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Assessing the JetBlue-Spirit Merger Attempt: A Study of Financial Collapse, Market Impact, and Regulatory Trade-Offs in U.S. Airline Competition

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I Résumé

Cette thèse examine les conséquences du blocage de la fusion entre JetBlue et Spirit sur la concurrence, les prix et la politique de réglementation dans l'industrie aérienne américaine. En combinant des approches financières et économétriques, elle cherche à répondre à deux questions principales : quels ont été les effets de cet échec de fusion sur les tarifs et la capacité du marché ? Et ces effets sont-ils cohérents avec ceux d'un scénario contrefactuel dans lequel la fusion aurait été approuvée ?

L'analyse révèle que Spirit faisait déjà face à une crise financière avant la tentative de fusion, et que le blocage de l'accord a supprimé une possible bouée de sauvetage. Dans les marchés où JetBlue et Spirit se faisaient concurrence, les tarifs des billets ont légèrement diminué après l'annonce puis le rejet de la fusion, tandis que la capacité et le volume de passagers ont légèrement augmenté. Ces tendances suggèrent que les autres transporteurs ont réagi de manière concurrentielle, anticipant une sortie éventuelle de Spirit, que ce soit par fusion ou par faillite. Le modèle contrefactuel prédit des tarifs post-fusion comparables à ceux observés, laissant entrevoir des hausses de prix modérées et un impact limité sur les consommateurs si la fusion avait été autorisée.

Ces résultats mettent en lumière les compromis inhérents à la mise en œuvre des politiques antitrust. Si le rejet de cette fusion a permis de conserver un transporteur à très bas coûts (ULCC) dans le secteur, il a également montré que la concurrence à court terme est demeurée stable malgré la détérioration financière de Spirit, préservant ainsi une certaine discipline tarifaire sur le marché. La thèse souligne dès lors l'importance, pour la politique de fusion dans les industries concentrées, de prendre en compte à la fois les effets sur les prix pour

les consommateurs et le rôle disciplinaire particulier que jouent les entreprises en difficulté comme Spirit.

Mots clés : Secteur aérien, Transporteurs à très bas prix, Politique de fusions, Faillite, Contraintes de capacité, Coefficient de remplissage, Droit de la concurrence.

Méthodes de recherche : Économétrie, Diagnostic financier, Analyse de données de panel, Régression à effets fixes, Analyse tarifaire, Analyse de capacité, Différences de différences, Simulation contrefactuelle.

II Abstract

This thesis focuses on the consequences of the blocked JetBlue-Spirit merger on competition, pricing, and regulatory policy in the U.S. airline industry. Through a combination of financial and econometric methods, the study addresses two main questions: What were the broader effects of this failed merger on fares and capacity in the market? And are these effects consistent with a counterfactual scenario in which the merger had gone through?

The analysis showed that Spirit was already in a financial crisis before the merger, with the blocked deal removing a potential lifeline. Ticket fares in overlapping JetBlue and Spirit markets declined modestly following the merger announcement and subsequent block, while capacity and passenger volumes expanded slightly, suggesting that other airlines in the industry responded competitively and anticipated Spirit's exit, whether via merger or bankruptcy. The counterfactual model predicted post-merger fares that were broadly similar to those realized, implying mild fare increases and limited consumer impact had the merger been approved.

These results highlight the trade-offs faced in antitrust policy enforcement. While blocking this merger kept a necessary ULCC competitor in the industry, it also confirmed that short-term competition remained constant even as Spirit's financial situation worsened, preserving fare discipline in the market. Thus, this thesis emphasizes the need for merger policy in concentrated industries to account for both the consumer effects of pricing competition and the specific disciplinary role distressed firms like Spirit play.

Key Words: Airline industry, Ultra Low-Cost Carriers, Merger policy, Bankruptcy, Capacity constraints, Load factor, Antitrust.

Research Methods: Econometrics, Financial diagnostics, Panel data analysis, Fixed-effects regression, Fare analysis, Capacity analysis, Difference-in-differences, Counterfactual simulation.

III Statement on The Use of A.I. Tools

I acknowledge that portions of this document were assisted by large language models (ChatGPT 5.0 and Grammarly), primarily for editing clarity, grammar, reference formatting, and figure/table note templates. All empirical work, such as data collection, cleaning, coding, estimation, interpretations, and conclusions, is my own, and I remain fully responsible for the content of this thesis. I used these tools to improve the readability and consistency of this thesis and followed HEC Montréal's guidance on responsible AI use.

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VII List of Abbreviations

— ASM: Available Seat Miles

— ATT: Average Treatment Effect on the Treated

— BTS: Bureau of Transportation Statistics

— DiD: Difference-in-Differences

— DOT: Department of Transportation

— FOC: First-Order Condition

— GUPPI: Gross Upward Pricing Pressure Index

— LCC: Low-Cost Carrier

— LF: Load Factor

— O-D: Origin Destination

— RPM: Revenue Passenger Miles

— ULCC: Ultra Low-Cost Carrier

— US DOJ: United States Department of Justice

VIII Acknowledgments

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1 Introduction

Since its inception from early mail delivery services, the U.S. airline industry has evolved into one of the largest airline markets in the world, contributing significantly to the nation's economy (Goetz & Vowles, 2009). With the increase of mergers in the last few decades, the U.S. airline industry has become more and more concentrated, launching a new era for air travel. Notable mergers such as those between Northwest and Delta, American and US Airways, and Continental and United have contributed to this growth (Borenstein & Rose, 2014). With only a few large firms dominating the skies, opportunities to enter the commercial airline industry have been in short supply. Therefore, most new airlines that you recognize today can attribute their success to operating some type of low-cost or ultra-low-cost model. These ultra-low-cost carriers (ULCCs) focus their business model on offering the lowest possible market fares, including only the seat, while charging for other services like seat selection, carry-on baggage, and in-flight refreshments (Bachwich & Wittman, 2017). The growth of these ULCCs has skyrocketed in the last few decades, such as Spirit and Frontier Airlines in the U.S. and EasyJet and Ryanair in Europe. On the other side of the business spectrum, a distinct and seasoned model is represented by the "legacy carriers" in the United States. These airlines—American, Delta, and United— can trace their history to before the deregulation of the U.S. airline industry in 1978. Unlike ULCCs, these airlines operate under a full-service model offering consumers an extensive travel experience, including free seat selection, multiple cabin classes, and in-flight amenities in the base fare (Bachwich & Wittman, 2017).

To compete with these legacy carriers, airlines of different product types have attempted to merge as a means of increasing their market power (Fan 2020). In July 2022, JetBlue announced a proposed merger with Spirit, the largest ULCC in the United States. Valued at $3.8 billion, this

merger would dismantle Spirit's ULCC model, enabling JetBlue to absorb all its assets and expand its LCC model; consequently, creating a low-fare competitor to the dominant "Big Four" carriers: Delta, American, United, and Southwest (JetBlue, 2022). However, the merger faced court challenges, as many others have in recent decades. With the U.S. Department of Justice (DOJ) arguing that the elimination of Spirit would reduce competition in key markets and harm consumers, the DOJ had no choice but to file suit. Thus, in early 2024, a U.S. District Court unsurprisingly blocked the merger due to antitrust concerns (DOJ, 2023). In the following months, Spirit filed for bankruptcy. The failure of this merger, along with Spirit's financial collapse, sparked debate about the regulation of airline mergers in the post-COVID economy. The DOJ argued that the merger was a threat to competition, while JetBlue maintained that the merger was necessary for survival in such a concentrated industry (DOJ, 2023).

This thesis investigates the trade-offs regulators faced as well as the implications of the failed JetBlue-Spirit merger for competition, market dynamics, and antitrust policy. It aims to understand the competitive effects of the Spirit-JetBlue merger announcement, using the announcement as the primary treatment event. Subsequent events, such as the DOJ block and Spirit's bankruptcy, are analyzed as extensions that help interpret how markets responded to the anticipated weakening or exit of Spirit and whether and to what extent a successful merger may have given Spirit a lifeline to compete with the dominant U.S. carriers. To do so, we rely on three complementary empirical strategies. First, we analyze Spirit's financial health using SEC quarterly filings from 2018 to 2024 to benchmark Spirit's leverage against its competitors, showing their debt-to-equity ratio deteriorated towards insolvency. Second, we estimate the impact of Spirit's anticipated market exit on fares and demand using a difference-in-differences approach with route and quarter-level fixed effects. The analysis builds upon two datasets from the U.S. Bureau of

Transportation Statistics (BTS): (i) the DB1B Origin-Destination Survey, a 10% ticket sample containing fare and passenger data, and (ii) the T-100 Domestic Segment Data, which reports the complete network of scheduled flights operated by U.S. carriers, including operational statistics such as seats, passengers, and distance flown. Third, we simulate the potential pricing outcomes of a successful merger between Spirit and JetBlue using a Gross Upward Pressure Pricing Index (GUPPI)-[1]based counterfactual model and benchmark these findings against realized outcomes of the difference-in-differences approach.

This study is closely related to the analysis of Bruegge, Gowrisankaran, and Gross (2025), who use a policy-function approach to simulate the competitive effects of this same merger. Their analysis predicts considerable fare increases following the merger and Spirit's continued operation; however, this thesis differs by including Spirit's worsening financial condition and measuring the realized market responses following the initial announcement of the merger.

Based on the existing literature, two competing predictions could emerge from this airline merger. Under standard models of horizontal mergers, the elimination of a strong ULCC price enforcer such as Spirit would be expected to increase fares in overlapping markets. However, if Spirit were already financially constrained or likely to exit the market, market participants may anticipate consolidation and adjust prices competitively, leading to limited or even negative fare effects around the announcement. Thus, this thesis explicitly tests which of these mechanisms prevails.

[1] The term GUPPI refers to the Gross Upward Pressure Pricing Index, a tool used in antitrust analysis to measure a merged firm's incentive to raise prices by capturing the value of diverted sales from one merging firm to the other. It is calculated as the diversion ratio from the target to the acquirer multiplied by the acquiring firm's pre-merger margin; higher values indicate a greater upward pricing pressure.

Looking ahead, the Difference-in-Differences (DiD) regression results show that average fares in JetBlue-Spirit overlapping markets decreased by roughly 5%, or 15$ per ticket, following the merger announcement in July 2022. Complementary regressions on operational capacity revealed that seat supply and passenger volume increased modestly, while load factors[2] remained stable, indicating that airlines responded competitively to the market uncertainty – by maintaining or slightly lowering fares and expanding capacity to retain customers – rather than facing supply constraints. The counterfactual pricing simulation predicted average post-merger fares that were very similar to those actually observed, suggesting mild upward pricing pressure but not enough to harm consumers materially.

Altogether, these results suggest that blocking the merger might have been a viable short-term strategy to preserve fare discipline and maintain competitive capacity adjustments, though regulators may have acted prematurely in their judgment. This analysis aims to further regulators' understanding of the costs and consequences associated with mergers in dynamic markets. By bringing together these empirical strategies, this thesis contributes to ongoing debates about whether the strict enforcement of anticompetitive merger policy protects consumers or whether exceptions exist that may promote long-term competition and welfare.

[2] The term load factor refers to the percentage of available seat miles (ASM) that are filled by paying passengers and reflects how efficiently an airline is utilizing its seat capacity. It is calculated by dividing revenue passenger miles (RPM) by ASM.

2 Context

In order to grasp the full implications of the blocked JetBlue-Spirit merger, it is necessary to view it within the broader landscape of the U.S. airline industry. This section outlines the structure of the industry, the role ULCCs play in maintaining competitive pressure, and Spirit Airlines' financial situation in the years leading up to their bankruptcy.

2.1 The Competitive Landscape

In 1978, a huge change came for not only the U.S. airline industry, but the whole of the United States when President Jimmy Carter signed the Airline Deregulation Act into law (Goetz & Vowles, 2009). This was the first time in the history of the United States that an industry had been deregulated, and it ushered in a new era for U.S. industries. Before the Airline Deregulation Act came into effect, the federal government had full reign over the industry. While it allowed for new airlines to prosper, industry regulation led to an uncompetitive and expensive system, where everything from routes, fares, and even market entry was controlled (Beane, 1980). This regulation prevented airlines from operating as efficiently as possible, and it wasn't until Cornell University economist Alfred E. Khan, dubbed "the father of airline deregulation," spoke up that this changed (Rose, 2012). Khan was one of the first to recognize the airline industry strictly as a business and used his power as Chairman of the industry's regulating body, the Civil Aeronautics Board, to deregulate it (Rose, 2012). What followed was the development of hub-and-spoke networks, dynamic pricing, entry of new carriers, and, most importantly, increased competition (Goetz & Vowles, 2009). However, over time, four main carriers established themselves as the legacy carriers of domestic air travel—American, Delta, United, and Southwest.

With the economic environment being so concentrated, other business models were forced to establish themselves. This is where we see ULCCs, such as Spirit and Frontier Airlines, emerge

with their low base fares and à la carte service strategy. So this begs the question: How does the emergence of this business model affect the market? Numerous researchers have found that ULCCs apply significant competitive pressure on other industry airlines (Bachwich & Wittman, 2017). For example, Shrago (2024) finds that the presence of a ULCC in a given market increases fare dispersion and causes legacy carriers to lower their fares. Thus, ULCCs act as “price enforcers," since their presence in the market hinders the capacity of a legacy carrier to increase its fares due to the low-cost structure instilled. This has led to Spirit Airlines, the largest ULCC in the U.S., playing a major role in maintaining the competitive status quo.

2.2 Behind The JetBlue-Spirit Merger

In February 2022, the two largest airlines in the ULCC space, Spirit and Frontier Airlines, announced plans to merge for $2.9 billion in cash and stock (Frontier, 2022). This was a move to strengthen their position in the airline space, albeit a relatively small percentage compared to the other larger airlines. However, not long after, JetBlue made a competing offer that eventually evolved into a $3.8 billion takeover bid (JetBlue, 2022). While Spirit’s board had concerns over a merger with JetBlue being rejected on antitrust grounds, they went through with the merger likely due to the $470 million breakup fee they were guaranteed in such a scenario. At the time, this merger would make the combined company the fifth-largest U.S. carrier behind the Big Four, with over 450 aircraft and annual revenues of approximately $11.9 billion (JetBlue, 2022).

While many opposed the merger, JetBlue defended it as an essential and feasible low-fare competitor to the dominant Big Four, contending that Spirit’s dissolution would enhance economies of scale, achieve annual synergies of $600-700 million, and grant expanded consumer choice (JetBlue, 2022). However, in March 2023, the U.S. Department of Justice (DOJ) filed an antitrust lawsuit to block the merger, arguing that it would significantly decrease competition on

overlapping routes, resulting in higher fares and reduced choice for cost-conscious fliers (DOJ, 2023). Therefore, a 17-day bench trial ensued, with Judge William G. Young finally ruling in January 2024 that the merger would substantially lessen competition, especially for ULCC-dependent consumers. Judge Young emphasized the notion of the "Spirit Effect" in his ruling, a phenomenon in which the entrance of Spirit on a new route leads to a decrease in consumer prices for all airlines and an increase in demand for air travel (DOJ, 2023). Analysis found that, on average, industry-wide fares dropped by 17% and the number of passengers increased by 30% on these given routes, putting necessary competitive pressure on both JetBlue and legacy carriers. (DOJ, 2023). Even though the merger might offer certain advantages for consumers, the anticompetitive harm was too large to ignore.

Finally, in March 2024, JetBlue and Spirit officially terminated the merger. JetBlue agreed to pay Spirit a breakup fee, while Spirit's stock dropped nearly 15% (Spirit, 2024). With a significant loss in value since the merger announcement, Spirit was forced to file for Chapter 11 Bankruptcy in April of that year.

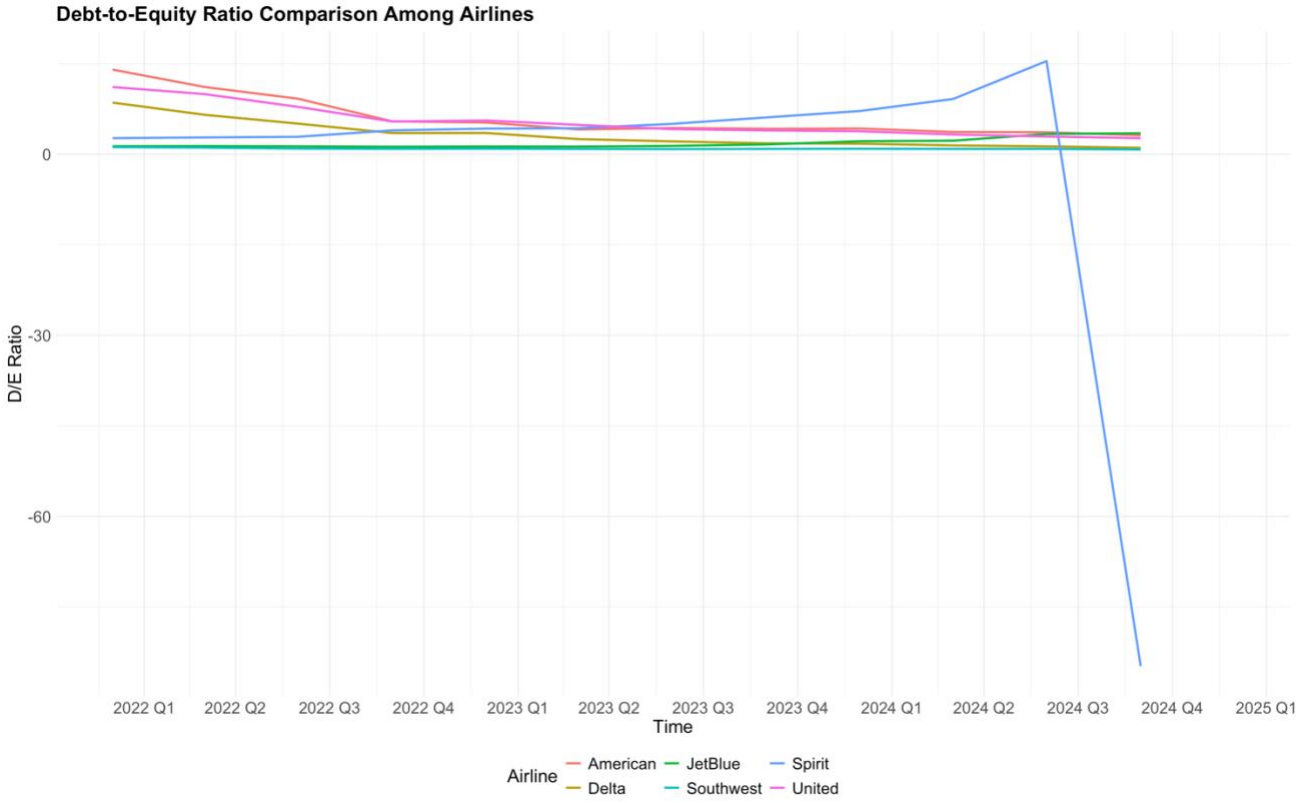
2.3 Spirit's Financial Trajectory

To assess whether Spirit's financial collapse was inevitable or accelerated by the rejected merger attempt, this section examines its capital structure and balance sheet trends, benchmarked against JetBlue and the legacy carriers.

Figure 1 plots the debt-to-equity (D/E) ratios of six major U.S. airlines for 2022-2024. Spirit (blue line) maintained an elevated and increasingly unstable D/E ratio until dropping sharply below zero in 2024, around the same time of the merger's termination announcement. This trend follows that Spirit's total equity turned negative, as shown in Figure 2, an indicator of balance sheet insolvency. On the other hand, the five other airlines shown—American, Delta, United,

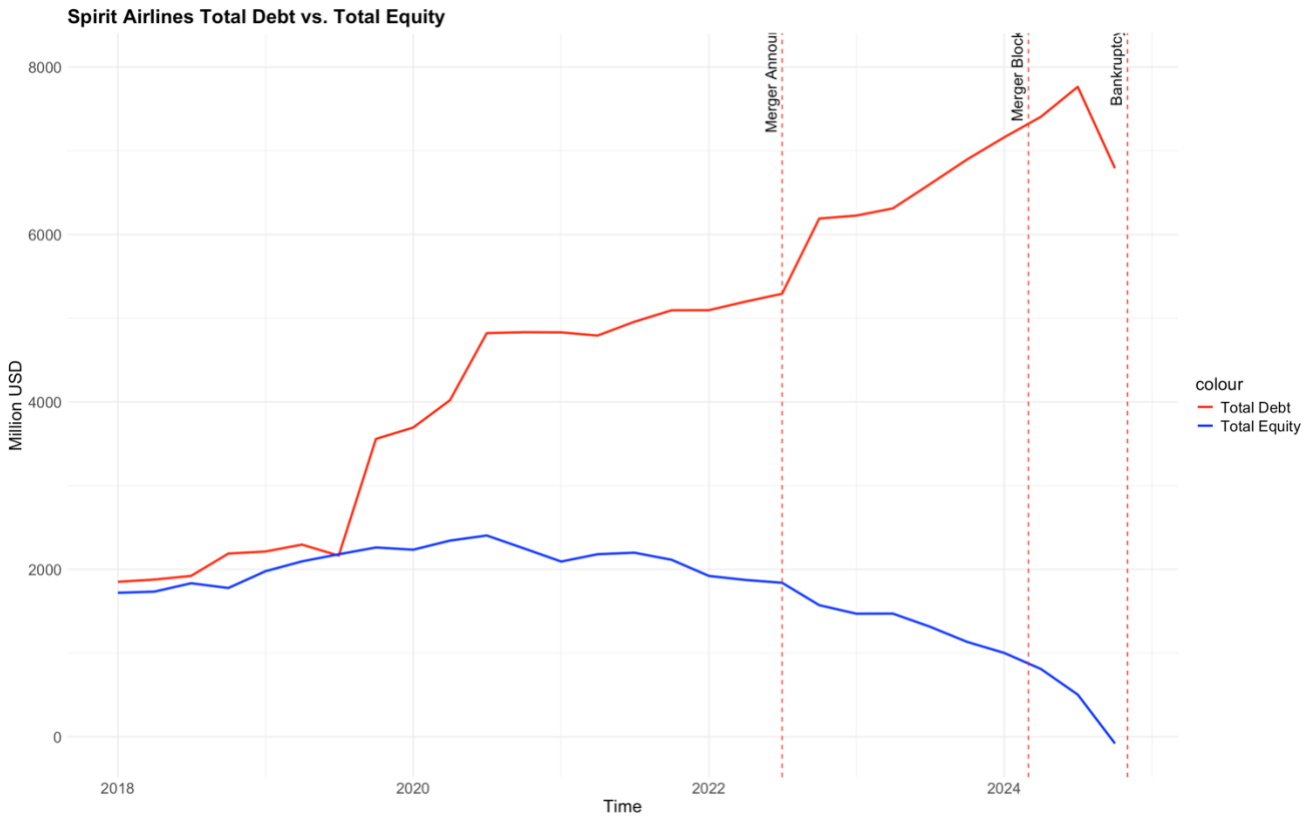
Southwest, and JetBlue—maintained relatively stable or increasing D/E ratios throughout the same period, with Delta (gold line) experiencing a COVID-related spike around 2020.

Figure 1 – Debt-to-Equity Ratio Comparison Among Major U.S. Airlines (2022-2024)



Note: This figure compares the Debt-to-Equity ratios of six major U.S. airlines from our observed periods (2022-2024). Each line represents the Debt-to-Equity ratio of one carrier: American Airlines (red), Delta (yellow), Southwest (light blue), United (pink), Spirit (blue), and JetBlue (green). The metric represents the degree of financial leverage used by each airline, with higher ratios indicating greater reliance on debt relative to equity.

Figure 2 – Spirit Airlines Total Debt vs. Total Equity



Note: Spirit Airlines' total debt (red) and total equity (blue) are plotted here during our observed period. The dashed vertical lines represent three key events, in order from left to right: the merger announcement, the court's merger block, and Spirit's filing for bankruptcy. The widening gap between rising debt and falling equity as they approached bankruptcy highlights Spirit's growing financial stress, eventually resulting in negative equity.

In Figure 2, Spirit's total liabilities rose rapidly due to borrowing and liquidity pressure following the COVID pandemic. Thus, the airline's debt continued to climb into 2024, peaking around the time of the merger block. Meanwhile, Spirit's equity was on a steady decline post-COVID until its eventual collapse in early 2024. Having negative equity meant that their liabilities exceeded assets, putting the firm in an insolvent position. This was expected as Spirit's executives disclosed that its equity would likely be wiped out in the event of bankruptcy (Bloomberg, 2024).

None of the other carriers even came close to approaching the state displayed in Spirit's data. This suggests that Spirit's downfall was not an industry-wide trend, but rather a firm-specific issue.

Even before the merger announcement in July 2022, Spirit was on an unsustainable financial trajectory with its debt rising significantly and equity falling slowly. Unlike JetBlue and legacy carriers, which utilized their diversified revenue and pricing power to stabilize during uncertain times, Spirit lacked financial flexibility, as explored in Section 3.1. The rejection of the merger removed a potential lifeline, likely the airline's last opportunity to restructure within a larger and more stable firm. Had the merger gone through, Spirit would still have faced significant challenges due to its high debt levels and continuously low profitability. With the deal blocked, Spirit experienced its sharpest financial decline, one that ultimately led to its bankruptcy filing. This raises a legal and economic debate over the existing antitrust policy, something that will be explored in the literature review.

3 Literature Review

3.1 Market Power and Fare Discipline

3.1.1 Legacy Carrier Mergers

Since airline deregulation in 1978, the U.S. airline industry has become highly concentrated, with a few legacy carriers dominating the skies. Major mergers such as Delta-Northwest in 2008, United-Continental in 2010, Southwest-AirTran Airways in 2011, and American-US Airways in 2013 have reshaped the industry into what we know today (Borenstein & Rose, 2014). While these mergers have contributed to economies of scale and more efficient operations, they have also raised concerns about consumer welfare due to reduced fare competition.

Looking at the data from empirical studies, the conclusions on the effects of mergers on fares are mixed. Researchers found that when studying mergers' performance and productivity changes that overall efficiency improved post-merger, especially for full-service carriers, leading to production and consumption efficiency gains that could benefit consumers. However, analyses of market power found that due to a reduced number of competitors in the market, merged carriers' market power has increased, thus enhancing their ability to increase fares (Zou et al., 2019). For example, United and Continental both operate through hub-and-spoke networks, a system where flights are routed through a central hub airport connecting to different destinations. These hub's help save the airlines' money and give passengers better routes by increasing passenger load. Thus, when United and Continental merged in 2010 they created "hub premiums," where they gained increased pricing power. Even rival airlines that operate at those hubs can also end up raising fares with this decrease in competitive pressure, leaving consumers to pay more regardless of the airline (Fan, 2020).

3.1.2 ULCCs and Competitive Pressure

Recent empirical research finds that ULCCs such as Spirit, Frontier, and Allegiant have a distinct impact on pricing dynamics in the airline industry compared to both legacy and low-cost carriers. Brad Shrago (2024) speaks about the "Spirit Effect," a situation in which a ULCC enters or expands in a market, causing fare dispersion and significantly cheaper fares from legacy and low-cost carriers. Contrastingly, the same situation for a legacy carrier or LCC has nowhere near the same delta in pricing dynamics. This phenomenon highlights the downward pressure ULCCs exert in markets where price-sensitive consumers are most present. Similarly, the findings of Bachwich and Wittman (2017) further support this trend. They found that ULCC presence in a market was associated with market base fares 21% lower than average, compared to 8% for LCCs. This is mainly the result of ULCCs' unbundled pricing model, focused on ancillary fees, giving them a competitive advantage.

In order to protect their market positions, both legacy carriers and LCCs act strategically in response to ULCC's entry threat. Beginning as a charter carrier in 1983, Spirit Airlines officially started scheduled flights in 1992 and has since become one of the leading ULCCs in the U.S. market (Spirit Airlines, 2011). Findings from Wang and Ma (2024) show that when Spirit is predicted to enter a market, legacy and low-cost carriers increase average fares by roughly 12% each in an effort to maximize short-term profit before competitive pressure emerges, since ULCCs attract price-sensitive customers. In addition to pricing strategies, these carriers increase scheduled flight frequency by 14% for legacy carriers and 63% for LCCs. This reflects a type of entry deterrence in which these incumbents strategically use airport capacity to crowd out Spirit (Wang & Ma, 2024).

Overall, these behaviors highlight the unique threat ULCCs pose to present market powers. For policymakers, these dynamics make merger assessments involving ULCCs extremely challenging since their presence has financial and structural implications for the industry.

3.2 The Failing Firm Doctrine

The JetBlue-Spirit case speaks directly to a broader debate in antitrust policy around how regulators should handle acquisitions involving financially distressed firms (Spirit in this case) in highly concentrated industries. Simply put, what are the competitive consequences of blocking such a merger, and how do these effects compare to a counterfactual scenario in which the merger was successful? This is the question this thesis aims to address.

U.S. antitrust agencies recognize what is known as the "failing firm defense," a legal argument used in merger investigations for this exact scenario (DOJ, 2009). It is outlined in the 2010 *Horizontal Merger Guidelines* by the Department of Justice (DOJ) and Federal Trade Commission (FTC), allowing for an otherwise anticompetitive merger to be permitted under three strict conditions: (1) the target firm is facing a grave probability of business failure and is unable to meet its financial obligations; (2) it is unable to reorganize under Chapter 11 bankruptcy successfully; and (3) it has made good-faith efforts to elicit less anti-competitive offers that would pose less harm to competition (DOJ & FTC, 2010).

The standard for this argument is intentionally explicit and rarely met, even under periods of economic distress such as the COVID pandemic (Conner, 2020). In the case of JetBlue and Spirit, the DOJ's denial of the merger suggests that Spirit did not meet this criterion, specifically under condition two, with Spirit continuing operations post-bankruptcy. Therefore, it may have

been reasoned that blocking the merger would keep competition without necessarily leading Spirit to a market exit.

From an economic perspective, the trade-off faced here reflects that seen in the Williamson model of industrial organization, which puts the potential efficiency gains from a merger against its anticompetitive effects (Williamson, 1968). In this case, if Spirit's failure was inevitable without the merger, then blocking the merger would have removed a price competitor, resulting in the loss of both potential cost efficiencies and consumer surplus. Under these terms, the Williamson model suggests that the merger could have produced a more efficient outcome. However, if Spirit could recover independently, then approving the merger meant eliminating a key price enforcer in the domestic market, leading to long-term harm to consumers in the form of higher fares and reduced choice. This trade-off lies at the heart of this thesis, with the tension between the choices presented playing a crucial role in this discussion.

3.3 Empirical Estimates of Airline Mergers

3.3.1 Previous Analyses of Completed Mergers

Research on airline mergers has generally focused on successful consolidations between legacy carriers and their subsequent impact on the market. Key studies in this sector have employed structural demand models and simulations to estimate the counterfactual price effects. For example, Peters (2006) studied the American-US Airways merger of 2013 and the Delta-Northwest merger of 2008 by implementing structural models that capture how consumers respond to differentiated products, finding that fares increased in affected markets post-merger. Cilberto and Tamer (2009) extended this analysis by modeling scenarios in which airlines may respond to market changes in strategic ways. These early models for airline merger analysis formed the basis

on which modern mergers are evaluated, relying on Bertrand competition assumptions and logit demand structures. Beyond these simulations, other academic studies have evaluated merger outcomes through reduced-form methods focusing on the direct relationship between variables. For example, Miller and Weinberg (2017) analyzed the price effects of the consolidation between Miller and Coors in the beer industry using a DiD framework, which has now become a popular strategy to evaluate mergers in the airline industry. Their study suggests that a price increase is the general outcome of mergers, especially when competitors in a given market disappear.

3.3.2 Recent Evidence on JetBlue-Spirit Merger

On the contrary, failed or blocked airline mergers receive comparatively less attention, largely because they don't yield observable effects despite their importance for regulatory policy. One academic study that focuses on the JetBlue-Spirit case is the work of Bruegge, Gowrisankaran, and Gross (2025), who employ what they call a "policy function approach" to estimate the competitive impact of the proposed merger. The research question they aim to answer is: What would happen to fares and consumer welfare if JetBlue acquired Spirit and took over its capacity in affected markets?

The authors apply an innovative reduced-form method based on observed entry events, such as changes in carrier presence and capacity, and link them directly to the observed fare changes. More specifically, they estimate "entry and exit policy functions" using DB1B and T-100 data from 2016 to 2019 on airline route entry, expansion, and exits. This gives the authors an advantage since they obtain manageable estimates grounded in the observed behavior, while still allowing for counterfactual price effects to be simulated.

Their model finds that when Spirit enters a market, fares are reduced by an average of 21.9%, with reductions of 17.9% seen for JetBlue (Bruegge et al. 2025). This suggests that the markets most affected by this merger would have been those with a ULCC presence, highlighting Spirit's strong disciplinary fare role. In addition, when controlling for relative capacity, estimates show that Spirit decreases fares more significantly than JetBlue, emphasizing how price effects differ across carriers (Bruegge et al. 2025). To simulate fare impacts post-merger, Bruegge et al. decided to remove Spirit's entire flight capacity from the market and expand JetBlue's capacity into this space. In one market, Hartford to Miami, they calculated a 26% price increase after removing Spirit's competitive presence. After being offset by a 9% reduction in JetBlue's price via their expansion, the net price increase was approximately 15%. Interestingly, in Spirit-only markets where JetBlue would be entering, the effect of offsetting was even stronger, with a 12.5% reduction yielding an increase of about 11% (Bruegge et al. 2025). These results suggest that even when JetBlue expands, the loss of Spirit's presence as a price enforcer results in higher consumer prices.

Bruegge et al.'s policy function gives them the ability to simulate post-merger prices without imposing behavioral assumptions such as Bertrand competition or logit demand, as seen in common merger simulations. However, an important limitation of their findings is that their simulation assumes Spirit would continue operating in the case of no merger, failing to account for the possibility of exit due to its deteriorating financial situation. As a result, limitations arise with the dynamic effects of their estimates, as their counterfactual scenario may overstate the merger's harm.

This thesis complements their analysis by addressing this exact issue. First, by extending the data window to 2024 and incorporating data on Spirit's worsening financial trajectory, we were

able to better reflect market reality. Second, by using a difference-in-differences approach, we were able to measure actual fare and capacity outcomes during this merger scenario, providing evidence of the real-world changes affecting consumers. Lastly, applying a GUPPI-based pricing simulation allowed for a direct comparison between realized and predicted unilateral price effects. This framework addresses a gap in the literature on what happens when a ULCC (Spirit) exits the market entirely and offers a fuller picture of the economic and regulatory implications of this event.

3.4 Summary

The literature reviewed brings forth several important perspectives relevant to this thesis. First, mergers between legacy carriers have raised persistent concerns regarding pricing power and maintenance of consumer welfare, while ULCCs such as Spirit introduce a unique challenge for policymakers, given their strong disciplinary effect on fares. Second, there has been a lack of evaluation into the legal standard used to assess mergers involving distressed firms, such as the failing firm defense. Of late, Bruegge et al. have provided the first formal look into the JetBlue-Spirit merger's potential price effects using their innovative policy function approach. Their findings reaffirm regulatory concerns over the fare effect of Spirit's removal; however, their model assumes that Spirit would remain operational in the case of a merger collapse, failing to consider their declining financial position.

This thesis aims to contribute to and address the gaps in the literature by analyzing Spirit's financial trajectory, assessing fare and quantity effects, and evaluating regulators' decisions through counterfactual modeling. In doing so, the findings of this work contribute to legal, financial, and empirical perspectives about how regulators should approach mergers in concentrated industries.

4 Methods and Empirical Strategy

4.1 Overview of Empirical Approach

Using a combination of financial diagnostics and causal inference models, we were able to evaluate the consequences of the blocked JetBlue-Spirit merger. These approaches address two interrelated questions: Was Spirit already on a downward trajectory towards financial collapse, or did the merger accelerate that decline? And how did the entire merger situation impact airfares and market dynamics in routes where Spirit and JetBlue operated?

To answer these questions, the analysis was broken down into three main parts. First, a financial diagnostic compares Spirit's leverage to that of JetBlue and key competitors, using debt-to-equity ratios. Next, a differences-in-differences (DiD) model estimates the effects of the merger's collapse on consumer fares and demand in overlapping markets. Finally, a counterfactual pricing simulation based on the GUPPI (Gross Upward Pricing Pressure Index) estimates the expected price changes had the merger occurred. Each method provides a unique lens through which we can interpret the consequences of this merger on not only Spirit, but the entire industry.

4.2 Data and Sample Construction

Financial data was obtained from publicly available quarterly SEC filings for Spirit, JetBlue, and the four legacy carriers. These filings were used to compute debt-to-equity ratios from 2018 to 2024. Key events such as the merger announcement (2022 Q2), merger block by the DOJ (2024 Q1), and Spirit's bankruptcy filing (2024 Q2) were marked across the time series sample. Two BTS datasets published by the U.S. Bureau of Transportation were used to conduct route-level analysis from 2018 to 2024 and are restricted to domestic U.S. routes. First, DB1B Origin-Destination Survey Data, which samples 10% of airline tickets from reporting carriers, provided quarterly fare and passenger data for each origin-destination (OD) pair. Next, the T-100 Domestic

Segment Dataset provided quarterly operational statistics such as seats, passengers, and distance flown for each carrier and route segment. Using the T-100 data, several variables were constructed. Using statistics of seats and distance, Available Seat Miles (ASM) were computed, which measures the total seat capacity offered, adjusted for flight distance. Similarly, using passengers and distance, Revenue Passenger Miles (RPM) were calculated, which capture the volume of paying passenger traffic over distance. These two measures, in turn, allowed for the computation of Load Factor by dividing RPM by ASM. All gathered data was structured at the company x OD-pair x quarter level for analysis. Additionally, to improve the interpretability of regression outputs, these variables were rescaled as outlined in Section 4.5.2.

4.3 Identifying Routes and Suitable Controls

The DiD framework used requires that we clearly define treatment and control groups. Our treatment group consists of O-D markets in which both Spirit and JetBlue were operating prior to the merger announcement in 2022 Q2. These represent the "treated markets," routes most directly exposed to the competitive effects of the potential merger and eventual blocking. Then, two potential control groups were considered: "JetBlue-only" markets where JetBlue was present but Spirit was absent, and "neither-present" markets where neither JetBlue nor Spirit was present. While "JetBlue-only" routes initially seemed more appealing as a control group due to their comparability to Spirit, it was essential to verify whether or not they were a valid control. Therefore, we ran control diagnostics for both potential control groups. Figure 3 plots residualized fare trends for all O-D pairs after removing route, quarter, and carrier fixed effects. The comparison suggests that "JetBlue-only" markets (red line) exhibit anticipatory strategic pricing behavior, a clear violation of the parallel trend assumption required for valid DiD inference. In contrast, "neither-present" markets (green line) follow a more stable trajectory roughly parallel to treated

markets (blue line) during the pre-announcement period. Next, we validated these patterns using formal pre-trend diagnostics. A placebo regression restricted to the pre-treatment period provided Wald tests that reject the equality of pre-period coefficients for both potential control groups ($p<0.001$), indicating statistical differences in pre-trend evolution; however, the "neither-present" markets exhibit smaller and less systematic deviations. To complement these findings, we compute the Root Mean Square (RMS) gap of route demeaned, passenger-weighted fare residuals. While the RMS gap was found to be smaller for the "JetBlue-only" markets ($6.6 USD) compared to the "neither-present" ($11.1 USD), the "JetBlue-only" markets exhibited sharper discontinuities and more pronounced movements before the treatment effect, indicating anticipatory behavior. On the contrary, "neither-present" markets display smoother dynamics that evolve more closely in trend direction and stability with treated routes. Based on this combination of statistical and visual evidence, "JetBlue-only" markets were dropped from the primary analysis, while the "neither-present" group was retained as our main control.

Figure 3 – Residualized Fare Trends Over Time for All Markets

Note: This figure plots residualized fares over time for three market groups: Treated markets (blue), where both JetBlue and Spirit operated before the merger, "JetBlue-only" markets (red), where JetBlue was present but Spirit was absent, and "neither-present" markets (green), where both JetBlue and Spirit were absent. Fares were residualized by removing route fixed effects, which isolated within-market time variation. "JetBlue-only" markets displayed a sharp downward price shift beginning in 2020, followed by a strong upward bounce around the merger announcement, suggesting anticipatory or strategic pricing behavior. On the contrary, "neither-present" markets display a constant, more stable trajectory that remains mostly parallel to the treated group. This is consistent with the common-trend assumption and supports the selection of "neither-present" markets as the primary control group for the DiD analysis.

4.4 Descriptive Statistics

Before presenting the regression models, it is important to discuss the characteristics of the final sample and summarize the key pre-treatment differences between our treated and control markets. The descriptive statistics aim to provide context for interpreting the DiD

estimate and for better understanding the structure of competition across these two groups. This sample included all domestic origin-destination pairs where either JetBlue or Spirit operated in our explored timeframe. Table 1 presents the mean values of key variables, including fares, distance, seats, passengers, ASMs, and load factor for the treated and control markets over the pre-treatment period of 2018 Q1 to 2022 Q2.

Table 1 – Pre-Treatment Descriptive Statistics

Pre-treatment Descriptive Statistics (2018 Q1–2022 Q2)						
Group	**Fare (USD/ticket)**	**Distance (miles)**	**Seats (k)**	**Passengers (k)**	**ASMs (millions)**	**Load factor**
control (neither-present)	301.30	1500.95	9.93	7.46	8.23	0.52
treated	200.93	1751.65	107.62	86.95	102.11	0.77

Note: This table reports the mean values of certain market-level variables for treated (JetBlue-Spirit present) and control (neither-present) groups during the pre-treatment period (2018 Q1-2022 Q2). Variables include average fare per ticket in USD, distance between origin and destination in miles, available seats in thousands, passengers in thousands, available seat miles in millions, and load factor, defined as the ratio of revenue passenger miles to available seat miles. All values presented are averaged at the market-quarter level and represent the differences in the two groups before the merger announcement.

Treated markets exhibit, on average, longer distances (≈ 1,752 miles) and lower fares ($201 per ticket) compared to control markets where neither carrier was present (≈ 1,501 miles and $301 per ticket). These findings are consistent with JetBlue and Spirit overlap routes being mainly longer-haul leisure markets with intense price competition. On the other hand, capacity statistics show clear differences in network scale, with treated markets offering around 108 thousand seats and 102 million ASMs per quarter compared to 10 thousand seats and 8 million ASMs in control markets. Average load factors were also higher in treated markets (0.77 vs. 0.52), suggesting a fuller aircraft and tighter capacity utilization on average before the merger announcement. Overall, these values line up conceptually with treated markets having larger,

longer, lower-fare, and fuller flights consistent with strong price competition and ULCC presence.

These statistical differences mainly reflect structural characteristics of the different market segments rather than causal effects of the merger. Since the differences are time-invariant at the route level, they are absorbed by route fixed effects in our regression models. Thus, the DiD estimates capture within-route changes over time relative to a common time trend across groups.

Here, treated markets remain somewhat more volatile compared to controls, reflective of the route-specific scheduling adjustments and pandemic-era shocks; however, this variation does not skew the trends observed in the analysis. The DiD results presented later show that fares in treated markets modestly declined following the merger announcement, while capacity and passenger volumes slightly expanded. These patterns suggest that rather than being driven by capacity concerns, the fare movements reflected competitive behavior among carriers as a response to Spirit's weakening position. Therefore, the following regressions focus on fares as the key outcome variable affecting consumers, with capacity and quantity looking to confirm the consistency of the mechanisms at play.

4.5 Identification and Economic Model Specifications

4.5.1 Fare Regressions

To estimate the average treatment effect on the treated (ATT) of the merger announcement on market fares, we used a difference-in-differences model comparing treated O-D markets to a control group of "neither-present" markets, representing those where neither JetBlue nor Spirit was present. These include route and quarter fixed effects (FE) with standard errors clustered at the route level. Robustness checks were also performed to ensure the validity of the results. We

used sequential fixed effects, estimating five models with increasing controls. These models included: no FE, route FE only, quarter FE only, both route and quarter FE, and both FE with additional covariates being passenger volume and market distance. These additional covariates were added to account for variation in market size and route length.

This difference-in-differences (DiD) framework exploits variations across origin-destination (OD) markets. The following baseline specification was estimated:

$$\text{Fare}_{ijt} = \alpha + \beta_1(\text{Treated}_i \times \text{Post}_t) + \beta_2\text{Treated}_i + \beta_3\text{Post}_t + \gamma_i + \mu_j + \delta_t + \varepsilon_{ijt} \quad (1)$$

The variable $Fare_{ijt}$ represents the average DB1B market fare for airline j on O-D pair i in quarter t, constructed from DB1B ticket-level data. $Treated_i$ is a binary indicator for whether market i was treated or not. It equals 1 for O-D markets in which both JetBlue and Spirit operated before the merger request. $Post_t$ is also a binary indicator equal to 1 for periods after the merger announcement (starting from 2022 Q2). γ_i represents the O-D pair fixed effects that capture time-invariant market characteristics, μ_j are carrier fixed effects controlling for airline-specific pricing patterns, and d_t are quarter-fixed effects capturing time trends and seasonality. ε_{ijt} is the idiosyncratic error term. Finally, the coefficient of interest β_1 captures the average treatment effect of the merger announcement on fares in treated markets relative to control markets. As outlined above, several model variants were run with progressive sets of fixed effects and covariates. When a fixed effect is present, any perfectly collinear main effect may be omitted from the output; when a corresponding fixed effect is not included, the main effects are printed explicitly.

A subset regression was also run, which restricted the data to pre-merger block periods (2018-2023 Q4) to test if the observed treatment effects were driven by post-merger block responses or anticipatory price adjustments.

4.5.2 Quantity and Capacity Regressions

To estimate whether these fare increases were explicable, the same DiD framework was applied to the T-100 data and used to analyze operational outcomes. The specifications here mirror those seen in Equation (2). This model differed in that rescaling was applied to the observed outcomes to improve coefficient interpretability. Specifically, passenger counts, seat capacity, and available seat miles (ASM) were divided by 1,000 to reduce the magnitude of the coefficients and allow for more intuitive comparisons across the various regressions. The model specification was nearly identical to the one seen in 5.1:

$$Y_{ijt} = \alpha + \beta_1(\text{Treated}_i \times \text{Post}_t) + \beta_2\text{Treated}_i + \beta_3\text{Post}_t + \gamma_i + \mu_j + \delta_t + \varepsilon_{ijt},$$
$$\text{where } Y_{ijt} \in \{\text{ASMs}, \text{Seats}, \text{Passengers}, \text{LoadFactor}\}. \quad (2)$$

By aligning the fixed effects and sampling structure with our fare regressions in 5.1, treatment effects across the two regressions can be directly compared. We were able to evaluate whether capacity dynamics were consistent with, and potentially explained, the observed fare decreases. A negative β_1 in operational variables (e.g., seats or passengers) alongside a positive β_1 in fares aligns with the notion that airlines expanded supply and passenger traffic as fares declined, a pattern consistent with competitive adjustments.

4.5.3 Counterfactual IO Model

Lastly, we constructed a simple Bertrand pricing model anchored in the Gross Upward Pressure Pricing Index (GUPPI) to simulate fare outcomes had Spirit and JetBlue merged into a single firm. This allowed us to compare predicted post-merger prices with the actual observed outcomes following the merger's blocking.

Under a Bertrand setting, firms compete by setting prices rather than quantities. In airline markets, tickets (the good) are differentiated products: carriers may serve the same routes, but with

distinct features and service levels. In this setting, a firm's best response is simply the price that maximizes its profit given the price chosen by its competitor. Since the products are differentiated, the best response prices are strategic complements, meaning that when one airline raises fares, the other airlines' profit-maximizing response will also raise fares. This "follow the leader" mentality is why the Bertrand model has become standard in merger analysis, since it shows how a merger causes a firm to internalize diversion towards its new partner. Simply put, it is a way to recognize how customers lost from one airline may be recaptured by the partner airline, reducing their incentive to keep fares low.

Under our counterfactual model, with JetBlue (product 1) and Spirit (product 2) now a single firm, the proportional upward pricing pressure can be expressed as:

$$\frac{p_1^{after} - p_1^{before}}{p_1^{before}} = D_{21} \cdot L_2 \cdot \frac{p_2}{p_1} \quad (3)$$

Here, p_1 and p_2 represent the pre-merger prices of JetBlue and Spirit, respectively, and the two key parameters are the diversion ratio (D_{21}) and the Lerner Index (L_2). The diversion ratio is a metric used to measure the substitutability between products in the context of the merger. Under this scenario, it measures the number of customers JetBlue would capture from Spirit, given that Spirit exits the market. Instead of relying on prior academic benchmarks for the diversion ratio, this model derives both diversion ratios and market shares directly from our pre-merger data. Using the Department of Transportation (DB1B) ticket-level data aggregated at the company level, we calculated undirected market shares for Spirit and JetBlue over our pre-announcement period (2019Q1-2022Q1). Only O-D markets in which both Spirit and JetBlue held at least 1% share were retained to ensure there was meaningful competitive overlap on these routes. Then, using these observed pre-merger market shares, diversion ratios were calculated using:

$$D_{21} = \frac{s_1}{1 - s_2} \quad (4)$$

where s_1 and s_2 denote each carrier's share in the undirected market. This gives us our route-specific diversion ratios ranging from 0.1 to 0.85, with a weighted mean of 0.25. By using these diversion ratios rather than a uniform diversion assumption, the model captures meaningful heterogeneity in substitution patterns across markets, such as differences in competition, route size, and consumer overlap. On the other hand, the Lerner index is a measure of market power, indicating the extent to which a firm can raise its prices above its marginal cost, with 0 indicating perfect competition and 1 indicating pure monopoly. Drawing from airline IO literature, we assumed a markup of 0.3 over marginal cost (Peters, 2006; Miller & Weinberg, 2017). Finally, the term $\frac{p2}{p1}$ adjusts for relative prices between the two firms. In the baseline specification, we set $\frac{p2}{p1} = 1$, reflecting the fact that pre-merger fares for the two airlines were similar on overlap routes. This assumption is strong and holds only if the pre-merger prices are similar across such routes. To assess robustness, this assumption is also relaxed in a sensitivity analysis that sees the relative price ratio take values above and below unity. Specifically, we set $\frac{p2}{p1} = 1.2$ and $\frac{p2}{p1} = 0.8$, representing cases in which one firm prices meaningfully above or below the other before merging. As shown in Table B.5, varying the relative price ratios results in predicted post-merger fare effects that remain economically small.

To create the Betrand model, it is first important to consider how JetBlue and Spirit acted before the merger. Suppose JetBlue is firm 1 and Spirit is firm 2. Before the merger, JetBlue chose price $p1$ to maximize its profit:

$$\pi_1 = (p_1 - c_1)q_1(p_1, p_2) \quad (5)$$

where $c1$ is JetBlue's marginal cost, while $q1(p1, p2)$ is the demand for tickets. Thus, the first-order condition can be written as:

$$q_1 + (p_1 - c_1)\frac{\partial q_1}{\partial p_1} = 0 \quad (6)$$

This FOC shows the tradeoff in pricing faced by JetBlue. While raising fares increases the margin earned on each unit sold ($p1 - c1$), it also reduces demand for tickets since $\frac{\partial q1}{\partial p1} < 0$. However, after the possible merger, JetBlue and Spirit, now as one entity, maximize joint profits:

$$\pi_1 + \pi_2 = (p_1 - c_1)q_1(p_1, p_2) + (p_2 - c_2)q_2(p_1, p_2) \quad (7)$$

The FOC now shows an additional term $(p2 - c2)\frac{\partial p1}{\partial q2}$, shown in the last part of the equation:

$$q_1 + (p_1 - c_1)\frac{\partial q_1}{\partial p_1} + (p_2 - c_2)\frac{\partial q_2}{\partial p_1} = 0 \quad (8)$$

This additional term reflects internalized diversion. Before the merger, when JetBlue raised fares, they lost sales to a rival in Spirit when passengers diverted towards their lower fare prices. Now with the merger in effect, those same passengers they would have lost are recaptured within the combined firm. With this diversion effect now in action, JetBlue is less inclined to keep prices low because an increase in fare prices generates extra profit through the recapture effect. Next, through rearranging, the GUPPI formula seen in Equation (3) is yielded. Plugging in our estimates of $D_{21} = n$, $L_2 = 0.3$, and $\frac{p2}{p1} = 1$, the GUPPI can be calculated as:

$$\text{GUPPI} = D \times L \times \frac{p_2}{p_1} = n \times 0.3 \times 1 \quad (9)$$

Applying this markup to pre-merger fares gives the counterfactual prediction:

$$\hat{P}_{post} = P_{pre} \times (1 + \text{GUPPI}) \quad (10)$$

Here, P_{pre} represents the market fare in 2022 Q2 for each O-D pair, while $\hat{P}_{post}$ will be the predictions seen in the results section.

Collectively, these three econometric frameworks provide a complete view of the economic impact of the blocked JetBlue-Spirit merger. The DiD models estimate realized changes in fares and capacity, while the GUPPI-based model extends the analysis to what could have been.

5 Results and Discussion

5.1 Fare Effects

Across all estimations of my Difference-in-Differences (DiD) models, the estimated treatment effects are consistently negative and statistically significant, regardless of specification. These findings suggest that average fares in treated markets decreased following the announcement of a JetBlue-Spirit merger, relative to comparable control routes. Table 2 presents the treatment effects across our 3 most relevant model specifications, containing no fixed effects, route, carrier, and quarter fixed effects, and finally all controls and all fixed effects. Table A1 in the appendix presents all five model specifications, progressing from a baseline model with no fixed effects to the most robust model, which includes route, quarter, and carrier fixed effects as well as controls for market distance and passenger volume. The sample is disaggregated at the company, OD, and quarter level, allowing for more precise estimates, further variation within-market, and richer carrier-specific dynamics to be captured.

Table 2 – Fare DiD Regression (Full Sample)

All OD pairs (Company-level): Main DiD

	(1) No FE	(4) Route+Quarter+Carrier	(5) + Ctrls + All FE
Treated × Post	-20.153***	-14.412***	-15.582***
	(5.626)	(3.559)	(3.560)
Post	63.542***		
	(1.047)		
Passengers			0.013***
			(0.001)
Market Distance			0.047***
			(0.002)
FE: OpCarrier		X	X
FE: OD_pair		X	X
FE: quarter		X	X
Mean of Dep. Var.	302.77	302.77	302.77
Observations	3694388	3681030	3681030
R^2	0.001	0.109	0.109

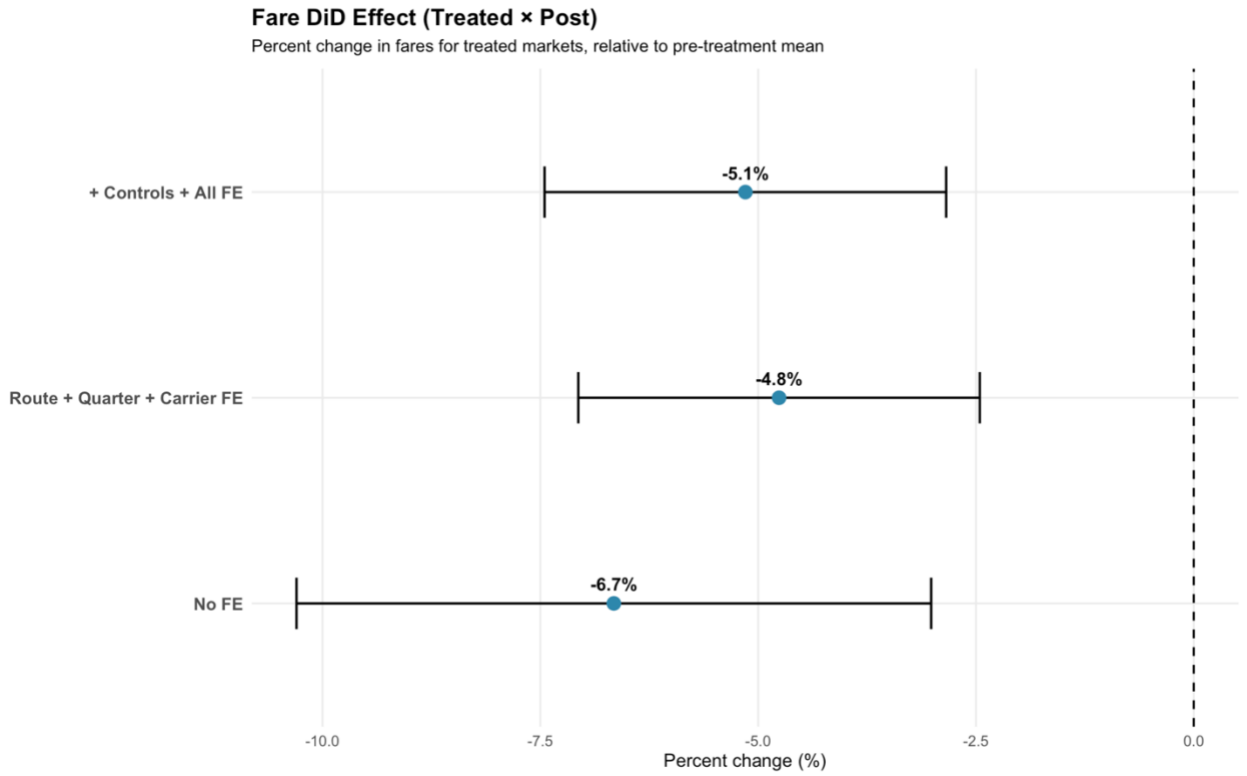
* p < 0.1, ** p < 0.05, *** p < 0.01

Note: This table presents the results of the DiD regressions, which estimate fare changes in treated markets relative to controls. The coefficient on Treated x Post captures the average post-period fare effect in USD across five different model specifications, which have progressively stricter fixed effects and controls. "Post" refers to quarters after 2022Q3, the quarter in which the merger was announced. The fixed-effect structures include models with no FE, O-D pair FE, quarter FE, and the full specification with O-D pair, quarter, and carrier FE. The control variables are passengers and market distance in miles, stemming from the DB1B ticket count data at the O-D quarter level. In specifications including O-D fixed effects, the main effect of Treated is absorbed and thus omitted from the table. The regressions were estimated using OLS and reported heteroskedasticity-robust SEs clustered at the O-D pair level. The Mean of Dep. Var. presents the across-sample mean of fares to aid interpretation.

As shown in the table, the coefficient on the interaction term Treated x Post interaction ranges from approximately -$11 to -$23, with the preferred specification (including all fixed effects and controls) being $-15.58 ($p < 0.01$). These coefficients represent an average fare decrease of about 5% relative to pre-treatment mean fares in treated markets. In other words, this suggests that the blocked merger and subsequent weakening of Spirit saw overlap markets become cheaper than their control counterparts. This pattern is robust across all fixed effect combinations and controls, indicating that the result is not sensitive to a certain model specification. Rather than anticipating

fare increases, markets with direct JetBlue-Spirit competition experienced downward price adjustments. A possible explanation for this occurrence could be that the merger announcement, along with heightened regulatory scrutiny, created an atmosphere of uncertainty among carriers, minimizing their ability and desire to coordinate on higher prices. Additionally, the firms may have maintained or even reduced prices to retain their market share as Spirit's position spiraled downward.

Figure 4 – Fare DiD as % of Pre-Treatment Treated Mean



Note: This figure reports the estimated treatment effect from three Difference-in-Differences specifications: (1) No fixed effects (2) with route, quarter, and carrier fixed effects, and (3) with additional control variables. Each point on the figure shows the percent change in fares for treated markets compared to their pre-treatment mean. The estimates show consistent negative trends across the specifications, suggesting a modest decline in fares post-announcement.

To validate our findings and verify whether the decrease in fares was an aftershock effect of the merger block, or occurred only after the DOJ ruling, we estimated the same DiD restricted to the

pre-block period (2018-2023 Q4). The results remained negative and statistically significant across all models (-$12.5 to $22.8), confirming that fare decreases were not an aftershock but already evident. In addition, market participants potentially anticipated the weakening of Spirit's market presence or exit following the merger proposal, causing competitive dynamics to shift unexpectedly.

Table 3 – Subset Fare DiD Regression (2018-2023 Q4)

All OD pairs (Company-level): Subset DiD (2018–2023)

	(1) No FE	(4) Route+Quarter+Carrier	(5) + Ctrls + All FE
Treated × Post	-22.398***	-15.012***	-16.142***
	(7.008)	(4.390)	(4.390)
Treated	-65.302***	1.555	-0.206
	(4.015)	(6.395)	(6.395)
Post	69.099***		
	(1.362)		
Passengers			0.013***
			(0.001)
Market Distance			0.048***
			(0.002)
FE: OpCarrier		X	X
FE: OD_pair		X	X
FE: quarter		X	X
Mean of Dep. Var.	297.15	297.15	297.15
Observations	3141749	3128641	3128641
R^2	0.001	0.119	0.119

* p < 0.1, ** p < 0.05, *** p < 0.01

Note: This table reports the subset DiD regression results for fares, limited to the pre-merger blocking period (2018-2023 Q4). The 2024 DOJ block period is excluded to address anticipatory pricing adjustments and limit interventions made near the merger's collapse. Model specifications, fixed effects, controls, and clustered SEs mirror those described in Table 2. The coefficient on Treated x Post (β) measures the average post-period fare effect (USD per ticket) for treated markets relative to controls across the specifications.

5.2 Capacity Expansion and Demand Response

While the findings in Section 6.1 documented fare reductions in treated markets following the merger announcement, this conclusion alone does not explain the underlying mechanism driving this price shift. To answer the question of whether these effects came from supply adjustments, demand shifts, or a combination of the two, we used operational statistics in a similar DiD framework to assess how this fare result came to be.

Table 4 – Capacity DiD Regression

ALL OD Pairs (Company-level): Capacity/Quantity DiD

	ASMs (millions) — No FE	ASMs (millions) — Route+Quarter+Carrier	Seats (thousands) — No FE	Seats (thousands) — Route+Quarter+Carrier	Passengers (thousands) — No FE	Passengers (thousands) — Route+Quarter+Carrier	Load Factor — No FE	Load Factor — Route+Quarter+Carrier
Treated × Post	2.363	2.071***	1.151	2.208***	1.492**	2.339***	0.011*	0.009**
	(1.445)	(0.523)	(0.873)	(0.516)	(0.754)	(0.476)	(0.006)	(0.004)
Treated	15.342***	-4.509***	15.411***	-4.488***	12.790***	-3.675***	0.169***	0.014**
	(1.254)	(0.795)	(1.238)	(0.719)	(1.037)	(0.615)	(0.006)	(0.006)
Post	0.573***		0.496***		0.709***		0.026***	
	(0.053)		(0.050)		(0.042)		(0.001)	
FE: quarter		X		X		X		X
FE: OD_pair		X		X		X		X
FE: OpCarrier		X		X		X		X
Units	Millions of seat-miles	Millions of seat-miles	Thousands of seats	Thousands of seats	Thousands of passengers	Thousands of passengers	Ratio (RPM/ASM)	Ratio (RPM/ASM)
Mean of Dep. Var.	5.56	5.56	6.55	6.55	5.08	5.08	0.562	0.562
Observations	714289	684006	714289	684006	714289	684006	603343	575360
R^2	0.001	0.103	0.002	0.105	0.106	0.004	0.106	0.005

* p < 0.1, ** p < 0.05, *** p < 0.01

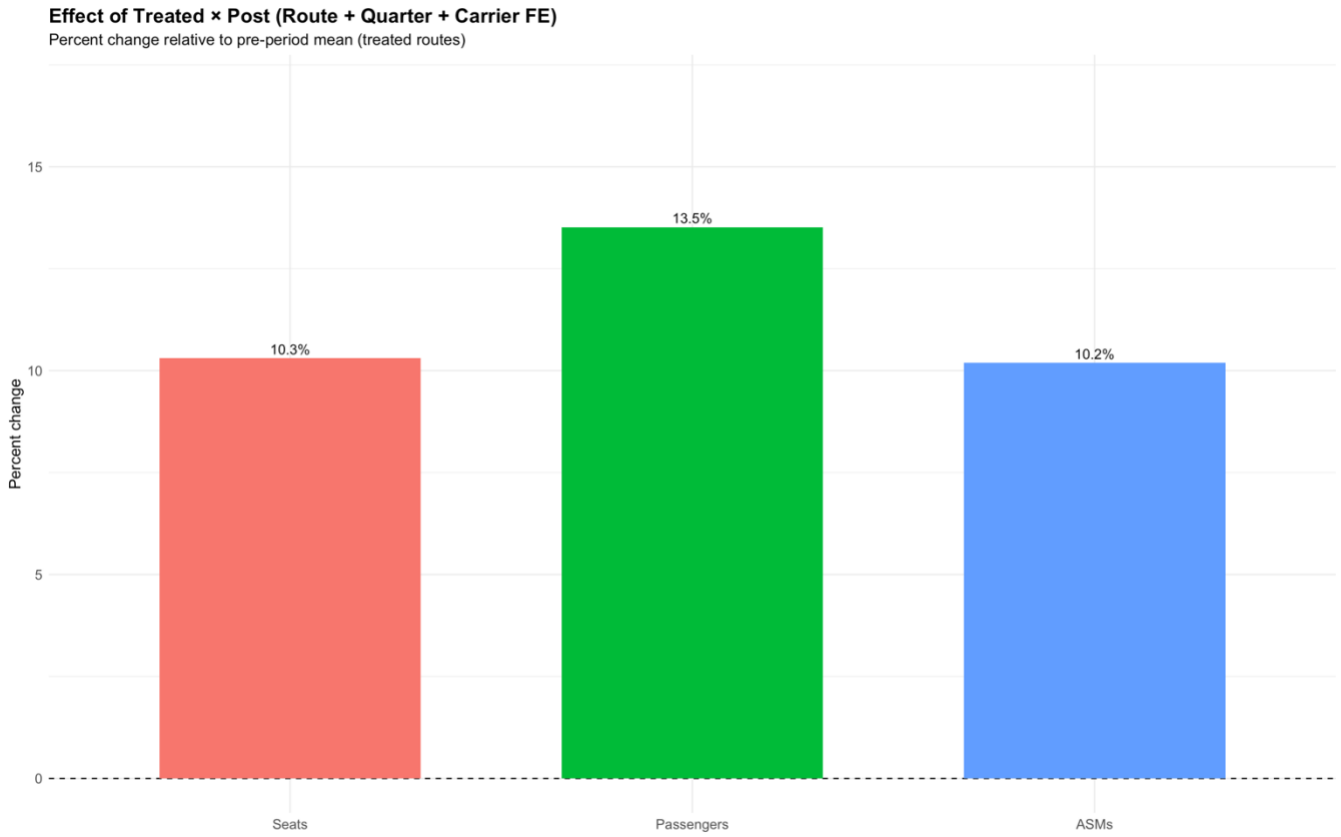
Note: This table presents the Capacity DiD Regression results for treated x post across the different operational outcomes (ASMs, total seats offered, passengers carried, load factor), all aggregated to the O-D quarter across all carriers. The O-D pairs are the same as those used in the fare analysis but differ in that they use T-100 segment data; therefore, the number of observations can differ from the fare table if an O-D quarter has DB1B tickets but no T-100 operational outcomes or vice versa. The Fixed effects seen in the columns are either "No FE" or "Route + Quarter FE," while no additional controls are used. Estimation was again via OLS with SEs clustered by O-D pair in all columns. Treated x Post results in the post-merger announcement change in each capacity measure for treated markets relative to controls. The units at the bottom represent millions or thousands, depending on the scale of the finding, and are used to ease interpretability.

In Table 4, we observe post-announcement treatment effects for four capacity-related measures: available seat miles (ASMs), total seats offered, passengers carried, and load factor.

Across the various models, treated markets experience a statistically significant increase in ASMs by 2.07 million seat-miles, total seats offered by 2,208, and passenger volumes by 2,399 per quarter. Meanwhile, load factor, which measures aircraft occupancy, remained roughly unchanged, albeit stable and positive. These patterns indicate that increased capacity was matched by demand in overlap markets following the merger announcement.

The slight rise in capacity could reflect airlines responding to expectations in future competition. Since Spirit may exit or become a single entity with JetBlue, competitors may have increased the number of seats offered to capture future demand. At the same time, demand may have had an upward shift due to perceived consumer effects, taking the potential merger as a sign of an improved network with expanding options. Overall, these capacity results complement the fare regressions, suggesting that supply and demand likely moved in tandem. This expansion is consistent with market dynamics during consolidation, where firms may adjust capacity in a strategic attempt to secure future positions.

Figure 5 – Total Percent Changes for the Operational Outcomes of Variables



Note: This figure reports the estimated total percent changes for the operational outcomes of total seats, passengers, and available seat miles (ASMs) for treated markets relative to their pre-period means. Estimates are derived from the Difference-in-differences regressions with route, quarter, and carrier fixed effects. All three measures increased following the merger announcement, reflecting a moderate market adjustment consistent with the industry's anticipation of a merger and exit of a ULCC.

5.3 Effects of a Counterfactual Price Simulation

Sections 5.1 and 5.2 established that fares in treated markets decreased slightly following the announcement of a merger, accompanied by a broader market adjustment via the moderate expansion in capacity and passenger volumes. To assess how these patterns compare to the expected post-merger findings, a counterfactual pricing model was used to simulate the price effects had this merger gone through.

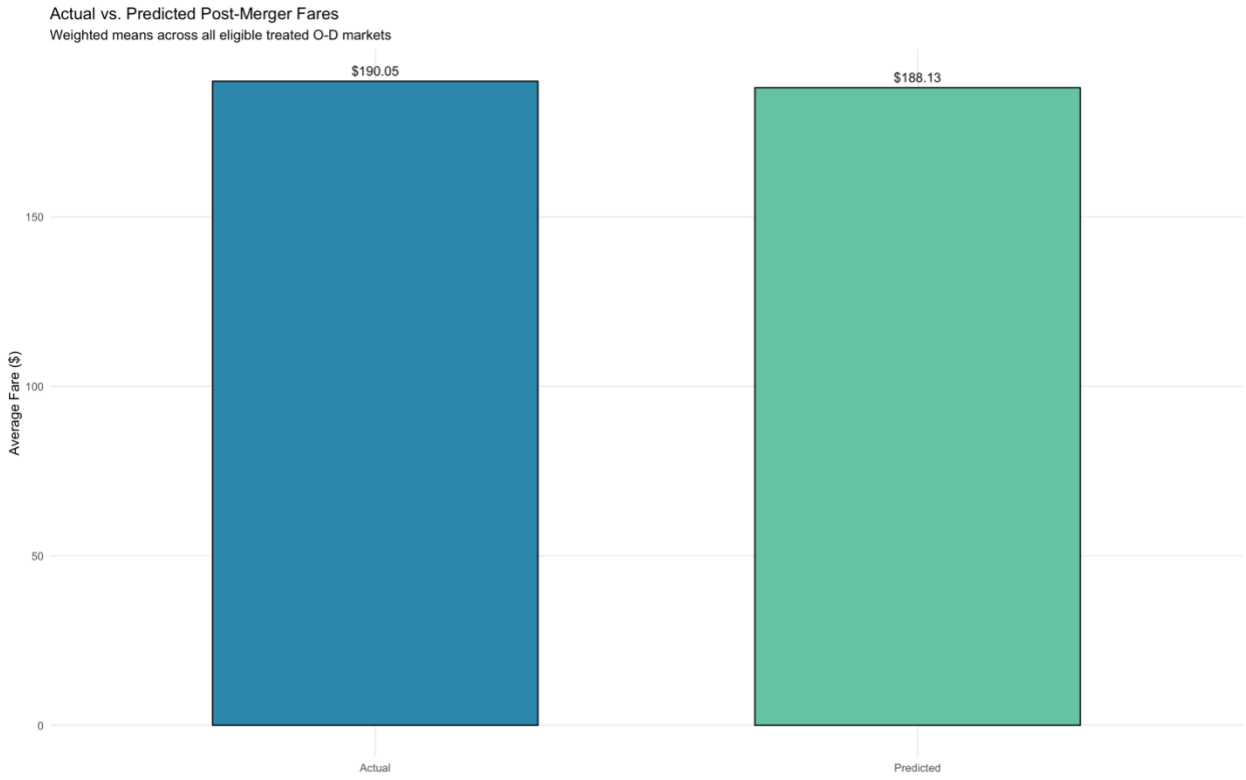
Table 5 – Counterfactual Fare Summary (Pre-, Actual, and Predicted)

Metric	Weighted Mean	Std. Error
Pre-Merger Market Fare ($)	142.62	2.60
Actual Post-Merger Market Fare ($)	190.06	3.41
Predicted Post-Merger Market Fare ($)	188.13	3.45

Counterfactual Summary: Pre-, Actual-, and Predicted Post-Merger Fares

Note: This table reports passenger-weighted means and standard errors for pre-merger, post-merger, and counterfactual predicted fares across all eligible treated O-D markets. The predicted post-merger fares are derived from the GUPPI-based simulation using route-specific diversion ratios (0.27 in this case) and a standard Lerner index of 0.3. Results indicated that predicted post-merger fares are similar to post-announcement fares with a small average difference of -$1.92, about 2 percent of pre-merger fares. This suggests that any consumer impact would have been minor under a merged scenario.

Figure 6 – Actual vs. Predicted Post-Merger Fares



Note: This figure compares the average actual post-merger fares in treated markets ($190.05) to the predicted counterfactual post-merger fares ($188.13). The visual difference is minimal and roughly only $1.90, confirming that predicted post-merger outcomes are nearly identical to the realized market prices.

Across the sample of eligible overlap markets, predicted post-merger fares were found to be mostly similar to the actual observed fares, averaging $188.13 compared to $190.06. This small difference of less than 2 percent implies that the potential effects of the merger would have been minimal. From a consumer welfare point of view, this result suggests that any price adjustment associated with the merger had already occurred through competitive responses. Carriers operating over these overlap routes anticipated consolidation by expanding capacity, as seen in Section 5.2. The market essentially then "priced in" on Spirit's weakening position well before news regarding the approval decision came about, minimizing the impact of actual consolidation. While consolidation could have produced small fare increases in certain markets, the magnitude of these effects was so modest that it likely would have been negligible for consumers. The predicted post-merger effects thus reflect a form of endogenous adjustment in which competitors responded not to the merger itself but to the decline in a ULCC's (Spirit) competitive appetite. In other words, while blocking the merger maintained short-term fare discipline, the market had already internalized Spirit's weakening position regardless of the merger's outcome.

Ultimately, this counterfactual analysis reinforces the notion that when a ULCC faces financial distress, the market's competitive equilibrium may act strategically and self-correct in anticipation rather than awaiting regulatory intervention.

5.4 Final Words and Comparative Analysis with Existing Literature

This thesis's findings contribute to a growing body of work on airline consolidation. Relative to earlier analyses of legacy carrier mergers, such as Peters (2006) and Fan (2020), the results presented in this paper present a different outcome for mergers involving ultra-low-cost carriers. While previous studies found that consolidation between legacy carriers generally

resulted in higher post-merger fares through the increased market power and emergence of new hubs, the failed JetBlue-Spirit case produced the opposite effect. Fares in overlapping markets saw a decline of roughly 5 percent, while capacity expanded slightly. This divergence from what came to be known as the norm for airline mergers underscores the unique role ULCCs, like Spirit, play as "price enforcers," whose removal or weakening position can reshape a market's competitive behavior even before a merger is completed.

The conclusions of Bruegge, Gowrisankaran, and Gross (2025) whose policy-function model predicted fare increases of 10-15 percent in overlap markets in a merger scenario, also refine the results of this thesis. By incorporating Spirit's weakening financial position and observing market adjustments, this study finds the magnitude of fare effects would have likely been much smaller. Therefore, the competitive harm projected in forecasted simulations may have overstated the merger's actual consumer impact once financial distress and exits were taken into account.

Moreover, the evidence found aligns with Shrago (2024) and Bachwich and Wittman's (2017) "Spirit Effect," stating that ULCC presence continues to exert downward pressure on fares. However, the rise in seat supply and passenger volume observed suggests that the market partially internalized Spirit's crash, consistent with Wang and Ma's (2024) findings that airlines present in the market make strategic adjustments in anticipation of a ULCC exit. Altogether, these results point towards the failing-firm doctrine, stating that when financial collapse is already underway, blocking a merger may preserve short-term competition but will be unable to affect long-term market structure.

In conclusion, this thesis complements previous work on airline mergers by showing that regulatory intervention may not always be necessary, as market forces often anticipate and adjust

to consolidation well before a formal decision is reached. This finding points towards a more context-dependent approach to merger policy, especially in cases involving fragile firms.

6 Conclusion

On July 28, 2022, JetBlue and Spirit officially announced their proposed merger agreement, bringing about immediate concerns over antitrust issues in the already concentrated U.S. airline industry. After months of scrutiny and legal hurdles, the deal was officially terminated on March 4, 2024, following a federal judge's decision in January to block the acquisition, citing that it would significantly reduce competition, harming consumers in the process. Therefore, this thesis aimed to investigate the consequences of the failed JetBlue-Spirit merger for market competition, airline fare pricing, and regulatory policy in the industry. To this end, we used a combination of airlines' financial diagnostics, DiD regressions, and a counterfactual pricing simulation from 2018 to Q4 2024, a few years before and following the merger announcement. The results provided evidence that the blocked merger had significant implications for not only Spirit's financial trajectory but also fare outcomes in overlapping markets.

From our diagnostics, we discovered Spirit Airlines entered a state of financial distress well before their announcement to merge. Their debt-to-equity ratio decreased rapidly following the COVID-19 pandemic, and by early 2024, Spirit's equity had turned negative, leading to insolvency and a foreseeable Chapter 11 filing. This merger would have provided Spirit with a crucial financial lifeline, as JetBlue remained a comparatively stable carrier in this post-pandemic airline industry dominated by consolidated firms. Aside from Spirit's financial decline, the econometric analysis showed a modest fare decrease in treated markets following the merger announcement. This decrease suggests that rival airlines also participating in the market may have acted competitively rather than collusively, either maintaining or lowering fares amid the uncertainty surrounding Spirit's future. To further assess these patterns, a secondary regression analysis using BTS operational statistics revealed a slight increase in seat capacity and passenger

volume in treated markets, with load factors remaining stable. These findings indicated that airlines expanded capacity to capture market share, consistent with a competitive adjustment rather than a capacity constraint seen under fare increases. Finally, a counterfactual pricing simulation using a GUPPI-based framework provided additional perspective on this merger scenario, indicating that consumer impact would have been limited.

Altogether, these findings contribute to the existing literature and ongoing debates involving antitrust policy, with particular emphasis on the treatment of distressed firms in concentrated markets. The Department of Justice was justified in blocking the merger from a short-term consumer standpoint; however, the economic consequences faced by Spirit as a result highlight the difficult trade-off regulators face when enforcing antitrust policy against distressed firms. Interestingly enough, since filing for bankruptcy, Spirit has been able to restructure and remain operational, serving many of the same routes. However, the substantiveness of their ULCC model is still uncertain in a landscape dominated by hybrid and full-service carriers.

While this thesis has presented strong evidence using various econometric tools, certain limitations remain. For example, future research could build on this analysis by examining the decisions made by airlines as to why they choose to compete and exit certain markets. In addition, it would be useful to elaborate on the wider effects of ULCCs on underserved routes and smaller airports, as this could be an area lacking discussion from policymakers.

Ultimately, this research highlights the complexity of antitrust enforcement in the airline industry and the need for careful market evaluation for mergers. While blocking the JetBlue-Spirit merger may have met the legal precedent, the results suggest that competition remained intact even without consolidation, and that the market was well adjusted to Spirit's deteriorating position. The findings underscore that future antitrust merger policy demands a deeper understanding of the

nuanced market dynamics in play, enabling regulators to find the balance between consumer welfare and long-term industry sustainability.

A Bibliography

Bachwich, Andrew R. and Michael D. Wittman. "The Emergence and Effects of the Ultra-Low Cost Carrier (ULCC) Business Model in the U.S. Airline Industry." *Journal of Air Transport Management,* vol. 62, 2017, pp. 155-64. ScienceDirect, https://doi.org/10.1016/j.jairtraman.2017.03.012.

Beane, Jerry L. "Deregulation of the Airline Industry." *Journal of Air Law and Commerce*, vol. 45, no. 4, 1980, https://scholar.smu.edu/jalc/vol45/iss4/8/.

Bloomberg. "Spirit Nearing Bankruptcy Deal That Would Wipe Out Shareholders." *Bloomberg News*, 13 Nov. 2024, https://www.bloomberg.com/news/articles/2024-11-13/spirit-nearing-bankruptcy-deal-that-would-wipe-out-shareholders.

Bruegge, Chris, Gautam Gowrisankaran, and Alex Gross. "Using Policy Functions to Estimate Merger Impacts: An Application to JetBlue–Spirit." 15 Feb. 2025. Unpublished manuscript. https://ourcuriousamalgam.com/episode/301-airline-mergers-taking-off/

Borenstein, Severin, and Nancy L. Rose. "How Airline Markets Work… Or Do They? Regulatory Reform in the Airline Industry." *Economic Regulation and Its Reform: What Have We Learned?*, edited by Nancy L. Rose, University of Chicago Press, 2014, pp. 63–135. National Bureau of Economic Research, https://www.nber.org/system/files/chapters/c12570/c12570.pdf.

Cilberto, Federico, and Elie Tamer. "Market Structure and Multiple Equilibria in Airline Markets." *Econmetrica*, vol. 77, no. 6, 2009, pp. 1791-1828. SSRN, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=605723&.

Conner, Ian. "Failing Firms and Miraculous Recoveries." *Competition Matters*, Federal Trade Commission, 1 May 2020, https://www.ftc.gov/enforcement/competition-matters/2020/05/failing-firms-miraculous-recoveries.

Department of Justice. "Justice Department Sues to Block JetBlue's Proposed Acquisition of Spirit." *Office of Public Affairs*, 7 Mar. 2023, https://www.justice.gov/archives/opa/pr/justice-department-sues-block-jetblue-s-proposed-acquisition-spirit.

---. *Complaint, U.S. v. JetBlue Airways Corporation and Spirit Airlines, Inc.* 2023, https://www.justice.gov/atr/case-document/file/1573131/dl.

Department of Justice and Federal Trade Commission. *Horizontal Merger Guidelines*. U.S. DOJ & FTC, Aug. 2010, https://www.justice.gov/atr/file/810276/dl?inline.

Department of Justice, Antitrust Division. *Failing Firm Defense under the Antitrust Laws.* DOJ, 2009, https://www.justice.gov/sites/default/files/atr/legacy/2011/05/05/270422.pdf.

Fan, Haobin. "Efficiency and Productivity Change of U.S. Airlines after Mergers." *Journal of Air Transport Management*, vol. 82, 2020, 101720. ScienceDirect, https://www.sciencedirect.com/science/article/abs/pii/S2212012219300875.

Farrell, Joseph, and Carl Shapiro. "Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition." *The B.E. Journal of Theoretical Economics*, vol. 10, no. 1, 2010. SSRN, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1313782.

Frontier Airlines. "Frontier Airlines and Spirit Airlines Combine, Creating America's Most Competitive Ultra-Low Fare Airline." *Frontier IR*, 7 Feb. 2022, https://ir.flyfrontier.com/news-releases/news-release-details/frontier-airlines-and-spirit-airlines-combine-creating-americas.

Goetz, Andrew R., and Timothy M. Vowles. "The Good, the Bad, and the Ugly: 30 Years of U.S. Airline Deregulation." *Transport Geography*, vol. 17, no. 4, 2009, pp. 251–63. ScienceDirect, https://www.sciencedirect.com/science/article/abs/pii/S0966692309000386?utm_source=chatgpt.com.

Khezrimotlagh, Dariush, Sepideh Kaffash, and Joe Zhu. "U.S. airline mergers' performance and productivity change." *Journal of Air Transport Management*, vol. 102, 2022, Article 102226, https://doi.org/10.1016/j.jairtraman.2022.102226.

JetBlue Airways. "JetBlue and Spirit to Create a National Low-Fare Challenger to the Dominant Big Four Airlines." *JetBlue Investor Relations*, 28 July 2022, https://ir.jetblue.com/news/news-details/2022/JetBlue-and-Spirit-to-Create-a-National-Low-Fare-Challenger-to-the-Dominant-Big-Four-Airlines-07-28-2022/default.aspx.

Miller, Nathan H., and Matthew C. Weinberg. "Understanding the Price Effects of the MillerCoors Joint Venture." *Econometrica*, vol. 85, no. 6, 2017, pp. 1763–91. ResearchGate, https://www.researchgate.net/publication/321496318.

Peters, Craig. "Evaluating the Performance of Merger Simulation: Evidence from the U.S. Airline Industry." *Journal of Law and Economics*, vol. 49, no. 2, 2006, pp. 627–49. JSTOR, https://www.jstor.org/stable/10.1086/505369.

Rose, Nancy L. "After Airline Deregulation and Alfred E. Kahn." *American Economic Review*, vol. 102, no. 3, 2012, pp. 376–81. JSTOR, https://www.jstor.org/stable/23245560.

Shrago, Brad. "The Spirit Effect: Ultra-Low Cost Carriers and Fare Dispersion in the U.S. Airline Industry." *Review of Industrial Organization*, vol. 64, no. 4, 2024, pp. 611–40. Springer, https://ideas.repec.org/a/kap/revind/v64y2024i4d10.1007_s11151-024-09948-y.html.

Spirit Airlines. *2011 Annual Report.* U.S. Securities and Exchange Commission, 2012. AnnualReports.com, https://www.annualreports.com/HostedData/AnnualReportArchive/s/NASDAQ_SAVE_2011.pdf.

Spirit Airlines. "Spirit Announces Termination of Merger Agreement with JetBlue." *Spirit Investor Relations*, 19 Jan. 2024, https://ir.spirit.com/news/news-details/2024/Spirit-Announces-Termination-of-Merger-Agreement-with-JetBlue/default.aspx.

Wang, Jiaying, and Yunsheng Ma. "Is the Ultra-Low-Cost Carrier a New Threat? Evidence From the U.S. Airline Industry." SSRN, 2024, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4710826.

Weinberg, Matthew C., and Daniel Hosken. "EVIDENCE ON THE ACCURACY OF MERGER SIMULATIONS." *The Review of Economics and Statistics*, vol. 95, no. 5, 2013, pp. 1584–600. *JSTOR*, http://www.jstor.org/stable/43554849.

Williamson, Oliver E. “Economies as an Antitrust Defense: The Welfare Tradeoffs.” *American Economic Review*, vol. 58, no. 1, 1968, pp. 18–36. JSTOR, https://www.jstor.org/stable/1831653.

B Appendix

Table B.1 – Fare DiD Regression (Full Sample), including all model specifications

All OD pairs (Company-level): Main DiD

	(1) No FE	(2) OD_pair FE	(3) Quarter FE	(4) OD_pair + Quarter FE	(5) + Controls	(1) + Carrier FE	(2) Route + Carrier FE	(3) Quarter + Carrier FE	(4) Route+Quarter+C	(5) + Ctrls + All FE
Treated × Post	-20.153***	-22.518***	-14.833***	-16.496***	-17.219***	-16.387***	-20.648***	-11.001*	-14.412***	-15.582***
	(5.626)	(3.566)	(5.626)	(3.564)	(3.564)	(5.620)	(3.562)	(5.621)	(3.559)	(3.560)
Treated	-65.302***	8.102	-71.245***	-13.210**	-17.520***	-16.864***	25.013***	-22.707***	3.053	1.624
	(3.713)	(5.354)	(3.714)	(5.359)	(5.360)	(4.078)	(5.423)	(4.079)	(5.427)	(5.427)
Post	63.542***	60.767***				62.616***	63.182***			
	(1.047)	(0.623)				(1.053)	(0.627)			
Passengers					0.010***					0.013***
					(0.001)					(0.001)
Market Distance					0.049***					0.047***
					(0.002)					(0.002)
FE: OpCarrier						X	X	X	X	X
FE: OD_pair		X		X	X		X		X	X
FE: quarter			X	X	X			X	X	X
Fixed Effects	None	Route	Quarter	Route + Quarter	Route + Quarter	Carrier	Route + Carrier	Quarter + Carrier	Route+Quarter+Ca	Route+Quarter+Ca
Mean of Dep. Var.	302.77	302.77	302.77	302.77	302.77	302.77	302.77	302.77	302.77	302.77
Observations	3694388	3681033	3694388	3681033	3681033	3694385	3681030	3694385	3681030	3681030
R^2	0.001	0.103	0.002	0.105	0.106	0.004	0.106	0.005	0.109	0.109

* p < 0.1, ** p < 0.05, *** p < 0.01

Table B.2 – Subset Fare DiD Regression (2018-2023 Q4), including all model specifications

All OD pairs (Company-level): Subset DiD (2018–2023)

	(1) No FE	(2) OD_pair FE	(3) Quarter FE	(4) OD_pair + Quarter FE	(5) + Controls	(1) + Carrier FE	(2) Route + Carrier FE	(3) Quarter + Carrier FE	(4) Route+Quarter+Carrier	(5) + Ctrls + All FE
Treated × Post	-22.398***	-23.859***	-16.360***	-16.295***	-17.032***	-18.564***	-22.779***	-12.501***	-15.012***	-16.142***
	(1.737)	(1.581)	(1.611)	(1.540)	(1.533)	(1.672)	(1.525)	(1.537)	(1.476)	(1.477)
Treated	-65.302***	7.995***	-71.245***	-15.487***	-19.986***	-18.327***	25.762***	-24.164***	1.555	-0.206
	(1.726)	(1.496)	(1.586)	(1.377)	(1.359)	(1.654)	(1.451)	(1.575)	(1.274)	(1.271)
Post	69.099***	66.133***				67.845***	68.245***			
	(1.190)	(1.173)				(1.195)	(1.185)			
Passengers					0.010***					0.013***
					(0.001)					(0.001)
Market Distance					0.051***					0.048***
					(0.001)					(0.001)
FE: OpCarrier						X	X	X	X	X
FE: OD_pair		X		X	X		X		X	X
FE: quarter			X	X	X			X	X	X
Fixed Effects	None	Route	Quarter	Route + Quarter	Route + Quarter	Carrier	Route + Carrier	Quarter + Carrier	Route+Quarter+Carrier	Route+Quarter+Carrier
Mean of Dep. Var.	297.15	297.15	297.15	297.15	297.15	297.15	297.15	297.15	297.15	297.15
Observations	3141749	3128644	3141749	3128644	3128644	3141746	3128641	3141746	3128641	3128641
R^2	0.001	0.114	0.002	0.116	0.116	0.003	0.116	0.004	0.119	0.119

* p < 0.1, ** p < 0.05, *** p < 0.01

Table B.3 – Full Counterfactual Inputs and Predicted Fare Results

Metric	Weighted Mean	Std. Error
Pre-Merger Market Fare ($)	142.62	2.60
Actual Post Market Fare ($)	190.06	3.41
Baseline (Control Trend) ($)	182.59	3.33
s_B6 (pre, undirected)	0.22	0.01
s_NK (pre, undirected)	0.15	0.01
Diversion (NK→B6)	0.27	0.01
GUPPI	0.08	0.00
Predicted Post-Merger Market Fare ($)	188.13	3.45
Savings ($)	−1.92	1.20
Savings (% of pre)	−2.02	0.78
Lerner(B6)	0.30	NA

Counterfactual vs Actual — Weighted Means + SEs (ALL eligible treated ODs)

Table B.4 – Pre-Trend Diagnostics: Wald Test and RMS Gaps

Pre-trend Diagnostics

Wald joint test of treated×quarter coefficients and RMS gap of residualized fares

Control group	F-statistic	df	p-value	RMSE gap (USD)
Neither-present	23.395	(17, 1041056)	< 2.2e-16	11.08
JetBlue-only	11.706	(17, 27003)	< 2.2e-16	6.56

Table B.5 – GUPPI Sensitivity Analysis: Alternative Relative Price Ratios

Relative Price Ratio	Mean Predicted Post-Merger Fare	Implied % Change
0.8	187.02	-0.59%
1.0 (baseline)	188.13	~0%
1.2	189.24	0.59%

GUPPI Sensitivity to Relative Price Ratio Assumptions