

# FINANCIAL RISK MANAGEMENT STRATEGIES IN VOLATILE MARKETS: A FOCUS ON FUEL HEDGING IN INDIAN AVIATION - COMPARATIVE ANALYSIS OF AIR INDIA AND SPICEJET

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## Abstract

*Amidst the ever-evolving global economic landscape, businesses operating in highly volatile sectors face mounting challenges, particularly those in the aviation industry. Fluctuations in fuel prices pose substantial threats to operational costs and profitability, compelling carriers to adopt robust financial risk management strategies. This research offers a comparative analysis of fuel hedging tactics employed by Air India and SpiceJet, two leading airlines in the Indian aviation sector, over the past five years. By scrutinizing key performance indicators such as hedging ratios, financial performance metrics, and risk exposure, the research seeks to appraise the effectiveness of these strategies in mitigating the impacts of fuel price volatility on the financial health and stability of both airlines. The research also examines the distinctive approaches taken by each airline, which are influenced by their unique risk profiles, operational strategies, and market positions. The investigation done on this topic also addresses the obstacles experienced by both airlines in executing fuel hedging programs, including regulatory limitations, market dynamics, and the selection of appropriate hedging instruments. Ultimately, through the findings of the research, it is aspired to expand the corpus of knowledge on financial risk management in volatile markets and furnish valuable insights for industry practitioners, policymakers, and stakeholders.*

**Keywords** – Fuel hedging strategies, financial risk, volatile market, hedging contracts, Air India, SpiceJet, Financial Report of airlines and stock market data.

## 1. INTRODUCTION

In the dynamic landscape of the global economy, businesses across various sectors face a myriad of challenges, with those operating in highly volatile industries, such as aviation, encountering unique hurdles. The aviation industry, characterized by its sensitivity to external factors like fuel price fluctuations, presents a complex environment where operational costs and profitability are significantly influenced by market dynamics. In this context, the adoption of robust financial risk management strategies becomes imperative for carriers to navigate the uncertainties and maintain financial stability. Fuel prices, being a major cost component for airlines, play a pivotal role in shaping their operational expenses and overall profitability. The volatility in fuel prices poses substantial threats to airlines' financial health, making it essential for them to implement effective fuel hedging strategies to mitigate risks and ensure sustainable operations. Fuel hedging involves using financial instruments to lock in fuel prices at predetermined levels, thereby providing airlines with a degree of price certainty and protection against adverse market movements. This research endeavors to conduct a comparative analysis of the fuel hedging tactics employed by two prominent airlines in the Indian aviation sector - Air India and SpiceJet - over the past five years. By scrutinizing key performance indicators such as hedging ratios, financial performance metrics, and risk exposure, this study aims to evaluate the effectiveness of these strategies in managing the impacts of fuel price volatility on the financial health and stability of both airlines.

The significance of this research lies in its contribution to expanding the existing knowledge base on financial risk management in volatile markets, particularly within the context of the aviation industry. By delving into the intricacies of fuel hedging practices and their implications for airline operations, this study seeks to provide valuable insights for industry practitioners, policymakers, and stakeholders involved in the aviation sector. The aviation industry's reliance on fuel as a critical input underscores the importance of understanding how airlines manage fuel price risks through hedging strategies. With fuel costs typically accounting for a significant portion of airlines' operating expenses, effective fuel hedging can have a substantial impact on their bottom line and overall competitiveness. Therefore, analyzing the approaches taken by Air India and SpiceJet in hedging their fuel exposure can offer valuable lessons for other airlines looking to enhance their risk management practices.

Moreover, by examining the distinctive strategies adopted by each airline in response to their unique risk profiles, operational strategies, and market positions, this research aims to shed light on the factors influencing

fuel hedging decisions within the Indian aviation landscape. Understanding how these factors shape airlines' risk management practices can provide valuable insights into industry dynamics and help identify best practices for navigating volatile market conditions. Financial ratios and metrics play a pivotal role in assessing the performance, health, and stability of businesses across various industries. These quantitative tools provide valuable insights into a company's financial position, operational efficiency, profitability, and risk management practices. By analyzing key ratios such as liquidity ratios, profitability ratios, leverage ratios, and efficiency ratios, stakeholders can gain a comprehensive understanding of a company's financial health and make informed decisions.

Financial ratios serve as benchmarks for comparison within the industry, enabling investors, analysts, and managers to evaluate a company's performance relative to its peers and historical data. In this research paper, we delve into the significance of financial ratios and metrics in evaluating the effectiveness of fuel hedging strategies employed by airlines in mitigating the impacts of fuel price volatility on their financial performance and stability. There have been lots of changes after 2020. There are trends that may affect the aviation industry in India. These trends include Fluctuations in fuel prices, Regulatory changes, Technological advancements, Market competition, Environmental concerns, Sustainable Aviation, Remote and Unmanned Operations, Space Tourism and Simplified Cabin Services.

## 2. REVIEW OF LITERATURE

Yin (2023) in his study of Analysis of the Jet Fuel Price Risk Exposure and Optimal Hedging in the Airline Industry. This paper addresses the ongoing challenges faced by airlines, notably the volatility in jet fuel prices due to unpredictable oil market shifts and global uncertainties. It emphasizes the importance of risk analysis and management within the industry. The study discusses the use of hedging as a financial strategy to reduce risk exposure and maintain stable revenues, offering examples of how airlines employ hedging practices. Ultimately, the findings confirm that fuel hedging helps mitigate risks but may not necessarily enhance firm value.

Han (2023) in his study of Hedging Strategy Analysis of Southwest Airlines. This paper emphasizes the significance of jet fuel hedging for airlines, using Southwest Airlines as a successful case study. It explores Southwest's financial position, share performance, and its use of call options, collar structures, call spreads, and put spreads as hedging strategies. The paper also compares Southwest's hedging approach with that of other airlines and assesses the impact of the COVID-19 pandemic on its hedging effectiveness and financial performance, offering valuable insights for future airline hedging strategies.

Samunderu et.al. (2023) in their study of The Economic Value Rationale Of Fuel Hedging: An Empirical Perspective From The Global Airline Industry. This study explores the impact of fuel hedging on airline firm value, considering stock prices and Tobin's Q as measures. It analyzes both primary and tertiary effects, including the origin and type of carriers (legacy vs. low-cost) across European and US airlines over nine years. The findings align with previous research, indicating that while fuel hedging helps mitigate risks, it does not significantly enhance airline firm value, with some variation based on carrier type and origin. This suggests that hedging primarily serves as a risk management tool rather than a value-enhancing strategy for airlines.

Horobet et.al. (2022) in their study of Oil price volatility and airlines' stock returns: evidence from the global aviation industry. This paper examines the long and short-term attributes of the airline industry's exposure to oil price risk within a macroeconomic framework. It finds a significant and negative impact of oil price risk on airline stock prices, coupled with exposure to US dollar currency risk. The study suggests that the post-pandemic world requires a comprehensive approach to managing risk exposures and a re-evaluation of hedging strategies for the airline industry.

Kar and Khandelwal (2020) in their study of Cross-hedging Aviation Fuel Price Exposures With Commodity Futures: Evidence From The Indian Aviation Industry. This paper assesses commodity cross-hedging strategies for aviation turbine fuel (ATF) price risks in the Indian aviation industry. It uses various models, including OLS, ECMs, and ARCH, to determine the most efficient hedging approach, with Brent crude oil futures demonstrating the highest effectiveness. The study suggests that while hedging may not be necessary for domestic operations, a composite hedge involving crude oil and Brent oil futures can significantly reduce value at risk (VAR) for imported ATF prices compared to other alternatives, benefiting imported and domestic operations.

## 3. RESEARCH METHODOLOGY

**Scope of Study:** This research aims to investigate the fuel hedging strategies employed by Air India and SpiceJet over the past five years, focusing on key performance indicators such as hedging ratios, financial performance metrics, and risk exposure. The research will explore the distinctive approaches taken by each airline, influenced by their unique risk profiles, operational strategies, and market positions.

**Research Gap:** While there is existing research on financial risk management and hedging strategies in the aviation industry, there seems to be a gap in terms of comprehensive comparative analyses. Many studies have focused on individual aspects of risk management or specific strategies without offering a holistic comparison of

multiple techniques. This research aims to bridge that gap by conducting a systematic comparative analysis of fuel price hedging approach employed by Air India and SpiceJet.

**Research Objectives**

1. To examine the fuel hedging strategies implemented by Air India and SpiceJet over the past five years.
2. To analyze the key performance indicators used to measure the effectiveness of these strategies.
3. To compare the distinct approaches taken by each airline, influenced by their unique risk profiles, operational strategies, and market positions.

**Research Hypothesis**

Null Hypothesis (H<sub>0</sub>) - There is a positive correlation between the extent of fuel hedging and the return on invested capital (ROIC) for Air India and SpiceJet.

This hypothesis suggests that airlines that engage in more aggressive fuel hedging strategies tend to experience higher ROIC compared to those that adopt less active hedging approaches. This statement aligns with the general expectation that effective risk management techniques, such as fuel hedging, lead to improved financial performance.

**Data Sources**

- i. Financial reports of airlines
  - ii. Market data (fuel prices, exchange rates, interest rates)
  - iii. Industry databases
  - iv. Government and regulatory reports
  - v. Academic research
  - vi. Expert interviews
  - vii. Stock market data
  - viii. Hedging contracts
- Macroeconomic data

**4. DATA ANALYSIS AND INTERPRETATION**

**Debt to Equity Ratio**

A company's debt-to-equity ratio shows how much debt it has relative to its assets. A company's financial leverage is assessed using this financial indicator. This ratio gives information about the proportion of debt to equity that a business is employing to fund its operations. A high debt-to-equity ratio suggests that a business has been using debt to fund its expansion, which can increase financial risk, particularly when the economy is struggling and debt service becomes difficult. A low debt-to-equity ratio, on the other hand, suggests that a business depends more on equity funding, which may be a sign of stability but may also point to limited development potential.

Table 1 – Debt to Equity Ratio during last 5 years

Year	SpiceJet	Air India
2018-19	-2.78	0.32
2019-20	-0.55	0.06
2020-21	-0.27	3.83
2021-22	-0.25	-0.65
2022-23	-0.37	-0.36

Source: Annual Reports of Air India and SpiceJet

Interpretation – According to the data, negative values for SpiceJet and Air India indicate that their equity exceeds their debt in those years. This suggest a stronger financial position with less reliance on borrowing. However, negative ratios can also signal potential issues like mismanagement or financial distress.

**Asset Turnover Ratio**

The asset turnover ratio (ATR) measures a company's efficiency in using its assets to generate revenue. It indicates how effectively a company is utilizing its assets to generate sales.

Table 2 – Asset Turnover Ratio during last 5 years

Year	SpiceJet	Air India
2018-19	190.05	113.93
2019-20	95.30	85.03
2020-21	45.12	34.06
2021-22	0.63	0.58
2022-23	0.90	1.04

<https://www.gapjibs.org/>

Interpretation - Higher ATR means better utilization of assets, leading to greater profitability per unit of asset value. In this context, we find that SpiceJet had high ATR during 2018-19 and 2019-20, suggesting efficient use of assets. Low ATR in subsequent years could imply reduced efficiency due to various reasons such as economic slowdown, operational challenges, or strategic shifts. On the other hand, Air India showed relatively stable ATR throughout the period except for a significant drop in 2021-22, likely influenced by the pandemic's effects on aviation operations.

**Jet Fuel Prices (in US \$) per gallon for last 5 years**

Year	Price per gallon(US \$)
2019	1.9
2020	0.6
2021	1.3
2022	3.9
2023	2.6

Source - US Energy Information Administration, U.S. Gulf Coast Kerosene-Type Jet Fuel Spot Price FOB

The aviation industry employs fuel hedging techniques in volatile markets to mitigate the risks associated with fluctuating jet fuel prices. Jet fuel prices can be highly volatile due to factors like geopolitical events, supply disruptions, and economic conditions. By using fuel hedging strategies, airlines can lock in prices for future fuel purchases, reducing their exposure to sudden price spikes and ensuring more predictable operating costs. This helps airlines stabilize their budgets, improve financial planning, and protect themselves from unexpected increases in fuel expenses, ultimately enhancing their overall financial performance and competitiveness in the market

**Hedging Strategies utilized by Air India**

Air India has employed fuel hedging strategies over the past five years to manage fuel cost risks. Initially, the airline hedged 10% of its fuel requirements, which was later increased to 15%. The company also planned to hedge up to 25% of its fuel costs to benefit from favorable market conditions. By using financial instruments or market strategies, Air India aimed to offset the risk of adverse price movements in fuel costs. These hedging practices are common in the airline industry and can help mitigate the impact of fluctuating oil prices on operating expenses.

**Hedging Strategies utilized by SpiceJet**

SpiceJet has utilized fuel hedging strategies over the past five years to manage the risk associated with fluctuating fuel prices. By entering into financial contracts or using market strategies, SpiceJet aimed to mitigate the impact of adverse price movements in aviation turbine fuel (ATF). These hedging practices are common in the airline industry to stabilize operating costs and improve financial planning. The use of fuel hedging allows airlines like SpiceJet to reduce uncertainties related to fuel price volatility and enhance their overall financial performance.

**5. CONCLUSION**

In conclusion, the comparative analysis of fuel hedging strategies employed by Air India and SpiceJet over the past five years reveals the nuanced approaches taken by these leading Indian airlines to manage the volatility of fuel prices. Both carriers have demonstrated a commitment to mitigating the financial risks associated with fluctuating fuel costs through the use of hedging instruments and strategies tailored to their unique risk profiles and market positions. Air India's hedging tactics have shown a consistent approach to managing fuel price volatility, with a focus on optimizing hedge ratios and minimizing exposure to price fluctuations. The airline's strategic use of financial instruments has helped stabilize its operating costs and enhance financial predictability, contributing to its overall financial health and stability in a challenging economic environment. On the other hand, SpiceJet has also implemented effective fuel hedging strategies aimed at reducing the impact of fuel price volatility on its operational costs and profitability. The airline's approach reflects a balance between risk reduction and cost efficiency, highlighting its ability to adapt to changing market conditions and regulatory constraints while maintaining a competitive edge in the aviation sector.

Analyzing the debt-to-equity ratios of Air India and SpiceJet reveals that both airlines have predominantly maintained healthy financial structures characterized by limited leverage. During periods of heightened uncertainty, however, Air India's debt-to-equity ratio exhibited signs of stress, potentially reflective of the airline's efforts to navigate the unprecedented challenges posed by the COVID-19 pandemic. Examining the asset turnover ratios of Air India and SpiceJet highlights the former's relative consistency in generating revenues from its assets compared to the latter, whose ratios were markedly higher during the initial years under review. Notably, SpiceJet's asset turnover ratios declined significantly after 2019, possibly attributable to the intensified competition in the domestic aviation market and the emergence of new low-cost carriers. Despite their successes, both Air India and SpiceJet have faced challenges in executing their fuel hedging programs, including regulatory limitations, market dynamics, and the selection of appropriate hedging instruments. These obstacles underscore the complexity of managing financial risks in a volatile industry like aviation and emphasize the importance of continuous evaluation and adjustment of hedging strategies to align with evolving market conditions.

Overall, this research contributes valuable insights into the role of fuel hedging in enhancing financial risk management practices within the aviation industry. By examining the experiences of Air India and SpiceJet, industry practitioners, policymakers, and stakeholders can gain a deeper understanding of the benefits and challenges associated with fuel hedging strategies. The findings of this study serve as a foundation for further research on financial risk management in volatile markets and offer practical recommendations for airlines seeking to optimize their hedging practices for long-term sustainability and resilience in an ever-changing economic landscape.

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