Forging the Future: Pioneering Approaches in Business, Management and Economics Engineering to Overcome Emerging Global Challenges - 2024

https://doi.org/10.24867/FUTURE-BME-2024-036 Original scientific paper

WAYS TO AVOID BANKRUPTCIES: AVIATION INDUSTRY IN THE UNITED STATES

Rahaman Sheriff[1] *[0009-0005-8493-6846]*, *Masatoshi Hara*[2] *[0000-0002-5975-454X]*

Abstract

Bankruptcy serves as a legal process for resolving debt issues among firms, individuals, and occasionally governments when they are unable to meet their financial obligations. This process can be initiated by either the debtor, seeking protection from creditors due to severe financial distress, or by the creditors, who may force bankruptcy proceedings if the debtor fails to comply with payment demands. While often viewed as a stigma, bankruptcy provides a structured way to manage debt and halt aggressive creditor actions, offering a path to financial recovery. The aviation industry has witnessed remarkable growth, with global passenger numbers escalating from 1.9 billion in 2004 to 4.5 billion in 2019. This expansion has significantly contributed to the global economy, employing 65.5 million people and generating $2.7 trillion in economic impact in 2018. The surge in demand has attracted numerous entrepreneurs and investors to establish or expand airlines. Despite this, the U.S. airline sector has experienced recurrent financial challenges, with 212 airlines filing for bankruptcy since 1978. This study investigates the factors influencing financial stability within the aviation industry through the lens of 14 participants. The research emphasizes the pivotal role of leadership in navigating financial instability. Key findings suggest that effective leadership strategies and financial management practices are crucial for mitigating bankruptcy risks. Future research should focus on applying these insights to refine financial practices and leadership approaches, potentially through targeted training programs aimed at improving financial risk management and enhancing organizational stability.

Key words: *aviation, bankruptcy, Strategy, External factors, United States*

[1] Swiss School of Business and Management, Geneva, Switzerland, rahaman@ssbm.ch

[2] Swiss School of Business and Management, Geneva, Switzerland, Geneva/ Business Breakthrough University, Tokyo, masah6841@gmail.com

1. Introduction

Bankruptcy serves as a critical legal mechanism designed to help individuals and entities manage overwhelming debt by providing a structured approach to severe financial distress. This framework is especially significant in industries like aviation, where financial stability is crucial due to the sector's inherent volatility and scale. The U.S. aviation industry has faced recurrent bankruptcy challenges driven by internal and external factors, such as the cyclical nature of air travel demand, high fixed operational costs, fluctuating fuel prices, competitive pressure from low-cost carriers, and macroeconomic disruptions like terrorism, wars, and economic downturns.

The COVID-19 pandemic exposed the financial vulnerabilities of airlines, emphasizing their sensitivity to sudden external shocks. This review focuses on understanding the key factors behind airline bankruptcies in the U.S. aviation sector. It will explore how organizational structure, corporate culture, strategic partnerships, technology integration, and marketing strategies can help reduce bankruptcy risks and improve resilience. By examining these dynamics, the study offers a detailed analysis of the industry's financial challenges. Key themes such as market competition, financial management, leadership, and technological innovation will be discussed to provide insights into how airlines can navigate financial pressures and achieve long-term sustainability in a volatile economic landscape.

2. Literature Review

The aviation industry is highly sensitive to external factors compared to maritime, rail, and road transport. This sensitivity arises from its vulnerability to economic cycles, with air travel demand declining sharply during downturns due to its discretionary nature, unlike the more stable demand for rail and road transport (Doganis, 2010). Fuel costs, which can comprise up to 30% of airline expenses, further exacerbate this vulnerability (IATA, 2020). Additionally, aviation faces stringent safety, security, and environmental regulations, requiring substantial investment (ICAO, 2019). Technological advancements in aviation also demand rapid capital expenditure, unlike other transport modes (Bradley, 2015). Historical events such as the 9/11 attacks and the COVID-19 pandemic underscore aviation's extreme sensitivity, causing significant disruptions and financial strain (Blunk, Clark, & McGibany, 2006; Suau-Sanchez et al., 2020). These factors highlight the need for robust risk management and strategic planning.

Bankruptcy in various industries often stems from a mix of internal and external factors, but the aviation sector faces unique challenges. Common causes include financial mismanagement, adverse market conditions, and external shocks. The Z-score model (Altman, 1968) and financial ratios (Beaver, 1966) highlight key bankruptcy predictors, with high debt (Andrade & Kaplan, 1998) and economic downturns (Opler & Titman, 1994) being critical. In aviation, high operational costs and regulatory burdens compound these risks. External shocks, such as pandemics

(Bartik et al., 2020), add further strain. The industry's distinct challenges require specialized financial strategies and predictive models for effective bankruptcy risk management.

The COVID-19 pandemic exacerbated these issues (Maneenop & Kotcharin, 2020). Traditional bankruptcy prediction models, like the Altman Z-score (Altman, 1968), often fail to fully capture aviation's complexities (Barboza, Kimura, & Altman, 2017). Advances in data analytics, machine learning (ML), and artificial intelligence (AI) offer potential improvements, as demonstrated by studies by Kliestik, Misankova, and Valaskova (2018) and Tsai (2009). However, challenges related to data quality and model interpretability remain (Lipton, Berkowitz, & Elkan, 2015). Future research should integrate external factors and improve model transparency, guided by insights from Doshi-Velez and Kim (2017). The aviation industry's high operational costs, regulatory pressures, and economic volatility underscore the need for effective financial management and accurate bankruptcy prediction. Technological advancements and robust financial strategies are crucial for navigating economic challenges, optimizing costs, and maintaining stability.

3. Framework

The deregulation of the U.S. airline industry in 1978 brought lower fares and expanded services but also intensified competition, particularly affecting smaller airports and leading to price wars and capacity issues. As major carriers dominated the market through mergers, ticket prices rose, and competition decreased on certain routes. In addition to competitive pressures, financial mismanagement and leadership failures, as seen with Kingfisher Airlines and American Airlines, contributed significantly to airline bankruptcies. The rise of low-cost carriers and market saturation further strained traditional airlines, highlighting the need for strategic financial and operational planning to ensure long-term stability in the aviation industry.

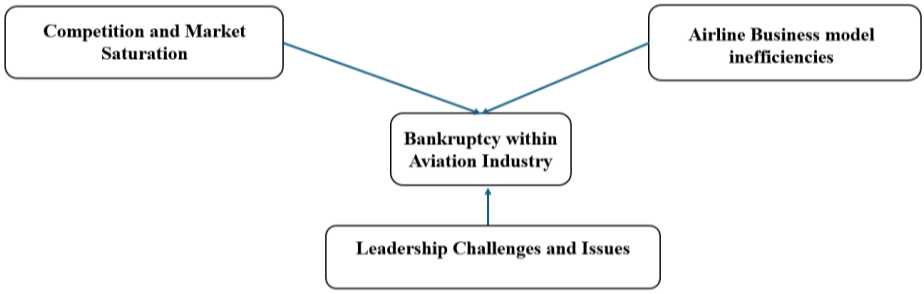

Figure 1. Key factors of Bankruptcy within Aviation Industry
Source: Based primarily on Hecker (2001) and Dempsey (2011) authors made.

4. Study Gap, Research Purpose, and Research Question

4.1 Study Gaps

While existing literature identifies factors contributing to bankruptcies and highlights the aviation industry's vulnerability, there remains a gap in understanding how these factors specifically impact airlines and lead to bankruptcy. Clear patterns among the causes of airline bankruptcies in the U.S. are lacking, which is the focus of this study. Further research is needed to analyze the factors influencing the bankruptcy of 212 defunct airlines and develop strategies based on these patterns to mitigate future risks.

4.2 Study Purpose

The literature review reveals several gaps in understanding the causes of airline failures, particularly in identifying clear patterns among the 212 defunct airlines in the United States. Our research aims to address these gaps by analyzing these patterns and developing strategies to mitigate future failures based on the findings.

4.3 Research Question

What are the key factors and mechanisms driving bankruptcy in the U.S. aviation industry?

5. Methodology

This study explores the multifaceted factors contributing to bankruptcy in the U.S. aviation industry using a qualitative methodology. Semi-structured interviews with e-leaders in the aviation sector were conducted to gain insights into the complex phenomena surrounding bankruptcy, as qualitative research focuses on understanding subjective experiences through interviews and observations (Creswell, 2013; Patton, 2015).

Purposive sampling was employed to select participants based on relevant criteria, specifically individuals in technology-driven leadership roles (Creswell & Poth, 2017). The target population included employees at various organizational levels working under e-leaders. Snowball sampling was used to access hard-to-reach e-leaders through referrals (Creswell & Poth, 2017). A sample size of 14 participants was chosen to balance the depth of exploration with practical data collection and analysis. Online interviews were conducted due to geographic constraints, and all sessions were recorded, transcribed, and prepared for analysis.

Thematic analysis was applied to analyze the interview data, identifying patterns and themes within the responses (Braun & Clarke, 2006). This flexible method can adapt to different theoretical frameworks, uncovering both explicit and implicit meanings in the data (Braun & Clarke, 2006; Guest et al., 2011). The approach combined deductive and inductive methods to allow themes to emerge

from the data. Ethical guidelines were followed, ensuring informed consent, participant anonymity, and secure data handling. Overall, this qualitative approach provided valuable insights into e-leadership and its impact on organizational performance, adhering to rigorous ethical standards.

6. Study Results

Table 1 represents the factors contributing to financial instability and bankruptcy in U.S. airlines, organizing the key factors and practices affecting the financial health of U.S. airlines and highlighting internal and external challenges as well as the role of management and strategic decisions. These challenges often arise from poor cash flow management, excessive debt, and underfunded pensions. Strategic missteps, such as over-expansion or misallocation of resources, further strain finances. Effective leadership is crucial in managing these risks, making sound financial decisions, and adapting to market changes, while weak leadership exacerbates financial difficulties.

Intense competition from low-cost carriers forces legacy airlines into aggressive pricing strategies that erode profit margins. External factors, such as volatile fuel prices, currency fluctuations, and economic downturns, also impact financial stability by increasing operational costs and reducing demand. Regulatory compliance, particularly regarding safety and environmental standards, adds to financial pressure. Additionally, High labor costs and limited access to capital can strain airlines' finances, while global events like pandemics and geopolitical tensions can drastically disrupt operations. These factors highlight the need for airlines to build strong financial resilience and adaptability to maintain stability amidst such challenges.

Table 1: Factors Contributing to Bankruptcy

Category	Factors Contributing to Bankruptcy
Financial Management	Poor cash flow management, excessive debt, underfunded pensions, inadequate financial controls, lack of rigorous audits, and poor capital allocation.
Strategic Decisions	Over-expansion of routes, investment in wrong aircraft, ineffective fleet and route management, and misjudged market entry strategies.
Leadership	Importance of strong leadership in risk management, strategic planning, and crisis response; weak leadership exacerbates risks.
Market Competition	Intense competition from low-cost carriers leading to aggressive pricing, eroded profit margins, and unsustainable revenue models.
Fuel Prices & Economics	Volatility in fuel prices, adverse currency fluctuations, economic downturns affecting demand and financial stability.
Regulatory Environment	Compliance costs with safety, environmental standards, and taxation; impact of deregulation and government policies.
Access to Capital	Importance of credit access for operations and fleet upgrades; risks of tight credit conditions during economic downturns.

Category	Factors Contributing to Bankruptcy
Customer Demand	Impact of customer satisfaction and changing preferences on revenue; importance of loyalty programs and effective customer service.
Technological Advancements	Benefits of investing in technology for cost savings and operational efficiencies; risks of failing to innovate or delayed adoption.
Mergers & Acquisitions	Potential benefits from increased market share and economies of scale; challenges with integration and operational disruptions.
Operational Inefficiencies	Issues like outdated technology, poor route planning, and ineffective supply chain management leading to higher costs.
Global Events	Impacts of events like pandemics or geopolitical tensions on travel demand, operational costs, and investor confidence.
Investor Pressure	Short-term profit expectations leading to risky decisions, cost-cutting measures, and focus on immediate gains over long-term stability.

Source: Authors

7. Discussion and Conclusion

7.1. Discussion

The study underscores the critical role of financial management and leadership in maintaining airlines' financial stability. Financial management theories must evolve to enhance internal practices like cash flow and debt control while responding to external economic pressures. Strategic leadership and effective risk management are vital for maintaining financial stability. This research adds to the theoretical understanding by showing that strong financial management and leadership can prevent bankruptcy and enhance stability.

The findings highlight that while operational efficiency in the U.S. airline industry has progressed steadily, profitability efficiency still requires enhancement. Addressing this gap may involve refining resource allocation strategies, optimizing revenue structures, managing costs more effectively, and expanding access to diverse funding options (Huang et al., 2021). Effective cash flow management, prudent debt practices, cost control, and strategic leadership are also vital for reducing bankruptcy risks and navigating economic uncertainties.

However, the study has limitations. Self-reported data on financial management and leadership may be biased, and focusing solely on the airline industry limits generalizability to other sectors. The small sample size also restricts the ability to establish strong statistical relationships, and broader economic conditions affecting financial stability were not considered. Further research is needed to address these gaps.

7.2. Conclusion

This study offers valuable insights into financial management and leadership within the airline industry, highlighting their significant impact on financial stability. By analyzing the influence of internal and external factors on financial health, it

provides a comprehensive understanding of bankruptcy risks. The findings on leadership's role in managing financial instability are particularly notable. Future efforts could focus on applying these insights to refine financial practices and leadership strategies, such as developing targeted training programs to improve financial risk management and stability. Adapting these practices in various contexts could enhance organizational performance and sustainability.

Acknowledgements

I sincerely thank Dr. Masa, my co-author, for his invaluable contributions and support in drafting this manuscript. I also appreciate the airline industry interviewees for their time and insightful perspectives, which greatly enriched this work.

REFERENCES

[1] Altman, E. I. (1968). Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy. The Journal of Finance, 23(4), 589–609. https://doi.org/10.2307/2978933

[2] Andrade, G. & Kaplan, S. N. (1998). How Costly is Financial (Not Economic) Distress? Evidence from Highly Leveraged Transactions that Became Distressed. *The Journal of Finance, 53*(5), 1443–1493. https://doi.org/10.1111/0022-1082.00062

[3] Bartik, A. W., Bertrand, M., Cullen, Z., Glaeser, E. L., Luca, M. & Stanton, C. (2020). The impact of COVID-19 on Small Business Outcomes and Expectations. *Proceedings of the National Academy of Sciences*, *117*(30), 17656–17666. https://doi.org/10.1073/pnas.2006991117

[4] Beaver, W. H. (1966). Financial Ratios as Predictors of Failure. *Journal of Accounting Research*, *4*, 71-111. https://doi.org/10.2307/2490171

[5] Blunk, S. S., Clark, D. E. & McGibany, J. M. (2006). Evaluating the Long-Run Impacts of the 9/11 Terrorist Attacks on US Airline Demand. *Applied Economics*, *38*(4), 363–370. https://doi.org/10.1080/00036840500367930

[6] Braun, V., & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative research in psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

[7] Creswell, J. W., & Poth, C. N. (2017). *Qualitative Inquiry and Research Design: Choosing among Five Approaches*. Sage publications.

[8] Dempsey, P. (2011). Robber Barons in the Cockpit: The Airline Industry in Turbulent Skies. *Transportation Law Journal*, *18*(2), 1990. https://ssrn.com/abstract=1949413

[9] Doganis, R. (2010). *Flying off Course: Airline Economics and Marketing*. Routledge.

[10] Doshi-Velez, F. & Kim, B. (2017). Towards a Rigorous Science of Interpretable Machine Learning. https://doi.org/10.48550/arXiv.1702.08608

[11] IATA. (2020). International Air Transport Association. https://www.iata.org/

[12] ICAO. (2019). International Civil Aviation Organization. https://www.icao.int/
[13] Guest, G., MacQueen, K. M., & Namey, E. E. (2011). *Applied Thematic Analysis*. Sage Publications.
[14] Hecker, J. Z. (2001). Aviation Competition: Challenges in Enhancing Competition in Dominated Markets (No. GAO/01-518T). United States. General Accounting Office. https://rosap.ntl.bts.gov/view/dot/33893/dot_33893_DS1.pdf
[15] Kliestik, T., Misankova, M., & Valaskova, K. (2018). Bankruptcy Prediction in Visegrad Group Countries Using Multiple Discriminant Analysis. *Equilibrium: Quarterly Journal of Economics and Economic Policy*, *13*(3), 569–563. https://doi.org/10.24136/eq.2018.028
[16] Lipton, Z. C., Berkowitz, J. & Elkan, C. (2015). *A Critical Review of Recurrent Neural Networks for Sequence Learning*. https://arxiv.org/pdf/1506.00019
[17] Maneenop, S., & Kotcharin, S. (2020). The Impacts of COVID-19 on the Global Airline Industry: An Event Study Approach. *Journal of Air Transport Management, 89*, 101920. https://doi.org/10.1016/j.jairtraman.2020.101920
[18] Opler, T. C., & Titman, S. (1994). Financial Distress and Corporate Performance. *The Journal of Finance*, *49*(3), 1015–1040. https://doi.org/10.1111/j.1540-6261.1994.tb00086.x
[19] Patton, M. Q. (2015). *Qualitative Research and Evaluation Methods*. Sage publications.
[20] Bradley, S. (2015). *The Railways: Nation, Network and People*. Profile Books. https://x.gd/AQI02
[21] Suau-Sanchez, P., Voltes-Dorta, A., & Cugueró-Escofet, N. (2020). An early assessment of the impact of COVID-19 on air transport: Just another crisis or the end of aviation as we know it? *Journal of Transport Geography*, *86*, 102749. https://doi.org/10.1016/j.jtrangeo.2020.102749
[22] Tsai, C. F. (2009). Feature selection in Bankruptcy Prediction. *Knowledge-Based Systems, 22*(2), 120–127. https://doi.org/10.1016/j.knosys.2008.08.002
[23] Huang, C.C., Hsu, C.C. & Collar, E. (2021). An Evaluation of the Operational Performance and Proftability of the U.S. Airlines. *International Journal of Global Business and Competitiveness*, *16*(1), 73–85. https://link.springer.com/article/10.1007/s42943-021-00031-x .