

**TRADING TOMORROW FOR TODAY:
An Analysis on Boeing's Capital Allocation**

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Abstract

This research examines patterns in capital allocation between shareholder returns and corporate reinvestment. Focusing on Boeing, the study analyzes the firm's use of dividends and stock buybacks relative to research and development (R&D). Prior to 2019, Boeing returned more than twice as much capital to shareholders as it reinvested in R&D. This analysis uses publicly available 10-K filings to examine long-term capital allocation trends within Boeing, as well as publicly available National Transportation Safety Board (NTSB) records. By comparing Boeing's reported incidents with its primary duopoly competitor, Airbus, this study establishes a comparative benchmark. Ultimately, these patterns highlight a sustained emphasis on shareholder payouts alongside comparatively constrained reinvestments, raising important questions about short-term financial priorities and long-term investment capacity in a capital-intensive industry.

JEL Classifications: G30, G35, L93, O32

Keywords: capital allocation, stock buybacks, research and development, shareholder primacy, corporate finance, aerospace manufacturing

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A company that builds airplanes and transports millions of people each year must allocate a significant portion of its capital toward research and development to improve existing aircraft and develop new ones, rather than simply maintaining the status quo. In the aerospace industry, research and development is more than just an expense; it represents a long-term investment in innovation, operational capability, and firm sustainability. Because aerospace manufacturing is highly capital-intensive, decisions about where financial resources are allocated carry substantial long-term implications.

Every major corporation in the twenty-first century faces a critical capital allocation decision: whether to invest in workers, engineers, and technological improvement, or to prioritize shareholder payouts that deliver immediate financial returns. Facing this trade-off, Boeing provides a particularly relevant case. While Boeing and Airbus dominate the global commercial aviation industry, their financial strategies have diverged noticeably over the past decade. This study analyzes patterns in Boeing's capital allocation, with particular attention to the firm's emphasis on dividends and stock buybacks in relation to research and development, using publicly available 10-K filings from the years of 2014-2025.

Stock buybacks, the act of a company repurchasing stock from shareholders, often at a premium, have become an increasingly prominent method of returning capital to shareholders, often offering greater firm flexibility than traditional dividend payments. From a corporate finance perspective, buybacks can influence per-share metrics and market valuation, even as they reduce internal funds available for future investment. Historically, stock repurchases were restricted due to concerns about potential market manipulation; however, following the adoption

of SEC Rule 10b-18 in 1982, they have become increasingly more common. This regulatory shift has led to ongoing debate in finance and accounting about the long-term implications of increased corporate reliance on buybacks. Scholars have long argued that corporate dependency on stock buybacks reflects a broader shift away from long-term value creation favoring short-term financial performance (Lazonick, 2014).

To provide comparative and operational context, the analysis also incorporates publicly available National Transportation Safety Board (NTSB) incident and occurrence records and contrasts Boeing's reported patterns with those of its primary duopoly competitor, Airbus. Rather than evaluating engineering outcomes or establishing causation, this comparison serves as a benchmark for understanding the broader environment and effects of which capital allocation decisions occur. Together, these elements allow the study to examine how sustained financial priorities may shape long-term investment capacity in an industry where remaining competitive over time is essential to firm stability and success.

Patterns in R&D expenditure are evaluated alongside capital returned to investors, including total stock buybacks, to illustrate trade-offs in capital allocation. R&D is widely considered a form of reinvestment for a corporation, as it helps determine whether a firm can remain competitive over time. Stock buybacks are often given priority over R&D because their financial effects are more immediately observable. By contrast, capital allocated toward research and long-term development produces benefits that are more difficult to measure in the short run. As a result, R&D serves as the primary measure of reinvestment into the firm, while dividends and stock buybacks capture shareholder payout priorities. This study addresses the following research question: To what extent did Boeing's capital allocation decisions reflect a prioritization

of short-term shareholder returns over long-term Research and Development investments, and what does this pattern suggest about corporate financial priorities in aerospace manufacturing?

Literature Review

One of the main theories explaining this shift comes from William Lazonick (2014). Historically, major manufacturing companies operated on a "retain and reinvest" model. This meant that when a company made a profit, they kept that money inside the firm to fund research, upgrade equipment, and pay their workers. However, Lazonick argues that starting in the late 1970s, companies shifted to a "downsize and distribute" model. Instead of building the company up, managers began cutting internal costs and research so they could distribute more money back to the shareholders.

A major turning point for this was the adoption of SEC Rule 10b-18 in 1982. Before this rule, stock buybacks were heavily restricted because they were seen as a way to manipulate the stock market. Lazonick states, "In essence, Rule 10b-18 legalized stock market manipulation through open-market repurchases" (Lazonick, 2014, p. 51). Once this rule passed, companies were free to spend billions buying back their own stock. This creates a massive opportunity cost. Every dollar a company spends buying back stock is a dollar they cannot spend elsewhere on engineering or innovation. Lazonick notes that large U.S. corporations have devoted "trillions of dollars that could have been spent on innovation" (Lazonick, 2014, p. 50) to stock repurchases instead, a statement that perfectly summarizes the impact of this rule.

When executives are questioned about why they spend so much money on stock buybacks instead of research, the most common reason given is "shareholder primacy." This is the idea that a corporation's management has a strict duty to put the shareholders' financial interests above everything else. However, legal scholar Lynn Stout (2012) argues that this is a

fallacy. In her research, Stout proves that there is no actual law requiring a board of directors to maximize short-term stock prices if it ends up hurting the company's long-term stability.

Directors are completely allowed to prioritize the reliability of their products, the sustainability of their operations, and the stability of their workers. When leaders focus too heavily on what the stock price is doing today, they often develop what is called "accounting myopia." This happens when managers ignore the long-term assets and research needed for the future just to make the current quarter's earnings look good on paper. Stout's work shows that putting the shareholder first is a choice, just as investing in R&D would be.

When a company chooses to prioritize its stock price over its operational capacity, the physical side of the business begins to suffer. Michael Collins (2018) describes this process as financialization. This occurs when a manufacturing company starts acting more like a financial institution. Instead of focusing on physical assets like airplanes, factories, technology, and engineers, the company focuses on financial assets like cash flow, stock buybacks, and dividends.

Collins argues that this financialization ends up starving the manufacturing side of the business. In a capital-intensive industry like aerospace, where it takes billions of dollars and many years to design a new plane, this starvation is incredibly dangerous. When the budget for research and development is cut to fund shareholder payouts, the factory floor loses out. Machinery ages without being replaced, development cycles are compressed, and the best engineers may leave for other companies. Collins shows that when the financial side of a company is fed at the expense of the manufacturing side, the firm's capacity to innovate and maintain long-term operational reliability will inevitably decline.

Boeing's financial decisions between the years of 2014 and 2019 are a clear real-world example of these three academic theories. The company clearly adopted Lazonick's "downsize and distribute" model, spending over \$43 billion on buybacks while keeping their research and development budget relatively flat. They leaned heavily into the shareholder value myth that Stout (2012) cautioned about, artificially inflating their earnings per-share by retiring 144 million shares of stock. Ultimately, this led to the exact starvation of manufacturing that Collins described. While Boeing was structuring their financial statements to maximize shareholder returns, their development departments were not seeing proportional reinvestment to stay ahead. To see exactly how this academic theory played out in reality, we can look directly at the resource allocation patterns found within Boeing's 10-K filings and the operational environment captured in NTSB incident data.

Methods

This study examines Boeing's capital allocation patterns over the period 2014-2025, using data drawn entirely from publicly available sources. Financial data – including R&D expenditures, common dividends declared, stock buybacks, shares outstanding, and total revenue – were collected directly from Boeing's annual 10-K filings, accessed through Boeing's official investor relations page. All financial figures were extracted manually from the original filings to ensure accuracy and consistency across the study period. Airbus R&D expenditure data was drawn from Macrotrends, a financial data aggregation platform that compiles publicly reported corporate financial information. Macrotrends reports Airbus R&D data and revenue for the same period 2014-2025, with figures automatically converted from Euros to USD, using prevailing exchange rates at the time of reporting. This conversion introduces a potential limitation, as exchange rate fluctuations between the euro and US dollar may affect year-over-year

comparability between Boeing and Airbus R&D figures. This limitation is acknowledged and should be considered when interpreting direct comparisons between the two manufacturers.

Aircraft delivery data for both Boeing and Airbus were obtained from each company's official delivery reports, published in PDF format on their respective investor relations pages. Delivery figures were manually transferred into a consolidated dataset to enable direct year-by-year comparison between the two manufacturers. The study covers deliveries from 2014 through 2025. Partial 2026 delivery data exists but was excluded from the primary analysis, as corresponding financial data such as R&D expenditure had not yet been published at the time this study was conducted.

Safety incident data were sourced from the National Transportation Safety Board (NTSB) aviation accident and incident database, downloaded directly from the NTSB website spanning January 1, 2014, through the current date. The dataset was imported into Microsoft Excel where it was filtered to include only incidents classified under Federal Aviation Regulation (FAR) Part 121, which governs scheduled commercial airline operations. The NTSB dataset includes a manufacturer field and FAR classification for each occurrence, which allowed for filtering by manufacturer and operation type for this study. Incidents were recorded per year for both Boeing and Airbus aircraft. To ensure a fair comparison between the two manufacturers given differences in fleet size and delivery volumes, incident counts were normalized per 1,000 aircraft deliveries.

It should be noted that the NTSB dataset contains a significant number of entries with incomplete or missing fields, particularly in the probable cause category where many entries were left blank. As this study approaches the analysis from a financial and accounting perspective rather than an engineering one, incidents were not further filtered by mechanical

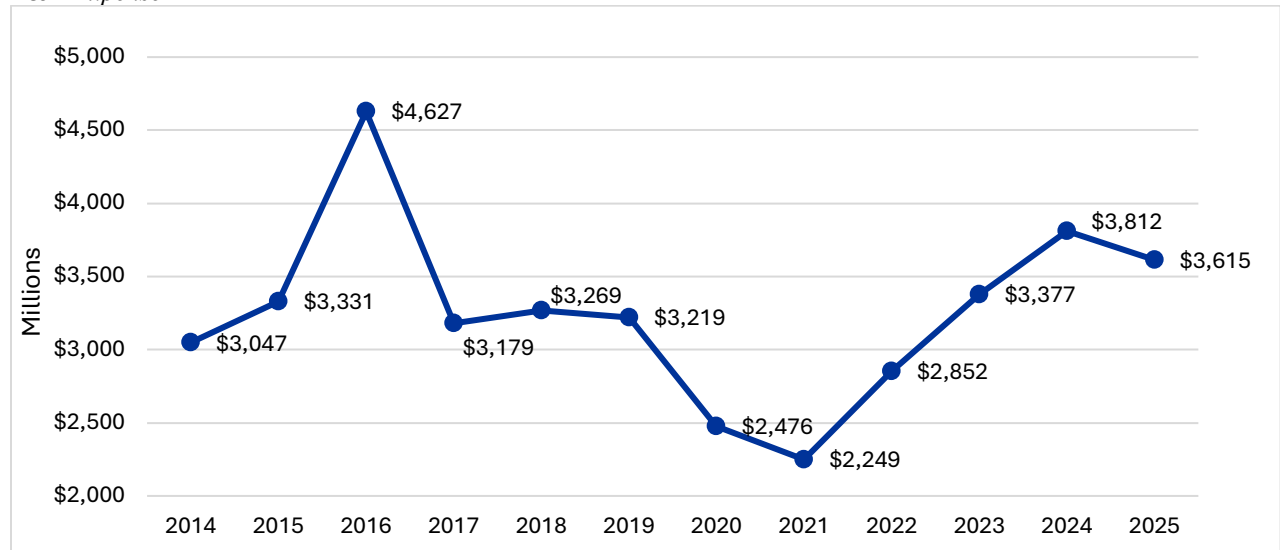
versus non-mechanical causes. Determining which incidents should or should not be included based on technical or engineering discretion was beyond the scope and expertise of this study. As a result, the incident counts represent all FAR Part 121 incidents reported for each manufacturer regardless of probable cause classification.

All data were organized and analyzed using Microsoft Excel. Charts were constructed to visualize trends in R&D spending, R&D as a percentage of revenue, shareholder returns, incident rates, and competitive benchmarks across the study period.

Findings

R&D and Capital Allocation Trends

Figure 1
R&D Expense

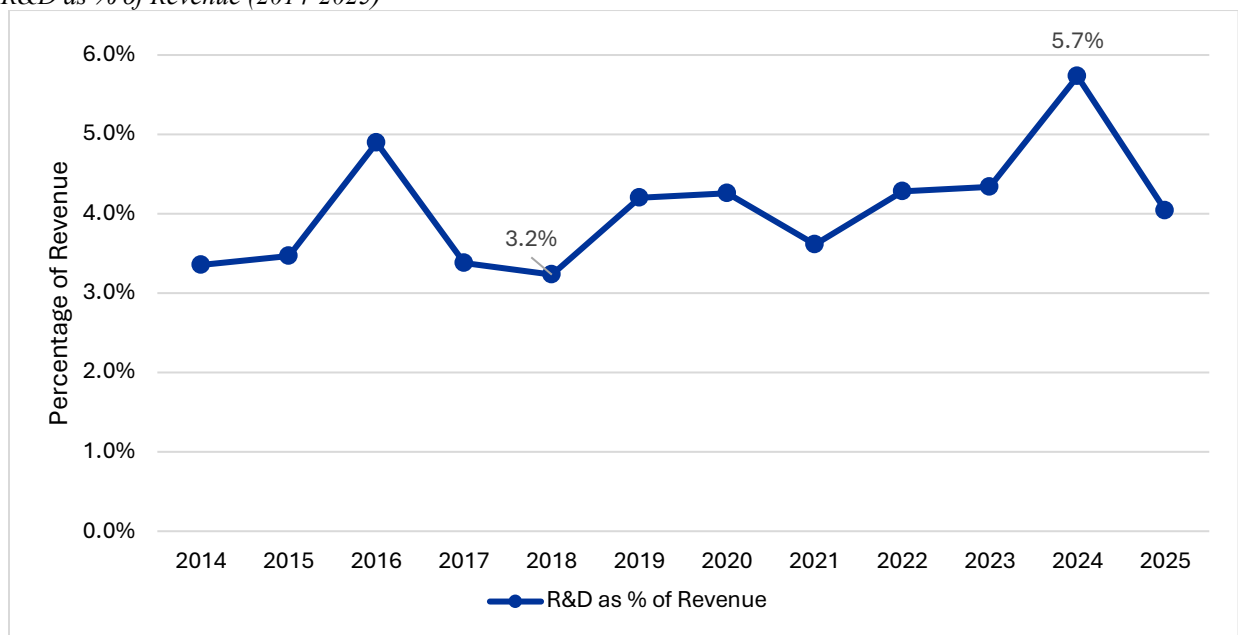


Note. Data compiled from Boeing 10-K filings (2014-2025)

Boeing’s R&D expenses observed in the years of 2014-2016 steadily increased from \$3,047 million to \$4,627 million in the latter, reflecting increased capital allocation toward innovation. The years between 2017 and 2021 gave way to a steep decline in the company’s expenditure while steadily raising buybacks and dividends. The fall to \$3,179 million in 2017 represented a nearly \$1.5 billion single-year decline.

While the absolute dollar amount for R&D expenditure provides a baseline for investment, the R&D intensity ratio offers a deeper understanding of Boeing's strategic investment priorities through the years of 2014-2025. Within the aerospace industry, a sector characterized by decade-long product lifecycles, this ratio represents the proportion of each revenue dollar reinvested into the firm's future capabilities. Starting at roughly 3.4% in 2014, the ratio steadily increased until 2016, where it peaked near 5% before dropping sharply back down to approximately 3.2-3.4% through 2017-2018. These years were subsequently some of Boeing's heaviest buyback years, with upwards of \$9 billion returned to shareholders annually. Following the suspension of stock buybacks after 2019, the ratio began a steady climb, though it has yet to exceed 6% overall. The highest point recorded was 5.7% in 2024, a year in which both stock buybacks and dividends had ceased entirely. With 2024 representing Boeing's highest ever R&D intensity ratio yet coinciding with a period of significant financial distress, an important question emerges, is this increase a strategic choice, or a financial necessity?

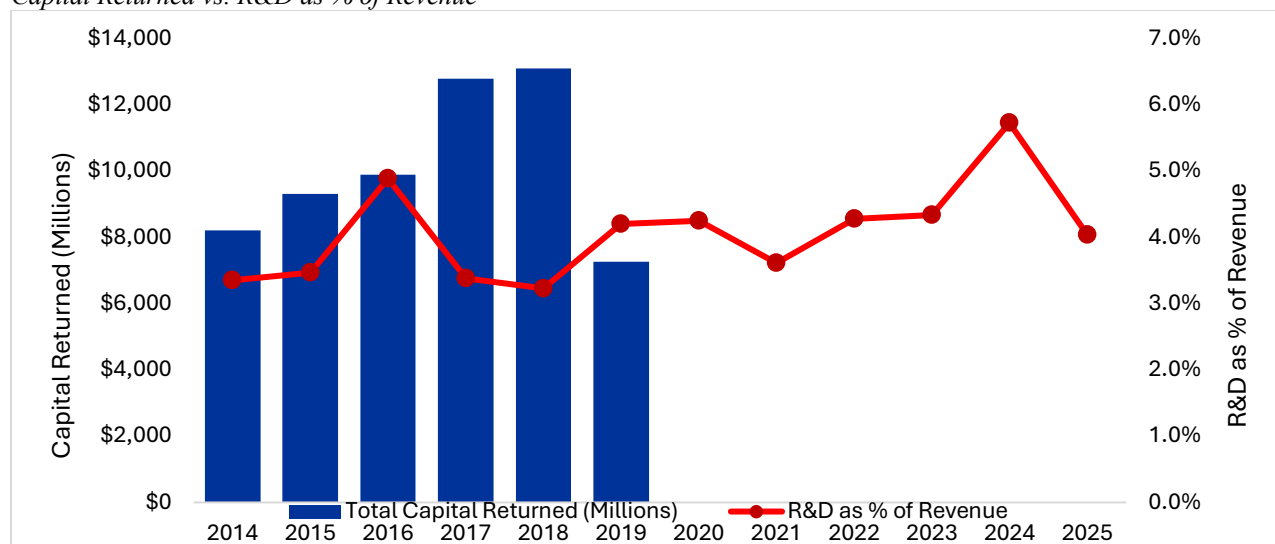
Figure 2
R&D as % of Revenue (2014-2025)



Note. Data compiled from Boeing 10-K filings (2014-2025)

As shown in Figure 3, the relationship between R&D expenditure and total capital returned by Boeing reveals a notable pattern in the company's financial priorities. Total capital returned accounts for both dividends paid and stock buybacks in a given year. Stock buybacks were consistently greater than dividends until 2019, where buybacks plunged to \$2,651 million. The most notable finding within this comparison can be seen in 2017 and 2018, where the gap between capital returned and R&D expenditure was at its widest. The consistently low R&D expenditure relative to total capital returned gives a clear picture of Boeing's capital allocation priorities during this period and how the company chose to deploy its available resources with limited regard for long-term reinvestment. Following the sharp decline from \$9,000 million in 2018 to \$2,651 million in 2019, capital returned dropped to zero in subsequent years. After the 737 MAX grounding, Boeing was forced to shift its financial priorities away from aggressive shareholder return programs toward stabilizing revenue and earnings, while being careful not to cut R&D below previous levels, which would have raised significant concerns among investors.

Figure 3
Capital Returned vs. R&D as % of Revenue



Note. Data compiled from Boeing 10-K filings (2014-2025)

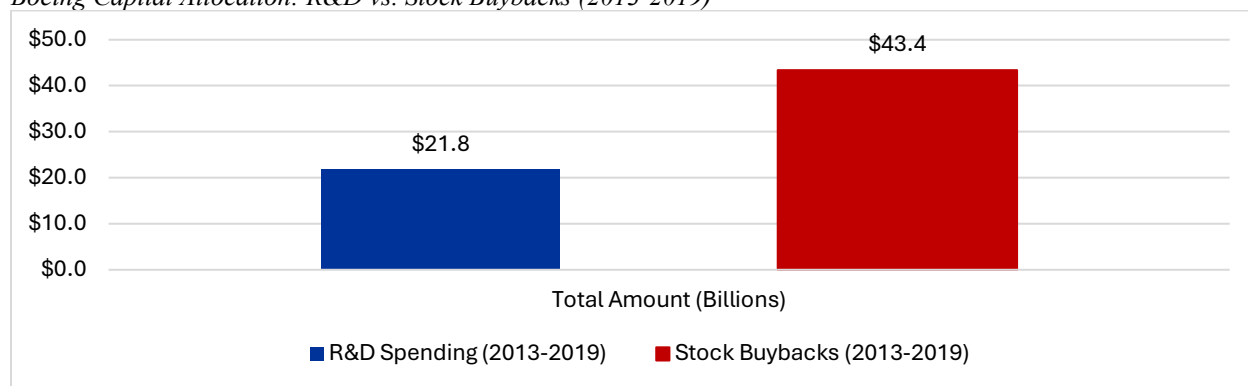
Boeing's total capital allocation comparing R&D to stock buybacks over the span of 2013-2019 paints a shocking picture of what the company chose to do with its capital. Figure 4

depicts how over twice the amount of money spent on R&D was directed towards stock buybacks during this period. Boeing invested \$21.8 billion in research and development with a staggering \$43.3 billion repurchasing its own stock. A ratio of nearly two dollars returned to shareholders for every dollar reinvested in the firm's future capabilities.

To put the scale of Boeing's buyback program in perspective, the Boeing 787 Dreamliner development program cost approximately \$32 billion (Gates, 2011). The \$43.4 billion Boeing spent on stock repurchases between 2013 and 2019 exceeded the cost of developing an entirely new clean-sheet aircraft program. Instead that capital was deployed to reduce shares outstanding, mechanically inflate earnings per-share, and support short-term stock price performance – financial outcomes that benefited shareholders and executives but left less internal funding available for long-term research and innovation.

This consequence became apparent after 2019. The company that spent \$43.4 billion on buybacks in six years proceeded to repurchase \$0 in the six years that followed. What changed was not Boeing's revenue or its size, but rather the financial and operational pressure that made returning capital to shareholders no longer sustainable. The dramatic reversal in capital allocation after 2019 raises an important question about whether the aggressive buyback program of the preceding years left Boeing adequately prepared for the challenges that followed.

Figure 4
Boeing Capital Allocation: R&D vs. Stock Buybacks (2013-2019)

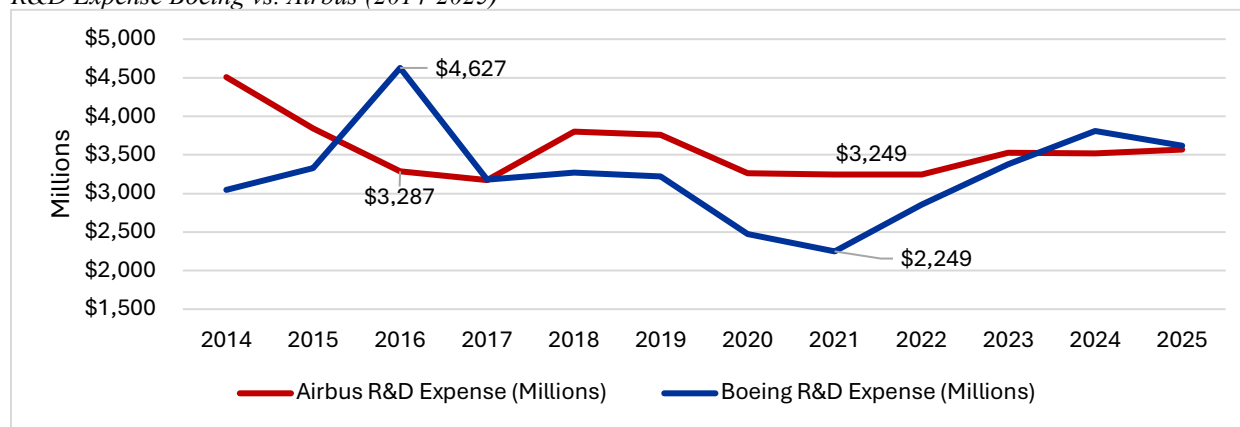


Note. Data compiled from Boeing 10-K filings (2014-2025)

When comparing Boeing's R&D expenditure to Airbus, as shown in Figure 5, the contrast between the two competitors is notable. Though Boeing spent considerably more during certain years, most notably 2016, Airbus demonstrated a consistency in its R&D investment that Boeing did not. Notably, despite being smaller in both revenue and aircraft deliveries, Airbus consistently spent more on R&D than Boeing from 2017 through roughly 2023. In 2018 Boeing spent \$3,269 million compared to \$3,799 million spent by Airbus during the same year, despite generating less revenue. This was also evident in 2021, where Boeing spent \$2,249 million compared to \$3,249 million by Airbus — a difference of nearly \$1 billion. This pattern suggests that a smaller competitor was investing more heavily in its own development during the same period Boeing was allocating billions toward stock buybacks.

Airbus's consistency with R&D investment is particularly significant given that aerospace development programs span decades. Maintaining steady investment allows each year's research to build on the last. Boeing's pattern of cutting and restoring R&D expenditure creates gaps in development continuity that are difficult to quickly recover from. Boeing's R&D expenditure steadily grew from 2021 through 2024, but it is important to note that by this point Boeing had cut its dividends, stopped buybacks completely, and was in significant financial distress.

Figure 5
R&D Expense Boeing vs. Airbus (2014-2025)

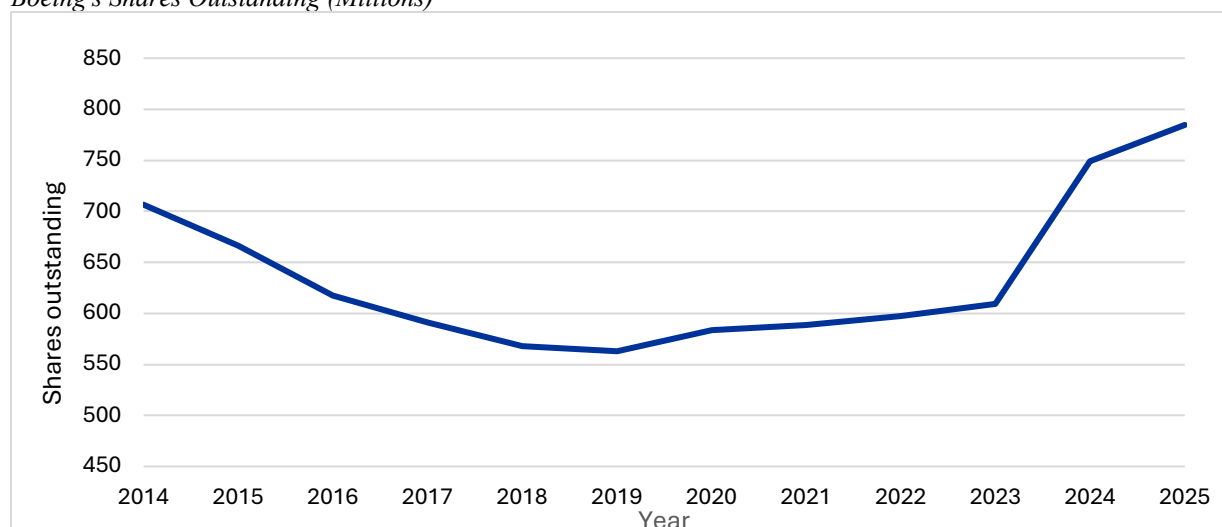


Note. Data compiled by author from Boeing 10-K filings and Airbus SE Annual Reports via Macrotrends; USD converted.

Boeing's trajectory of shares outstanding provides critical context for understanding the full scope of its capital allocation strategy during this period. Throughout the years 2014-2019 the relative amount spent on stock buybacks, forming into treasury stock, was as follows: \$6,001 million (2014), \$6,751 million (2015), \$7,001 million (2016), \$9,236 million (2017), \$9,000 million (2018), and \$2,651 million (2019). Each of these figures, except 2019, greatly exceeded the company's spending on research. The decrease in stock buybacks for 2019, leading to a nearly \$6.3 billion difference from the prior year, can be linked to the grounding of the 737 MAX, which required Boeing to absorb billions of dollars in write-offs, legal fees, and customer compensation across hundreds of cancelled orders.

It is also important to note that Boeing had paid dividends to shareholders since 1932 (Boeing Company, 2014-2025), making the eventual suspension of those payments even more significant. While Boeing suspended its dividend in March 2020, the firm's prior commitment necessitated a final cash outflow of \$1,158 million during the final quarter of the fiscal year. With buybacks reducing shares from 706.7 million in 2014 to 562.9 million by 2019 — a reduction of over 144 million shares — the program had meaningfully concentrated ownership. However, following the 737 MAX grounding shares outstanding began climbing, reaching 784.7 million by 2025, surpassing the 2014 starting point. This rise in outstanding shares reflects the financial distress stemming from prior capital allocation decisions.

Figure 6
Boeing's Shares Outstanding (Millions)



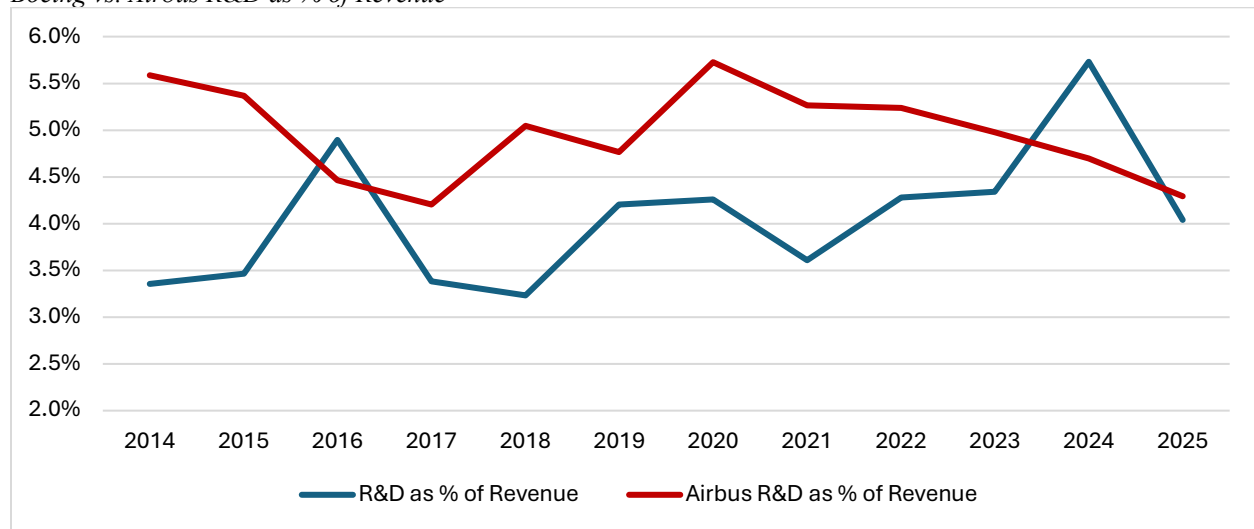
Note. Data compiled from Boeing 10-K filings (2014-2025)

When a company issues new stock to raise cash it dilutes existing shareholders — the direct opposite of what buybacks were designed to do. Boeing went from aggressively reducing shares to being forced to issue new ones.

For most of the study period, Airbus's R&D as a percentage of revenue was higher than Boeing's, despite being a smaller company by both revenue and aircraft deliveries. Even from the very beginning of the study period in 2014, the nearly two percentage point gap between the two competitors paints a clear picture of their differing priorities. Boeing peaked near Airbus briefly in 2016 but fell sharply during its most aggressive buyback years, which widened the gap precisely when shareholder returns were at their highest. This suggests that Boeing's primary competitor was consistently dedicating a greater proportion of its revenue to research during the same period Boeing was prioritizing stock repurchases. Even in 2020, when Airbus experienced a significant decline in revenue, the company maintained its R&D percentage at approximately 5.5%, demonstrating a willingness to protect its research budget even during periods of financial pressure. Boeing's pattern by contrast was more reactive — R&D intensity fell during profitable years when buybacks were highest and only recovered after shareholder return programs had

ceased entirely. While the two lines converge after 2023, this narrowing gap coincides with Boeing's period of significant financial distress rather than a deliberate strategic shift toward reinvestment. Airbus's consistency over the full study period suggests a fundamentally different set of corporate priorities, one in which research investment was treated as a protected commitment rather than a variable expense.

Figure 7
Boeing vs. Airbus R&D as % of Revenue



Note. Data compiled by author from Boeing 10-K filings and Airbus SE Annual Reports via Macrotrends; USD converted.

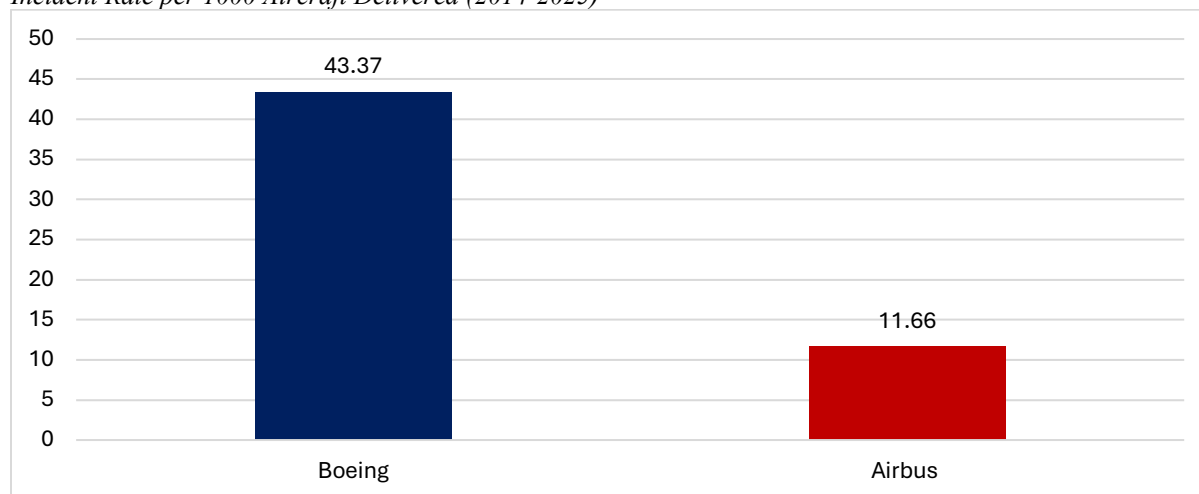
Incident Rates and Competitive Benchmarks

Incident rates for Boeing and Airbus were normalized per 1,000 aircraft delivered to ensure a fair comparison between the two manufacturers. The NTSB data was filtered for FAR Part 121 commercial operations only, excluding any military aircraft. As this study is conducted from a financial perspective rather than an engineering one, determining which incidents should or should not count by technical discretion was beyond the scope of this analysis.

Even after normalization for fleet size, Boeing's incident rate of 43.37 per 1,000 deliveries is nearly four times higher than Airbus's rate of 11.66. When examining the year-by-year breakdown, Boeing peaked at 29 incidents in 2018 while Airbus remained relatively stable

at 10 during the same year. Airbus does exceed 11 in 2023, reaching 13 when Airbus SAS and Airbus Industrie entries are included, but this remains significantly lower than Boeing's 29 incidents recorded in the same year. This disparity is notable and persists even after controlling for differences in fleet size through delivery normalization.

Figure 8
Incident Rate per 1000 Aircraft Delivered (2014-2025)



Note. NTSB Aviation Accident and Incident Database, filtered for FAR Part 121 commercial operations (2014-2025).

This data is presented as a contextual benchmark alongside the financial analysis and does not establish causation between capital allocation decisions and incident rates. Rather it illustrates the broader operational environment in which these financial decisions occurred and may have had some effect — though the nature and extent of any such relationship is beyond the scope of this study.

Discussion

The data presented in this analysis tells a consistent and compelling story about Boeing's financial priorities over the period 2014 through 2025. Across every metric examined, R&D expenditure, R&D as a percentage of revenue, total capital returned, stock buybacks, shares outstanding, and incident rates, the same pattern emerges. Boeing consistently chose to prioritize returning capital to shareholders over reinvesting in its own long-term capabilities during the

years leading up to 2019. This pattern did not happen by accident. It resulted from the deliberate financial decisions made by Boeing at the highest level of corporate leadership, enabled by a regulatory environment that permitted aggressive stock repurchases following the adoption of SEC Rule 10b-18 in 1982.

The most striking finding of this study is the sheer scale of the disparity between what Boeing spent on stock buybacks and what it spent on research and development. Over the period 2013 through 2019 Boeing deployed \$43.4 billion in stock repurchases compared to \$21.8 billion in R&D, a ratio of nearly two to one. This aligns with Lazonick's warning about modern corporations devoting "trillions of dollars that could have been spent on innovation to Wall Street instead" (Lazonick, 2014, p. 50). Instead that capital left the company permanently, returning value to shareholders and executives whose compensation was tied to short-term stock performance, while leaving less internal funding available for the kind of long-term research that defines competitiveness in aerospace manufacturing (Lazonick, 2014).

What makes this finding particularly significant is the Airbus comparison. Boeing and Airbus compete in the same industry, serve the same customers, operate under similar regulatory frameworks, and deliver comparable number of aircraft annually. They are as close to a natural comparison as corporate finance research can find. Yet their capital allocation strategies diverged dramatically over the study period. Airbus consistently dedicated a higher percentage of its revenue to R&D than Boeing did, even during years when Airbus was generating less revenue. In 2020 when Airbus revenue dropped significantly the company maintained its R&D percentage at approximately 5.5%, protecting its research budget even under financial pressure. Boeing by contrast only increased its R&D intensity after buybacks and dividends had completely ceased, suggesting the increase was reactive rather than strategic. The fact that a smaller competitor was

consistently reinvesting more proportionally than Boeing during Boeing's most profitable years raises important questions about what Boeing's leadership believed the company's long-term priorities should be.

The shareholder primacy framework helps explain why this pattern emerged. As scholars including Lazonick have documented, beginning in the 1970s many large American corporations shifted away from a retain and reinvest approach toward what Lazonick describes as a downsize and distribute model, favoring value extraction over value creation. Executive compensation became increasingly tied to short-term stock price performance, creating direct financial incentives to prioritize buybacks over investment (Lazonick, 2014). Boeing's trajectory fits this pattern precisely. Boeing's most aggressive buyback years coincided with its heaviest shareholder returns, and the eventual suspension of buybacks came not from a strategic change in philosophy but from financial necessity following the 737 MAX grounding. The R&D intensity ratio adds another layer to this story. While Boeing's absolute R&D spending in dollars tells one story, the percentage of revenue dedicated to research tells another. During its heaviest buyback years of 2017 and 2018 Boeing was dedicating only 3.2 to 3.4 cents of every revenue dollar to research and development. In an industry where product development cycles span decades and where the consequences of underinvestment may not surface for years, this level of reinvestment relative to revenue raises legitimate questions about long-term strategic planning. Airbus by comparison was dedicating between 4.5 and 6.5 percent of revenue to R&D during the same period. Every percentage point difference represents real dollars going into development pipelines that compound over time into competitive advantages or disadvantages. The shares outstanding data adds a final financial dimension to this picture. Through buybacks Boeing reduced its shares outstanding from 706.7 million in 2014 to 562.9 million by 2019,

removing nearly 144 million shares from the market. This mechanically inflated earnings per share and supported stock price performance even as the underlying business was becoming more financially unstable. Boeing spent years engineering its financial statements to look stronger than they were while potentially underinvesting in the engineering that makes aircraft competitive and reliable. After 2019 shares outstanding climbed back above the 2014 starting point, reaching 784.7 million by 2025. Boeing went from aggressively retiring shares to being forced to issue new ones to raise cash, a complete reversal that reflects how dramatically the financial position of the company changed once the buyback program ended.

The incident rate data presented in this study is intentionally offered as a contextual benchmark rather than a causal claim. This study does not assert that Boeing's capital allocation decisions caused any specific safety incident or operational failure. The data simply shows that over the same period Boeing was dedicating significantly less proportional capital to R&D than its primary competitor, Boeing's normalized incident rate was nearly four times higher than Airbus's. Whether that relationship reflects a causal connection, a shared underlying factor, or simply a coincidence of timing is a question beyond the scope of this financial analysis. The pattern exists, is consistent across multiple data sources, and warrants further investigation by researchers with appropriate engineering and safety expertise.

What this study ultimately suggests is that Boeing's capital allocation decisions during the period 2013 through 2019 reflected a corporate philosophy that prioritized short-term financial performance over long-term reinvestment — and Boeing provides one of the most dramatic and well-documented case studies of what this philosophy looks like in a capital-intensive industry where the stakes of underinvestment extend far beyond financial performance. The company that spent \$43.4 billion buying back its own stock between 2013 and 2019 spent

zero on buybacks in the six years that followed. The company that paid dividends continuously since 1932 suspended them in 2020. The company that reduced its shares outstanding by 144 million was forced to issue new shares to raise cash. These reversals do not prove that the original decisions were wrong, but they do suggest that the financial architecture Boeing built during its most aggressive shareholder return period was not designed to withstand significant disruption.

The broader implication of this research extends beyond Boeing specifically. In any capital-intensive industry where competitive advantage is built over decades rather than quarters, the balance between shareholder returns and reinvestments carries long-term consequences that may not be immediately visible in financial statements. Boeing's trajectory over the study period offers a detailed and data-rich illustration of what this imbalance can look like when examined across eleven years of primary source financial data. The question this raises for corporate governance more broadly is not whether companies should reward shareholders, they absolutely should, but rather whether the scale and consistency of those rewards relative to reinvestment reflects a sustainable long-term strategy or a short-term optimization that borrows from the future to pay for the present.

Limitations

This study has several limitations that should be acknowledged. First, the NTSB incident data contains a significant number of incomplete entries, particularly in the probable cause field where many records were left blank. While the dataset was filtered for FAR Part 121 commercial operations and to exclude military aircraft, it was not possible to fully isolate mechanical incidents from all other incident types such as weather-related events, pilot error, or air traffic control issues. As this study was conducted from a financial and accounting perspective rather

than an engineering one, further filtering by technical cause was beyond the scope of the analysis. As a result, the incident counts may include some non-mechanical events, which could affect the precision of the safety comparison between Boeing and Airbus. The incident data is therefore presented as a contextual benchmark rather than a definitive measure of aircraft mechanical reliability.

Second, Airbus R&D expenditure data was sourced from Macrotrends, which reports figures converted from euros to US dollars. Exchange rate fluctuations between the euro and US dollar over the study period may affect the comparability of Airbus and Boeing R&D figures on a year-over-year basis. While the conversion provides a reasonable basis for general comparison, readers should be aware that some variation in the reported figures may be attributable to currency exchange rate movements rather than actual changes in R&D investment levels. This limitation is most relevant when comparing specific year-over-year changes rather than overall trends across the full study period.

Third, this study is observational in nature and does not claim that capital allocation decisions directly or solely caused any specific safety incident or operational failure.

Fourth, the analysis covers 2014 through 2025 and does not account for differences in corporate structure, government contracts, military spending, or regulatory environment between Boeing and Airbus that may independently influence both R&D investment levels and safety outcomes. Boeing derives a significant portion of its revenue from defense and space contracts which may affect its overall capital allocation strategy in ways not fully captured by commercial aircraft R&D spending alone.

Finally, this study focuses exclusively on R&D expenditure as the primary measure of reinvestment and does not account for other forms of capital investment such as manufacturing

equipment, facility upgrades, or workforce training programs. While R&D spending serves as a widely recognized proxy for long-term investment in innovation and competitive capability, it does not capture the full scope of Boeing's total reinvestment into its operational capacity during the study period.

Conclusion

This study examined Boeing's capital allocation patterns from the years 2014 through 2025 and identified a clear and consistent pattern in how the company deployed its financial resources. Between 2013 and 2019, Boeing spent \$43.3 billion on stock buybacks compared to \$21.8 billion on research and development, a ratio of nearly two dollars returned to shareholders for every dollar reinvested into the firm's future capabilities. Following 2019, both stock buybacks and dividend payments ceased entirely, reflecting the significant financial strain Boeing faced after the 737 MAX grounding and the broader market disruption of the COVID-19 pandemic. The data suggests that during its most profitable years, Boeing prioritized immediate shareholder returns over long-term reinvestment in research and development, a strategic choice that left the company with limited financial flexibility when external pressures emerged. This pattern carries important implications for capital-intensive industries more broadly. In aerospace manufacturing, competitive advantage is not built in quarters but over decades. Aircraft development programs require sustained investment across multiple years, with design cycles that can span ten years or more from initial concept to first delivery. Short-term financial optimization strategies such as aggressive stock buyback programs may deliver immediate benefits to shareholders and boost quarterly earnings metrics, but they do so by reducing the internal capital available for the kind of long-term research and development investment necessary to remain competitive over extended time horizons. Boeing's dramatic reversal in

capital allocation after 2019 — from spending billions annually on buybacks to spending zero — suggests that the balance achieved during the earlier period was not sustainable when the company faced significant operational or market challenges.

Future research should examine whether the regulatory framework established by SEC Rule 10b-18 creates systematic incentives that favor short-term financial engineering over long-term operational investment across capital-intensive industries. Additionally, researchers with engineering and operations expertise should investigate whether observable patterns in capital allocation correlate with measurable changes in product development timelines, manufacturing quality metrics, innovation outputs, or competitive positioning in aerospace and similar sectors. While this study establishes a clear financial pattern in Boeing's resource allocation decisions, determining the operational and strategic consequences of that pattern remains an important area for continued investigation.

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