average for beta was 1.57.

A 10.20% WACC for Boeing reflects excessive cost of operating in a capital-intensive cyclical industry. It indicates Boeing must generate at least 10.20% return on investment, to satisfy both equity and debt holders. The elevated WACC highlights Boeing's financial risks, including but not limited to high leverage, competitive pressures, and sensitivity to economic downturns, while at the same tine reflecting investor confidence. Boeing must prioritize projects with returns exceeding the WACC of 10.20%

Growth Calculation

Estimated Growth	Revenue	% Change
2024	$ 82,019,000.00	5.43%
2023	$ 77,794,000.00	16.79%
2022	$ 66,608,000.00	6.94%
2021	$ 62,286,000.00	7.10%
2020	$ 58,158,000.00	-24.04%
2019	$ 76,559,000.00	N/A

Forecasting 2024 Income Statement (Common Size Statement)

Common Size Statement	Prev Year (2022)	Base Year (2023)	Common Size	Next Year (2024)*
Total revenues	$ 66,608,000.00	$ 77,794,000.00	100.00%	$ 82,019,000.00
Boeing Capital interest expense	$ 28,000.00	-	0.00%	$ -
Total costs & expenses	$ 63,106,000.00	$ 70,070,000.00	90.07%	$ 73,875,508.78
Gross profit	$ 3,502,000.00	$ 7,724,000.00	9.93%	$ 8,143,491.22
Income (loss) from operating investments, net	$ (16,000.00)	-	0.00%	$ -
General & administrative expense	$ 4,187,000.00	$ 5,168,000.00	6.64%	$ 5,448,674.60
Research & development expense, net	$ 2,852,000.00	$ 3,377,000.00	4.34%	$ 3,560,405.21
Gain (loss) on dispositions, net	$ 6,000.00	$ 46,000.00	0.06%	$ 50,606.88
Gain (loss) on disposition of real prop, net	-	$ 2,000.00	-	-
Loss From Operations	$ (3,547,000.00)	$ (773,000.00)	-0.99%	$ (814,981.71)
Earnings (Loss) Before Income Taxes	$ (5,022,000.00)	$ (2,005,000.00)	-2.58%	$ (2,113,891.75)
Income Tax	$ 42,000.00	$ 207,000.00	0.27%	$ 218,242.19
Deffered Income Tax	$ (11,000.00)	$ 30,000.00	0.04%	$ 31,629.30
Net Loss	-	$ (2,242,000.00)	-2.88%	$ (2,363,763.25)
Net Earnings (Loss)	$ (5,053,000.00)	$ (2,242,000.00)	-2.88%	$ (2,363,763.25)

Through the common size statement, we expect revenue to grow by 5.43% over the 2024 calendar year. Compared to previous years, this is a decrease from the 16.79% increase YOY in 2022. However, there is an increase from the -24.04% growth rate in 2020.

INTRINSIC VALUE CALCULATIONS

Dividend Discount Model (DDM)

The Dividend Discount Model (DDM) is a popular valuation method used to estimate the value of a company based on the present value of expected future dividends. However, Boeing has not paid out dividends since 2018 due to financial constraints, ongoing litigation, and the impact of COVID-19 on the aviation industry. DDM relies on consistent and predictable dividend payouts, too, which would not make it a good method for Boeing in its current state. Should Boeing resume dividends in the future, DDM could serve as another helpful tool for equity valuation, for now the Free Cash Flow (FCF) will be used for a more accurate representation of the company's intrinsic value.

Free Cash Flow Model (FCF)

**The intrinsic value calculation presented here is a model-based estimation derived from tangible financial data and assumptions. It does not account for external factors, such as geopolitical risks, macroeconomic trends, or investor sentiment, which cannot be directly quantified within the valuation framework. This limitation should be considered when interpreting the results. **

In Thousands

Calculations can be found in Excel and the Appendix

FCF Estimation 2023 (Discounted) = $5,746,330

Terminal Value (Not Discounted) = $97,594,059

Terminal Value (Discounted) = $60,059,853

Discounted Future Cash Flows Estimation = $84,185,493

Intrinsic Value Per Share = $73

Using this estimated intrinsic value, we can conclude much more about Boeing as a whole. A modest free cash flow reflects a challenging year for Boeing. Even despite coming back from prior setbacks. Operations are still heavily constrained by excessive costs, supply chain issues, along with investments in recovery and growth. While positive free cash flows signal operational profitability, this number is still considerably lower than their free cash flow estimate in 2018, being ~13 billion. The 2023 free cash flow forms a baseline for future growth projections. Boeing's potential lies in continued improvement in operation efficiency, capitalizing on increased aircraft demand, and mitigating future challenges. Despite positive projected cash flows, the intrinsic value suggested by Boeing is currently overvalued at its market price of $260.66 (12/29/23). The discounted future cash flows of $84 billion suggest Boeing will continue to generate massive cash flows in the coming years.

MARKET MULTIPLES

Market Multiples	P/E Ratio	Total D/E Ratio
Boeing (BA)	-70.45	N/A
Airbus (AIR.PA)	35.14	1.97
Lockheed Martin (LMT)	16.59	2.55

Price-to-Earnings Ratio

Boeing's negative P/E ratio of (70.45) reflects negative earnings due to significant net losses. Airbus has a price-to-earnings ratio of 35.14 which shows operational stability and significantly more market confidence. Airbus being the leader in commercial aviation is the reason. Lockheed Martin, being slightly lower at 16.59, shows a more stable and slower growth. The lower ratio can be due to less revenue streams for Lockheed Martin as they are a defense company. Considering this information Boeing has a lot of work in terms of both price and earnings. Moreover, it serves as a useful benchmark for what Boeing could be in a sweet spot between Airbus and Lockheed Martin.

Debt-to-Equity Ratio

A debt-to-equity ratio is considered undefined when the average total equity is negative. As explained earlier, Airbus is less reliant on debt and more reliant on equity financing as explained by the lower D/E ratio. Along with a P/E ratio of 35.14 Airbus serves as an extremely strong benchmark for what Boeing could be and could surpass. Lockheed Martin, having a higher D/E ratio, shows their reliance on debt, as a substantial portion of their income is backed by defense contracts. It is apparent that a total D/E ratio in between these values or greater than is the best fit for Boeing.

Airbus was chosen as the market multiple as they are Boeing's biggest competitor, they currently have more market share than that of Boeing, but have less market value and market cap.

ASSUMPTIONS

Data Accuracy and Reporting Standards

- Because most of the data is analyzed in the context of the future, there are many different assumptions to account for the unknown variables and unclear factors. For instance, the validity of the data relies Soley on the parent company's ability to effectively report accurate and most up-to-date information.
- Assumes the discrepancies in reported values such as shares outstanding, and market capitalization are minimal or statistically insignificant.

Market Dynamics and Macroeconomic Factors

- The valuations and projections assume stable and predictable macroeconomic factors to which do not account for ongoing or unexpected global disruptions as those are impossible to model in their full magnitude, without quantifiable results.

Litigation and Regulatory Outcomes

- Ongoing lawsuits, regulatory investigations and compliance challenges are considered to have various impacts. Moreover, this analysis assumes Boeing will manage these issues, and issues to come without any damage to the companies' financials or reputation.

Industry Trends and Competition

- This analysis assumes Boeing continues to maintain its market share and continues to grow in relation to aerospace technology. Industry growth is assumed to align with historical trends, such as a continuous increase in demand for private and defense related products.

Future Financing Decisions

- It is assumed that Boeings equity and debt financings strategies will remain constant with latest trends. This includes the issuance of additional shares or leveraging debt as needed for liquidity or to improve capital structure.

LIMITATIONS

Complexity of Boeing's operations

- Boeing operated in a highly intricate and segmented industry (Commercial, Defense, and Space). Due to the complexity, modeling variables such as performance in isolated sectors becomes increasingly hard.

External Dependencies

- Boeing's supply chain is complex and relies on multiple external suppliers. This analysis does not fully account for supply chain disruptions or bottlenecks.

Geopolitical Risks

- Boeing is heavily influenced by international trade agreements, military contracts, and governmental policies. This analysis does not include detailed projections for geopolitical risks, including U.S. - China trade tensions or protentional defense budget cuts.

Market Capitalization Comparison

- Market capitalization comparisons with Airbus are based on publicly alliable data, which may vary slightly due to differences in reporting standards, time zones, and current conversions.

Dynamic Nature of Equity Financing

- Boeing's on-going reliance on equity issuance to raise capital, introduces uncertainty. This analysis does not account for the timing or size or probable future equity or debt issuances, which could dramatically impact valuation metrics.

Limited Access to Forecasts

- Analysts price targets, shares outstanding, and some EPS metrics come from secondary sources (e.g., Yahoo Finance) and may not fully capture real-time revisions and/or discrepancies between different firms.

Currency and Regional Factors

- Airbus, a primary competitor, operates under the European Union regulatory framework and financial structure which differ than the likes in the United States. This may alter the true form of the data when it is converted to U.S. based metrics.

Scope of Analysis

- This analysis prioritizes Boeing's intra-financial and operational data, using Airbus, the S&P 500, etc. sparingly as a benchmark. This scope does not include a detailed analysis of said benchmarks or other competitors.

Simplified Model for Educational Purposes

- Due to the junior-level nature of the project, the analysis uses simplified models, ratios and assumptions that may not reflect the depth and typical rigor of professionalism in equity research projects.

APPENDIX

**For simplicity, and quick analysis, some equations may be expressed in the excel format. **

RETURN ON ASSETS:

ROA = Net Income Current Year / Average Total Assets Current Year

Average Total Assets Current Year = AVERAGE (Prior Year Total Assets, Current Years Total Assets)

RETURN ON EQUITY:

ROE = Net Income Current Year / Average Equity Current Year

Average Total Equity = AVERAGE (Prior Year Total Equity, Current Years Total Equity)

Negative equity indicates a nonsensical calculation and is therefore denoted as N/A for respective years

EPS: Net Income (BS) / Common Shares Outstanding for Current Year (Yahoo Finance)

**Boeing had issued 100 million depository shares in May of 2020, each representing 1/20th interest in a share of its 6.00% Series A Mandatory Convertible Preferred Stock. Scheduled to convert by October of 2023, effectively eliminating all* *outstanding preferred shares. As of November 2024, Boeing has not issued new preferred stock since the 2020 offering. For consistency, net income will not differentiate between preferred stock. **

Performance Comparison: Boeing (BA) VS S&P 500 (SPY)

Data Sources: BA Price: Daily closing prices for Boeing

QUICK RATIO

.25

Cash and Cash Equivalents + Receivables (ST) = ($12,691,000.00 + $11,065,000.00) / $109,275,000.00

CURRENT RATIO

1.14

Current Assets / Current Liabilities = $109,275,000.00 / $95,827,000.00

DEBT – TO – EQUITY RATIO

Total Debt / Total Equity

Total debt is calculated as Short-term debt & current portion of long-term debt + Long-Term Debt for consistency. Many entities classify debt differently, and reconciliation can be challenging, so for this example we are going to assume no leases or other obligations are included in the long-term debt metric.

DEBT -TO- EQUITY (MOVING AVERAGE)

Average Total Debt / Average Total Equity

Average Total Debt =AVERAGE (Current Year Debt, Previous Year Debt)

Average Total Equity =AVERAGE (Current Year Equity, Previous Year Equity)

EARNINGS PER SHARE:

Basic EPS: 3.70 Diluted EPS: 3.70

Shares outstanding comes from external source and is rounded to the nearest thousandth

Basic & Diluted EPS: Net Income (BS) / Shares Outstanding at the end of the period.

MARKET CAPITALIZATION

Boeing Airlines

Shares Outstanding Same Day (Yahoo Finance) * Closing Price Same Day (=STOCKHISTORY)

Airbus SE (Ticker: AIR.PA)

https://tradingeconomics.com/air:fp:market-capitalization

**Airbus SE is a European based company, =STOCKHISTORY only accounts for U.S. based securities, so this had to be pulled from an online source. Be cautious as there are multiple trackers for Airbus, for sake of comparison (AIR.PA) is the only stock that should be used. **

INTRINSIC CALCULATIONS

Dividend Discount Model (DDM)

N/A Boeing has not paid dividends since 2020; therefore, it is not a good measure of Boeing's true value

WACC

****FOUND IN SPREADSHEET****

10.20%

Total Value of Firm = Mv of Debt + Mv of Equity

**Mv of Debt calculated as Current Portion + LT Debt portion (Contains Leases in the LT Debt portion, difficult to find true debt without reconciliation)*

**MV of Equity = AVERAGE (Market Capitalization Q1-Q4) **

CAPM = Rf + Beta * (Market Risk Premium)

Rf was from the U.S. Treasury

Beta is calculated as the historical Beta from Yahoo Finance

Rm calculated as the historical average from Yahoo Finance

FCF ESTIMATE

****FOUND IN SPREADSHEET****

**This valuation is based on a simplified model and limited data. It does not account for extraordinary adjustments or future growth beyond baseline assumptions. **

(In Thousands)

FCF = EBIT * (1-TR) + Depreciation – Change in NWC – Capital Expenditures

EBIT= (610,670) Depreciation = 1,861,000 Change In NWC = -6,023,000 Cap Ex = (1,527,000)

Free Cash Flow Estimation = 5,746,330

Future Free Cash Flow Estimation

5.43% is from common size statement. 3% is a conservative estimate from 2%-4% industry average growth rates for Aerospace and Defense Companies

2024 = 5,746,330 * (1 + 5.43%) = 6,058,414

2025 = 6,058,414 * (1 + 3%) = 6,240,166

2026 = 6,240,166 * (1 + 3%) = 6,427,371

2027 = 6,427,371 * (1 +3%) = 6,620,192

2028 = 6,620,192 * (1 + 3%) = 6,818,798

Terminal Value = 2028 * (1 + g) / (WACC – g) = 6,818,798 * (1 +3%) / 10.20% - 3% = *$97,594,059*

Discounted Future Cash Flows

DFCF = Future Cash Flow (1 + WACC)^t

2024 = 6,058,414 (1 + 10.20%)^1

“Same Calculation”

Terminal Value / (1 + WACC)^5 = $97,594,059 / (1 + 10.20%) = $60,059,853

Present Value of Future Cash Flows

= SUM (Discounted Future Cash Flows) = *$84,185,493*

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