

# Boeing 737 Max Crisis of 2018–2019: A Content Analysis

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**Abstract.** This exploratory study seeks to critically analyze the Boeing 737 MAX crisis of 2018–2019. The study uses Situational Crisis Communication Theory (SCCT) and Image Restoration Theory to frame Boeing's strategic response. Using content analysis methods, the study identifies the evolution of public perception of the crisis and the evolving media narrative during the crisis timeframe. The study focuses on the relationship between Boeing's crisis response and stock valuation. It suggests that Boeing's initial denial, followed by the delayed acknowledgment of responsibility—all framed through SCCT and Image Restoration Theory—significantly impacted the company's market valuation compared to its primary competitor, Airbus. The study underscores that crisis communication is a complex endeavor, highlighting the importance of timely and transparent communications to restore public confidence in the case of high-stakes crises.

**Keywords:** Boeing 737 MAX, Crisis Communication, Situational Crisis Communication Theory, Image Restoration Theory, Media Analysis, Stock Valuation

## 1 Introduction

The Boeing Corporation is one of the world's largest and oldest aerospace manufacturers, producing commercial airplanes, defense equipment, and space technology. A significant crisis for Boeing began during 2018–2019 when two Boeing 737 MAX airplanes, the latest iteration in its popular 737 series, were involved in separate crashes within five months of one another. The first crash involved Lion Air Flight 610 in October 2018 [1], and the second was Ethiopian Airlines Flight 302 in March 2019. The incidents resulted in 346 fatalities. Subsequent investigations revealed that a critical factor in each incident was the Maneuvering Characteristics Augmentation System (MCAS), an automated flight control system malfunctioning because of failed sensors. As a result, the global fleet of 737 MAX aircraft was grounded, leading to widespread scrutiny of Boeing's design and certification processes, significant financial losses, and reputational damage.

This case study examines the Boeing 737 MAX crisis from 2018 to 2019 from multiple perspectives [2]. The study endeavors to depict a relatively complete picture of the tragic incidents, with the crisis becoming clearer. That said, this study is best described as exploratory research. Exploratory research aims to investigate an area or issue where

few or no earlier studies use similar research methods. The purpose is to explore the relationships between variables, understand phenomena, and gain insights rather than to predict or explain a causal relationship. Still, it is logical to assume that negative press coverage of the crisis influenced the stock valuation of Boeing to decline significantly relative to its primary competitor, Airbus, as indicated in this study.

This study uses the theoretical frameworks of Situational Crisis Communication Theory (SCCT) and Image Restoration Theory to frame the crisis response from Boeing. This includes the use of content analysis to examine significant news articles related to the Boeing 737 MAX crisis [2], with a focus on identifying and analyzing statements relevant to SCCT and Image Restoration Theory and, as a result, endeavors to gain a deeper understanding of how these theories apply to this case. This study seeks to uncover and interpret the nuances of communication strategies and their impacts during the crisis, aligning with the goals of exploratory research.

## **2 Literature Review**

### **2.1 Background**

As one of the largest aerospace manufacturers in the world, a crisis of this magnitude is significant not only to Boeing but also to the international economy and industry. As mentioned, the global fleet of 737 MAX aircraft was subsequently grounded due to the crisis, leading to widespread scrutiny of Boeing's design and certification processes by all levels of government, including the United States Congress. The resulting economic and reputational loss to Boeing was devastating.

Past studies have focused on Boeing and its industrial process and used the industrial process of Boeing to comment on the 737 MAX crisis and how to avoid such events. Khashe and Levy [3] looked at the requirements of so-called high-reliability organizations (HROs) that must have zero or near-zero level defects in their operation and execution because of the negative societal impact that can result if such thresholds are not met. The result of the study is practical: “to identify relationships between defining HRO characteristics and preventative measures that Boeing, human workers, and regulatory agencies could have followed before and during the accidents’ occurrences” [3]. Another study noted the importance of supply chain management in the aviation industry, using a detailed industry analysis to shed light on what can be the root causes of aviation incidents [4].

The Boeing crisis gave rise to empirical, quantitative studies. However, the predominance of literature (at least in this review) takes a qualitative approach, explicitly reflecting SCCT, Image Restoration Theory, and Crisis History Theory. Wild [5] looked at the Civil Aviation Organization safety occurrence data from 2008 to 2019 and found that Airbus had a significantly lower safety incident rate than Boeing and that this discrepancy was directly related to the Lion and Ethiopian Air incidents. Pandian et al. [6] looked at data related to the Boeing 787 Dreamliner. Although the second study was unrelated to the 737 MAX incident, it showed the potential for a quantitative approach when looking at aviation data from a safety perspective, noting that the 787 experienced

reliability issues that resulted in its grounding in 2013. These studies indicated that maintaining consistent and comprehensive data related to the industry is essential and can be helpful when analyzing safety and crises such as those seen with the 737 MAX. Such data could be used to avoid potential crises.

After investigating the Lion Air incident, Boeing issued manufacturer guidance for carriers to follow to avoid similar situations. After the second incident with Ethiopian Air Flight 302 (again involving the 737 MAX), Boeing was aware it would need to prepare response strategies, considering the prior response to the Lion Air incident was ineffective [7]. SCCT came to the forefront of Boeing's response because reputational issues needed to be urgently addressed. While Boeing delayed connecting the two incidents, other carriers decided proactively to ground the 737 MAX fleets in March 2019 [7]. Boeing's reputation was undeniably on the line.

Another critical element of SCCT that Butler [7] explored is a rebuild response strategy. Boeing used this strategy once it became clear that the company needed to move beyond denial of responsibility and admit that it was culpable in both incidents. Butler [7] explained that after the Ethiopian Air incident, the reputational risk to Boeing was so high that it had no alternative but to shift to a rebuild response approach. Eshun [8] explained, "The rebuilding strategy works by offering compensation and apology to victims of the crisis. In a nutshell, it represents an acceptance of responsibility for a crisis" (p. 40). The situation tested Boeing's resilience as an organization. According to *Theorizing Crisis Communications* [9] organizational resilience is framed as the ability to bounce back, absorb shocks and disruptions, and continue functioning. As for public relations, Boeing needed to wage an "information war" as the company struggled to maintain its reputation and not succumb to the adverse outcomes of bad publicity. As Sellnow and Seegar [9] stated, this involves elements of Image Restoration Theory, which involves an aggressive public relations campaign. This theoretical framework was also defined as a critical theory for this study.

Crisis Communications is often an exercise in effective public relations or the lack thereof. This is the case with the Boeing crisis. Zahra [10] emphasizes the importance of public relations for crisis communication and equates it with war, noting, "In this era of information warfare, PR communication practitioners are constantly dealing with the increasingly complicated structure of information campaigns. At the same time, a crisis may require that an organization respond to communication challenges faster make quicker decisions on improving the campaign plan, having considered the opponents' actions and changes in the external information background, thus undergoing immediate adjustment of the PR tactics and strategies" (p. 27). In the case of Boeing, the "opponents" were not adversaries in war but customers who might make proactive decisions (such as grounding their fleets) that could affect Boeing's reputation and stock valuation. The dynamics of the Boeing crisis were like those of war, with a constantly shifting situation on the ground that required an evolving public response.

According to *Theorizing Crisis Communications* [9], the crisis communication field grew out of public relations, dating back to the 1906 Pennsylvania Railroad disaster. The key question raised is how organizations manage a crisis in such a way as to mitigate harm to the public's perception due to the crisis. The Boeing 737 MAX crisis of 2018–2019 and the subsequent public relations nightmare for Boeing highlight this,

requiring the company to initiate strategies that involve SCCT and Image Restoration Theory [9], as detailed below. Other case studies related to the crisis are also referenced, including one by Ernest Eshun [8] of East Tennessee University and Stephen Butler of Public Relations Review [7].

### 3 Theoretical Frameworks

This study connects two theoretical frameworks to the Boeing Crisis: Situational Crisis Communication Theory (SCCT) and Image Restoration Theory. Each is described below.

#### 3.1 Situational Crisis Communication Theory

As detailed in Eshun's study [8], SCCT was originally promulgated by Timothy Coombs [11], who suggests that crises could be categorized based on the assignment of crisis responsibility. According to Coombs, there are three main categories of crisis responsibility: victim, accidental, and preventable. Further, an organization's reputation directly relates to how these responsibilities are attributed. Because of this, Coombs [12] indicated that organizations need to calibrate their crisis response strategies to the proper level of responsibility.

#### 3.2 Image Restoration Theory

Image Restoration Theory focuses on strategies an organization can use to restore its image post-crisis [9]. Also known as *image repair*, Benoit [13] propounded the theory and suggested that an organization in crisis may improve its image by ascertaining what is threatening its image and which stakeholders must be targeted with persuasive messages to restore a positive outlook. The theory proposes that an image can only be improved but not completely repaired. Importantly, it addresses what an organization can communicate when perceived to have engaged in some level of wrongdoing [13].

Organizations executing Image Restoration Theory focus on transparency and engaging with internal and external stakeholders to ensure efficient crisis management. Internal reviews and adjustments are also critical, based on requirements for corrective action [9].

#### 3.3 Crisis Management and Communication Strategies

A common theme uncovered in the literature review was that SCCT is a critical theoretical framework applicable to the Boeing crisis, as emphasized by Eshun [8] and Butler [7]. Throughout the crisis, Boeing often attempted to assign responsibility (blame) ineffectively. SCCT shed light on how responsibility must be assigned appropriately for a crisis to be dealt with effectively. When looking at the crisis through the lens of Coombs's *levels of responsibility* for SCCT, Boeing began as the *accidental victim* (i.e.,

the crisis was not Boeing's responsibility *per se*). Once this proved untenable, the company shifted to the stance of *preventable* and implemented a plan to prevent future technical issues with the Boeing 737 MAX. Another critical strategy discussed in the review, Image Restoration Theory, shows that once responsibility is accepted, a plan can evolve to restore public confidence [9]. This was the progression of the crisis response for Boeing.

#### 4 What this Crisis Indicates

A recurring theme of the crisis was the impact on Boeing's reputation and the public's perception of the company. As an HRO, public perception is critical, and the loss of public confidence can be disruptive. Once the company understood the responsibility was at the level of *preventable*, an appropriate public relations response for the longer term could be enacted that at least attempted to restore some of the company's former public confidence [13], [3]. As noted, the literature review highlighted the importance of organizations accepting responsibility for their actions, especially in *preventable* crises. The *rebuild response* strategy, which involves offering compensation, apologies to victims, or both, represents an acceptance of responsibility and is a crucial step in restoring trust and credibility [7], [8].

Whether Boeing learned from the 737 MAX crisis is a topic of ongoing debate. The company has not fully incorporated lessons learned, and continued (recent) issues with the 737 MAX underscore this. Although outside the scope of this study, recent headlines have indicated that the company could have adapted better to the crisis. This is partly because of the technical complexities of airplane manufacturing and overspecialized engineering teams that focus on one problem at a time rather than using an overall systems and safety approach to manufacturing that is more holistic. It could also be partly due to a decline in the company's 'safety culture' after it merged with McDonnell Douglas in 1997 [14]. In the following analysis, we will delve into this theme more thoroughly. The literature review also notes social media's challenges and opportunities in crisis communication. The need for timely and effective communication strategies is underscored, highlighting how the digital age has transformed crisis management and public relations [7].

#### 5 Business Ethics

These themes collectively offer a better understanding of the nature of the situation, but driving the entire crisis is a fundamental problem with business ethics within Boeing. Aviation is a high-stakes business area where reliability is critical. Responding to a crisis effectively is part of an overall strategy to ensure the company is viable moving forward and does not compromise safety for profit. At a macro level, this involves business ethics. Management needs to understand that cutting corners on costs may not be in the best interests of the flying public. In other words, business ethics has direct and tangible impacts on safety and company viability and does not arise from an altruistic

sense of morality. This aligns with [15] the definition of business ethics as an ultimately pragmatic exercise [16].

When reviewing the literature related to the Boeing crisis of 2018–2019, a set of robust studies encompasses both qualitative and quantitative analysis. Among the theoretical frameworks used, SCCT provides a compelling analytical framework for a unique crisis analysis. Stated differently, SCCT is critical because it can be used as a theoretical framework for a more fluid analysis considering any crisis's unique characteristics. It could be said that crises, by their nature, are unique and unrepeatable, and SCCT captures this quality.

There are notable gaps in quantitative research, although a deeper literature review could indicate that this type of work did not come under close enough scrutiny. It seems that crisis communication involves human elements that, by necessity, are best suited to a qualitative approach; however, a qualitative approach may result in insights that do not directly influence changes in a process that could result from quantitative studies (changes that could have a direct impact on safety rather than a cosmetic or strategic impact). Complex data and metrics could tell us if the safety strategies put in place are successful. Therefore, a more balanced approach to aviation crisis research may be necessary to the extent that such an imbalance exists.

## 6 Research Questions

RQ1: How did the major print media respond to the Boeing crisis, and how well does this map to Situational Crisis Communication Theory and Image Restoration Theory?

RQ2: Was there a relationship between negative sentiment in news coverage and Boeing's stock market valuation in such a way that an increased amount of negative press negatively influenced the company's market valuation relative to its primary competitor, Airbus?

## 7 Methodology

The method used for this study was content analysis. Keywords were established that included "Boeing 737 MAX", "crisis," "communication," and "response," which were limited by critical dates related to the crisis in 2018–2019. Twenty-two news articles from *The New York Times*, *The Washington Post*, and *The Wall Street Journal* were selected for deeper analysis. The articles were identified through keywords related to the Boeing crisis and grouped by year. Each year, articles from the target news organizations mentioned above were included.

Each identified article was then reviewed, and relevant statements were highlighted for critical themes and codes, with a subset corresponding to SCCT and Image Restoration Theory, as outlined in the Literature Review. For SCCT and Image Restoration Theory, a variety of themes were highlighted by a content analysis tool (NVivo) and then analyzed. For analysis purposes, each instance was recorded in a spreadsheet with the year, theme, and instances of themes.

## 8 Sampling

The sampling method described in this research approach is purposive sampling, as it provides specific cases or instances believed to provide rich, relevant, and insightful data for the study. This method is often used in qualitative research, focusing on gaining a deep understanding and insight into specific phenomena rather than generalizing findings to a larger population.

As described in the methodology, the selection of articles is not random but is based on specific keywords (as described previously) and key dates related to the crisis in 2018–2022. This indicates a purposeful choice of sources to ensure they are relevant to the research topic and objectives. The focus on specific theories (SCCT and Image Restoration Theory) and the targeted identification and analysis of statements related to these theories further underscore the purposive nature of the sampling strategy.

## 9 Procedure

The procedure for the study was as follows:

**Keyword Search**—An internet search engine (Google) and other specialized search engines (SAGE) were used to find and collect articles containing the keywords “Boeing 737 MAX,” “crisis,” “communication,” and “response.”

**Managed Volume**—To manage the volume of data retrieved, the search was limited to dates that were within close proximity (less than five years) to the events of 2018–2019. The articles that were the subject of coding were limited to *The New York Times*, *The Wall Street Journal*, and *The Washington Post*. A total of twenty-two major news articles were identified.

**Initial Screening**—Once the search results were in hand, they were briefly reviewed to ensure their relevance to the crisis.

**Article Selection**—From the screened search results, a manageable number of articles (twenty-two) were selected from the media sources for deeper analysis, prioritizing the most relevant and influential ones.

**Category Assignment**—Using NVivo software, the selected articles were coded using automated processes and analyzed for thematic and sentiment content.

**Data Recorded**—The most prevalent themes were recorded in a spreadsheet, noting the year of the article. All articles were sourced from *The New York Times*, *The Washington Post*, and *The Wall Street Journal* for 2018–2022.

**Analysis**—Data was analyzed qualitatively and summarized in the findings. The results were analyzed for the themes, as noted in the findings. The general sentiment of the articles was also noted and analyzed.

**Report Findings**—Summarized in the Summary of Results section. The findings were contextualized to explain how and why Boeing's response strategy did not have the desired effect. As noted in the findings, this is quantified in the company's stock market valuation during the period 2018–2022.

**Conclusions**—The conclusion explains how Boeing's responses to the crisis aligned with SCCT and Image Repair Theory. It summarizes the apparent effectiveness or lack thereof of Boeing's response.

## 10 Summary of Findings

The result of the analysis revealed the evolution of the Boeing 737 Max crisis in terms of the general themes and sentiment of the news media (as reflected in *The New York Times*, *The Wall Street Journal*, and *The Washington Post*) as well as the stock valuation for the company during the crisis.

*Figure 1* represents themes revealed during the content analysis and how those themes evolved. *Figures 2 and 3* represent the stock valuation throughout the intense focus on the crisis in the media between the Summer of 2018 and Fall of 2019, with the sentiment of the media as represented by *The New York Times*.

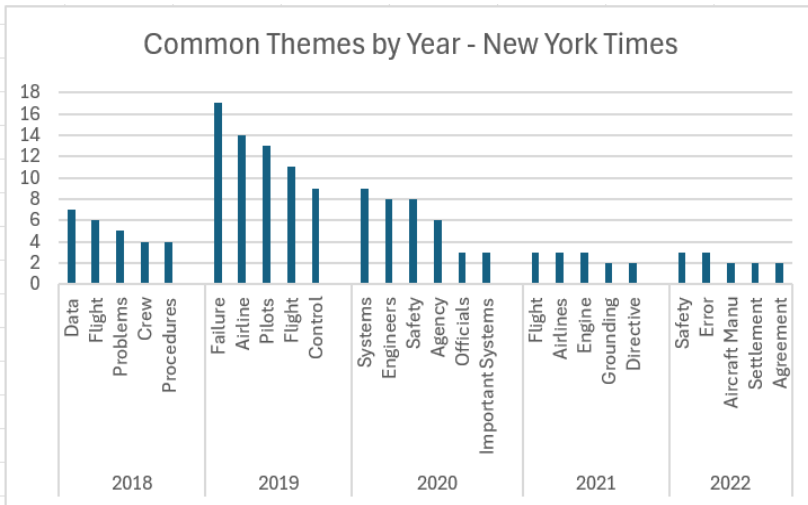
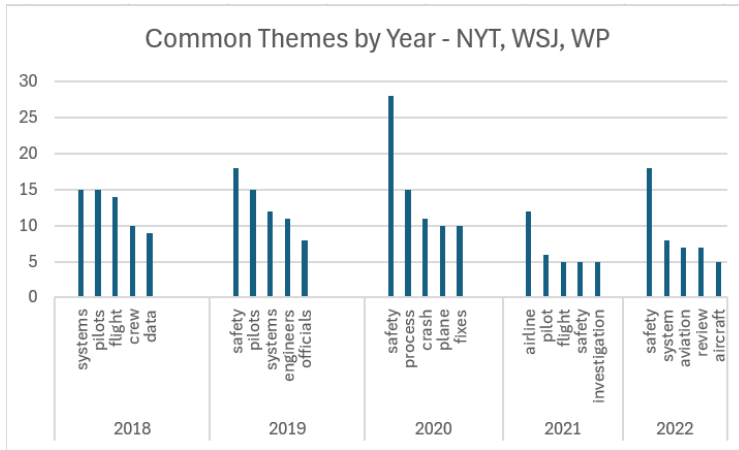


Fig. 1. Prevalent Themes in NYT press coverage, 2018–2022, Source: NVivo



**Fig.2.** Prevalent Themes for combined NYT, WSJ, and WP press coverage, 2018–2022

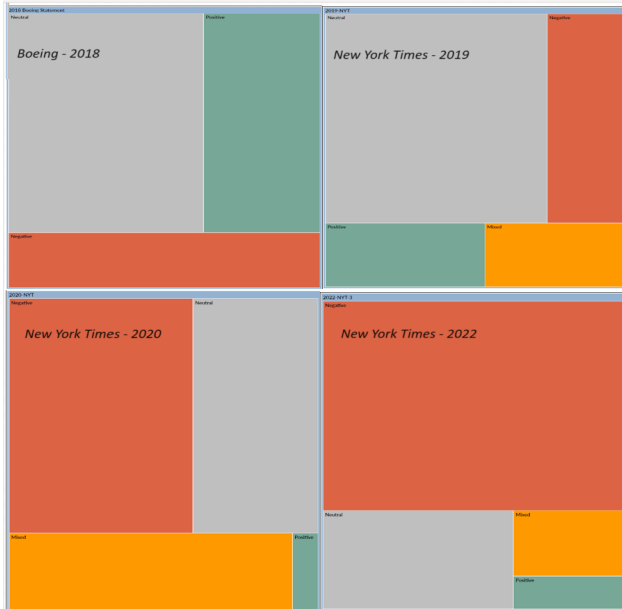
Source: NVivo



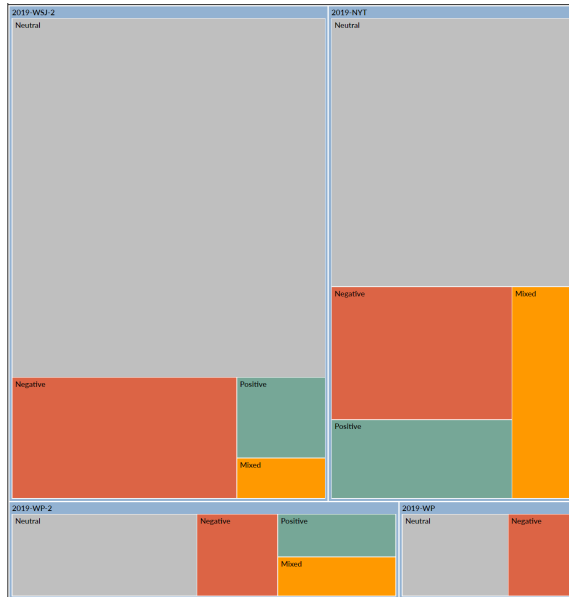
**Fig. 3.** Boeing Stock Valuation – 2018–2024, Source: Macrotrends [18]



**Fig. 4.** Boeing Stock Valuation, August 2019–October 2020, Source: Macrotrends [18]

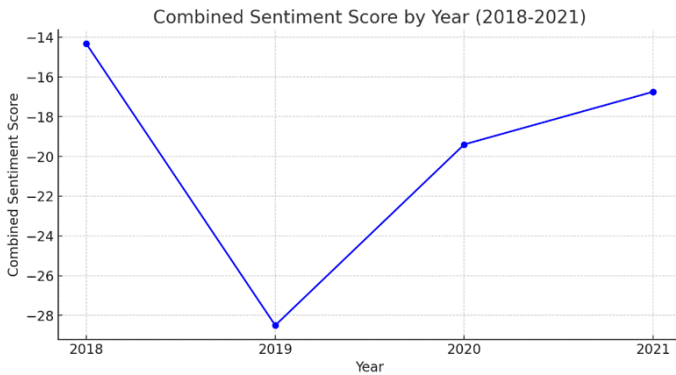


**Fig. 5.** Press sentiment of The New York Times 2019–2022 when compared to Boeing PR 2018  
 Color Code: *Red*=negative *Green*=Positive *Orange*=Mixed *Grey*=Neutral, Source: NVivo

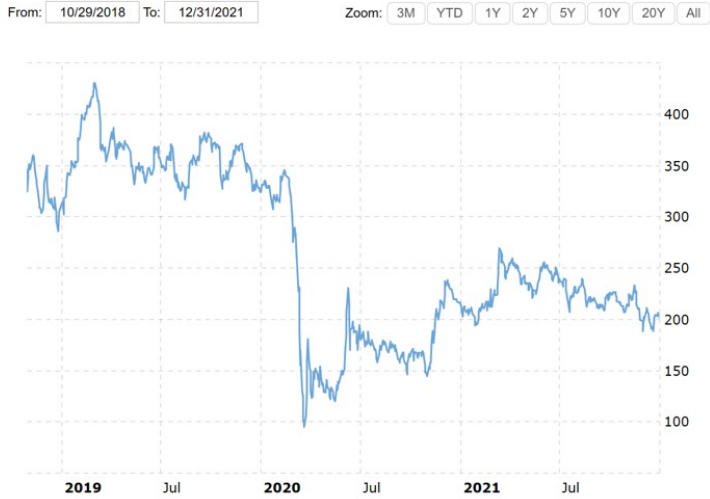


**Fig. 6.** Press sentiment of combined NYT, WSJ, and WP for 2019

Color Code: *Red*=negative *Green*=Positive *Orange*=Mixed *Grey*=Neutral, Source: NVivo



**Fig. 7.** Overall Press Sentiment Score by Year: 2018–2021, Source: NVivo-OpenAI



**Fig. 8.** Boeing Stock Valuation by Year: 2018–2021 showing the negative impact of COVID shutdowns in early 2020. Source: Macrotrends [18]



**Fig. 9.** Boeing Stock Valuation (blue) when compared to Airbus(green), Sept. 2018 to Dec. 2021, showing the relatively positive performance of Airbus, Source: Yahoo Finance [19]

As indicated in *Figures 1* and *2*, specific themes arose in the press during the crisis. Notable was the theme of “failure” in a significant write-up in the *New York Times Magazine* (*Figure 1*) in 2019 on the cusp of the Ethiopian Air incident [20]. The theme of “pilots” also ranks high during 2019, an understandable outcome given the intense focus on the competence of the pilots.

*The New York Times* themes then shifted in 2020 to “engineers” and “officials,” consistent with the unfolding information showing that pilot error was not the prime cause but a manufacturing issue was actually the root cause [21]. “Important systems” shows up as a key theme, consistent with the evolution of responsibility for the crisis from one of pilot blame (victim) to one of engineering responsibility (preventative) [9].

By 2022, the key themes move to “safety,” “error,” and, notably, “aircraft manufacture.” Consistent with SCCT, the responsibility shifts from “victim,” “accidental,” and “denial” to “preventative.” In addition, Boeing is actively moving toward taking responsibility for the situation and, thus, image repair [22].

Looking at *Figure 2*, we find themes prevalent in combined press reports from *The New York Times*, *The Wall Street Journal*, and *The Washington Post*. These themes also show intriguing results when compared with stock valuations. In 2020, the theme of “safety” became dominant and correlates with Boeing’s steep valuation decline in 2020 that persisted even after the COVID shutdowns. In that same year, the theme of “pilot” dropped off the top five list, indicating a shift of focus away from the pilots and toward the theme of “fixes,” indicating that manufacturing fixes have become the primary theme. By 2021, “investigation” will become a prevalent theme, and during 2022, “safety” will again show a marked increase in prevalence, with a corollary relationship to another steep stock decline for Boeing. The evolution of prevalent themes from 2018 forward is consistent with both the narrative of the Boeing crisis and SCCT. Specifically, the shift to the themes of “fixes” and “process” by 2020 shows that the crisis is moving into a “preventative” phase and away from a focus on “flight,” “crew,” and “data” that was seen in 2018. This indicates a focus of press coverage not on the aircraft itself but on pilots and crew in the initial response of denial and blame from Boeing.

*Figures 3* and *4* show Boeing's stock valuation during the crisis, and *Figures 5* and *6* represent media sentiment as revealed through coding. *Figure 7* represents a weighted average of press sentiment (using *The New York Times*, *Wall Street Journal*, and *Washington Post* press coverage) year-by-year, calculated as a “sentiment score” (a lower score represents more negative coverage). *Figure 8* shows the Boeing stock valuations for the same timeframe, indicating a decline beginning after the Ethiopian 737 MAX incident of March 10, 2019, followed by the stock collapse due to COVID shutdowns in early 2020. The company's stock price has yet to recover the values seen in early 2019 before the Ethiopian incident.

*Figure 9* is a closer look at the Boeing stock valuation between September 30, 2018, and December 31, 2021, comparing the company’s stock price to Airbus, with September 30, 2018, being the baseline. The diagram represents the relative valuation of each stock. It indicates that Airbus performed significantly better relative to the baseline during the same timeframe, even with the impact of COVID in Q1 2020. The culmination of negative publicity for Boeing beginning in Q1 2019, after the Ethiopian 737

MAX event occurred, demonstrates that the overall stock performance of Boeing relative to Airbus was significantly lower and supports the thesis that negative publicity influenced an overall downward trend on Boeing’s stock price relative to Airbus. OpenAI also supports this thesis [17]. Of particular note is that the performance of Airbus stock before the COVID shutdown but after the Ethiopian Air incident (April 2019 – February 2020) was the inverse of Boeing and exceptionally robust. A similar positive trend for Airbus relative to Boeing was also evident from March 2021 to December 2021.

## 11 Implications

The results indicated that this line of research is productive and would lead to additional insights regarding the crisis with further research. In some ways, it might be intuitively obvious that central negative press sentiment would relate to a devaluation of the company’s stock value; that said, it does not appear to be documented in any way that directly correlates one to the other. Indeed, the relationship between stock valuation and press coverage is well known, even in authoritarian regimes such as China [23]. Looking at the stock valuation also underscores an unstated yet primary driver of the crisis: the nature of capitalism. David Gelles [21] alludes to this in his piece in *The New York Times*. While competition, on paper, is intended to spur excellence, it can also spur mediocrity. In other words, it could be that Boeing was attempting, on one level, to become the low-cost/cost-saving “Walmart” of aviation companies.

Moreover, as indicated in the documentary *Downfall: The Case Against Boeing*, the historically safety-driven culture of Boeing slowly shifted after the company’s merger with McDonnell Douglas in 1997, with the corporate culture becoming more and more driven by investor concerns and a desire to increase market valuation [14]. Given the complexities of airplane manufacturers, this approach appears misplaced. In other words, the chronic failure of Boeing to recognize and address issues in their market-driven culture—and its negative impact on quality—continue to plague the company with lost sales, crippled management, and reputational issues that will take years, if not decades, to recover. Ironically, focusing on market valuation has had the opposite of the intended result.

## 12 Future Research

As a next step for further research into this area, I propose a quantitative analysis that will more directly correlate press sentiment with stock valuations. This could be done by correlating sentiment with stock valuations on an annual basis, month by month, for a specific year. In other words, the proposal is to create two datasets. The first would be the average Boeing stock valuation by month for a year. The second would be to create a more granular composite of the “combined sentiment score” (as generated by data analysis software) also on a month-by-month basis derived from the 2018–2020 press coverage grouped month-to-month for *The New York Times*, *Wall Street Journal*, *Washington Post*, and *CNN*.

The purpose is to establish a positive correlation between fluctuations in press sentiment and stock valuation. The two years of focus would be 2020 and 2022 when the stock declined significantly. This study's high-level, preliminary qualitative sentiment analysis indicates that such a correlation may exist.

### 13 Conclusion

This study indicates that most studies related to this crisis use qualitative or case study approaches and that a more data-driven approach to analysis could also be helpful. Studies in aviation safety shed light on the situation in practical ways and indicate specific fixes that could be put in place to address safety concerns in aviation in a way that avoids harmful events.

One possible quantitative approach might be a more robust analysis of data provided by the Federal Aviation Administration (FAA). The FAA maintains extensive industry data that analysts should be able to leverage. Examples include accident and incident reports, aviation data and statistics, commercial space data, forecasts, and service difficulty reports.

As noted, when reviewing the literature and analyzing press coverage related to the Boeing crisis of 2018–2019, a set of robust studies encompasses both qualitative and quantitative analysis. Among the theoretical frameworks used, SCCT provides a compelling analytical framework for a unique crisis analysis. Image Repair Theory is also critical as an analytical framework, as Boeing has been actively involved with image repair since admitting fault in the crisis, and this image repair continues to this day with the company's continued crises [24]. As for the importance of SCCT as a theoretical framework, it can be used for a more fluid analysis considering any given crisis's unique characteristics.

As stated earlier in this study, there are notable gaps in quantitative research, and a deeper dive into the kind of analysis suggested in the section *Future Research* might indicate that quantitative/longitudinal studies could correlate stock valuations more directly with press sentiment. A much larger set of news articles would need to be analyzed for sentiment by aggregating the resulting data by month. This more granular, quantitative approach could provide additional insights not revealed in this study.

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