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A Comprehensive Analysis of Significant Factors Affecting Financial Health of Commercial Carriers in India

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Abstract

Airline industry is a highly volatile and capital-intensive in nature. Being highly competitive and prone to multiple internal and external risks makes it more vulnerable to financial failures from time to time. Unlike developed nations, commercial carriers in Indian sub-continent are exposed to additional challenges and risks, forcing many carriers to wind up operations and allowing a few to live on the edge to run their operations with positive cashflows. Managing financial performance and identifying early indicators for distress is extremely important from an airlines' perspective to avoid possible bankruptcy and closure. In order to have a comprehensive view of financial distress and underlying factors involved, airlines in India need to look beyond the typical financial and operational variables followed by developed countries. This study presents a comprehensive analysis of the significant factors across operations, performance, finance, economy, market, government, political, regulatory and external environment that exert a substantial influence on the financial health of commercial carriers within the aviation industry in India. The aviation sector plays a crucial role in facilitating economic growth and connectivity, making the financial stability of commercial carriers a matter of paramount importance. Through an in-depth exploration of both internal and external variables, this research aims to provide valuable insights into the complex interplay of factors that shape the financial well-being of Indian airlines.

Keywords: Airlines, Financial Performance, Bankruptcy, Financial Distress, Models, Solvency. Distress Prediction, India.

1. Introduction

The transportation and logistics sectors are a critical backbone of India's economy, facilitating the movement of goods and enabling trade across the vast expanse of the country. Within this sector, commercial carriers play a pivotal role by providing the essential link between manufacturers, distributors, and consumers. However, the financial health of commercial carriers in India is subject to a multitude of intricate factors that can significantly impact their operations, profitability, and sustainability.

The Indian aviation sector has been experiencing financial distress for several years, with the COVID-19 pandemic exacerbating the situation. Even prior to the pandemic, the Indian aviation industry faced a number of challenges, including high operating costs, intense competition, and regulatory restrictions.

The COVID-19 pandemic has had a significant impact on the Indian aviation industry, with a sharp decline in passenger traffic and revenues. Airlines have had to ground a significant portion of their fleets and reduce their workforce in order to cut costs. The Indian government has announced a number of relief measures to

support the aviation industry, including financial support, tax breaks, and relief on airport charges. However, these measures have not been sufficient to fully address the financial distress faced by the industry.

Several major Indian airlines have been affected by the financial distress, with some facing bankruptcy or being acquired by other companies. In 2019, Jet Airways, one of India's largest airlines, ceased operations due to financial difficulties. Other major airlines such as Air India and SpiceJet have also faced significant financial challenges.

Overall, the financial distress of the Indian aviation sector is a complex issue that requires a combination of regulatory reforms, financial support, and innovative strategies to address. The government and industry stakeholders will need to work together to find solutions that can help the industry recover and thrive in the years to come.

2. Overview of Financial Health of Indian Carriers

Before the COVID-19 pandemic, the Indian aviation industry was experiencing a period of growth and increasing competition. The industry was marked by the presence of both full-service carriers (FSCs) and low-cost carriers (LCCs), each with its own business model and target market.

FSCs like Air India, Jet Airways (which suspended operations in 2019), and Vistara focused on providing a higher level of service, including full-service amenities, in-flight entertainment, and a wider network. However, some FSCs faced challenges in terms of operational costs, legacy debts, and competition from LCCs. LCCs, including IndiGo, SpiceJet, AirAsia India and GoAir, gained popularity due to their cost-efficient operations and affordable fares. IndiGo, in particular, emerged as a dominant player in the Indian market, benefiting from its strong operational efficiency and market positioning. Intense competition, especially in the LCC segment, and upward trend in fuel prices, airport charges, and maintenance costs led to pricing pressures and lower profit margins for airlines. Air traffic congestion and airport infrastructure limitations in certain cities also posed challenges for airlines.

The COVID-19 pandemic severely impacted the aviation industry globally, and Indian carriers were no exception. The imposition of lockdowns, travel restrictions, and reduced passenger demand led to a significant decline in revenue for airlines. Many airlines faced liquidity challenges and took measures to cut costs, including layoffs, salary reductions, and capacity reduction.

Here is a table of the financial health of the top five airlines in India in the financial year 2022-23:

Table 1: Financial Snapshot of Top 5 Indian Carriers (2022 - 2023)

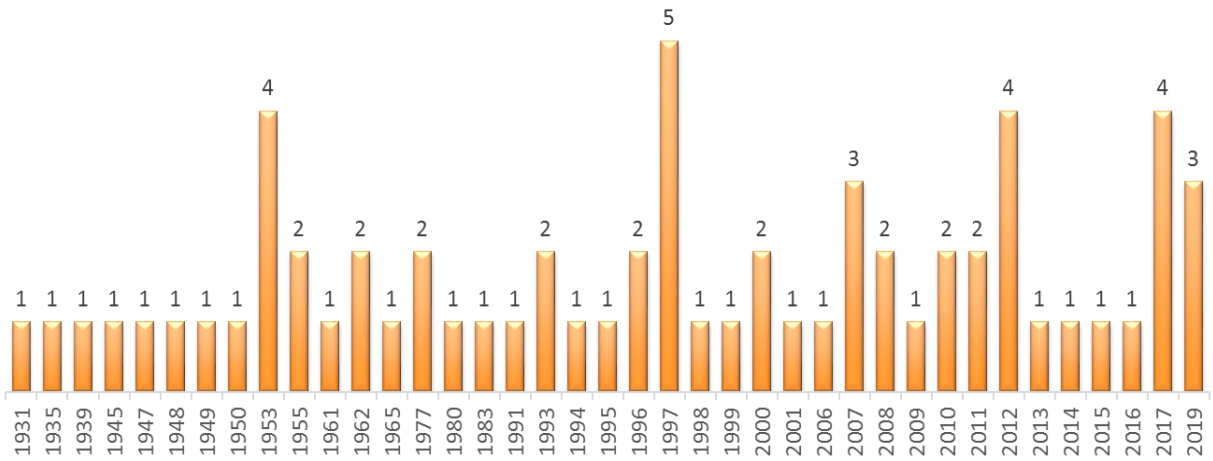
Airlines	Revenue (in crores)	Profit (in crores)
IndiGo	80,222	7,853
SpiceJet	17,910	-2,967
Air India	25,987	-7,033
Go First	10,104	-1,002
Vistara	10,046	-3,059

Source: *Annual Financial Reports*

As you can see, only IndiGo was profitable in the financial year 2022-23. The other four airlines reported losses. The financial health of the airline industry in India is still fragile, but there are some signs of improvement.

Several instances of financial distress have been observed among airline companies in India within the last decade. For example, Kingfisher airlines had to stop its operation in 2012 due to their inability to pay for its liabilities. Spice Jet cancelled more than 2000 flights at the end of 2014 due to huge accumulated losses. It was bailed out only by additional funding from promoters. Similarly, in 2016, Air Asia had to put its expansion plan on hold due to a severe cash crunch. Air Pegasus became bankrupt in 2017. In the same year, Air Carnival and Air Costa had to close down their operation. In recent times, in 2019, Jet Airways operations are completely suspended due to financial crunch. Based on the data available, 65 carriers have ceased operations in India so far.

Figure 1: Indian Carrier Ceased Operations (1931 - 2019)



Source – *DGCA, India, CAPA, Media Reports & Independent Research*

verall, the financial health of airlines in India is improving, but it is still too early to say that the industry is out of the woods. Airlines will need to continue to focus on improving their operational efficiency and reducing their debt burden in order to achieve long-term financial sustainability.

3. Importance of Internal and External Factors on Financial Health of Carriers

Prior studies were done to investigate the variables affecting the financial performance of Indian listed corporations. Four significant factors, including return on assets (ROA), return on equity (ROE), profit after tax (PAT), and earning per share (EPS), are used to assess the financial performance of Indian listed companies. According to the findings of the fixed effects regression model, the financial performance of Indian listed businesses is significantly and favorably influenced by the leverage ratio, liquidity ratio, company size, and age. According to Tabash et al. (2021) the leverage ratio has a favorable effect on ROE

and a negative effect on ROA, PAT, and EPS. Although limited studies on the airline industry and specific carriers have been carried out in India. But these studies (Mahtani and Garg, 2018; Krishnan, 2008; Pathak, 2015; Behera, 2016) found a number of crucial factors that affect a company's financial performance in this industry.

The dynamic conditions present in the passenger market and the structure of input costs present the airline firms in India with a number of difficulties. These circumstances have caused many of these businesses to experience financial hardship and even insolvency. In this situation, it is crucial for management to be able to pinpoint the variables that significantly affect their financial performance. Mahtani, and Garg (2020) carried out a study to identify the components from the financial and operating conditions and test them in a model for the assessment of financial distress of Indian carriers. Past studies conducted globally (Sengar et al., 2018; Kumar and Garg, 2017; Garg, 2016; Garg et al., 2017; Gupta et al., 2017; Prakash and Barua, 2016; Chow et al., 1991; Pilarski and Dinh, 1999; Gudmundsson, 2002; Silva et al., 2005) used financial, operational, and external conditions as factors for financial distress prediction.

Identifying the significant factors impacting the financial health of an industry or a company involves a comprehensive analysis of various internal and external factors that can influence its financial performance. The financial health of airlines in India has been on a downward trajectory for several years, due to a number of factors, including:

- **High fuel costs**: The cost of aviation turbine fuel (ATF) has been rising steadily in recent years, and this has put a significant strain on the finances of airlines. In 2022-23, the average ATF price in India was ₹87.6 per litre, up from ₹74.8 per litre in 2021-22. This increase in ATF prices has added ₹15,000 crore to the fuel costs of airlines in India.
- **Currency depreciation**: The Indian rupee has been depreciating against the US dollar, which has made it more expensive for airlines to import aircraft and spare parts. In 2022-23, the Indian rupee depreciated by 6.3% against the US dollar. This has added ₹5,000 crore to the costs of airlines in India.
- **Competition**: The Indian aviation market is very competitive, with a number of airlines vying for market share. This has led to fare wars and low margins for airlines. In 2022-23, the average fare in India was ₹3,000, down from ₹3,500 in 2021-22. This decrease in fares has led to a decrease in revenue for airlines.
- **Taxes**: Airlines in India are subject to a number of taxes, including excise duty, service tax, and passenger duty. These taxes add to the cost of air travel and make it less affordable for passengers. In 2022-23, airlines in India paid ₹10,000 crore in taxes.

As a result of these factors, airlines in India have been reporting losses for several years. In the financial year 2022-23, the combined losses of the top five airlines were ₹70,000 crore (US$9.3 billion). In addition to the factors mentioned above, the financial health of airlines in India is also affected by a number of other factors, including:

- **Economic environment**: The financial health of airlines is closely linked to the overall economic environment. When the economy is doing well, people have more disposable income and are more likely to travel by air. However, when the economy is doing poorly, people tend to cut back on discretionary spending, including air travel.

- **Government policies**: Government policies can have a significant impact on the financial health of airlines. For example, government taxes and regulations can add to the cost of doing business for airlines. Government subsidies can help to offset some of these costs.
- **New technologies**: Emerging technologies can disrupt the aviation industry and impact the financial health of airlines. For example, the rise of low-cost carriers has put pressure on traditional airlines. The development of self-driving cars could potentially reduce the demand for air travel.
- **Age of the aircraft**: Older aircrafts tend to be less fuel-efficient and more expensive to maintain. This can put a strain on the finances of airlines.
- **Operational efficiency**: Airlines that are able to operate their flights efficiently will be able to reduce their costs and improve their profitability.
- **Management team**: A good management team can make a significant difference in the financial health of an airline. A team that is able to make sound decisions and manage risk effectively will be more likely to achieve long-term success.

There are a number of financial distress prediction models that have been developed for airlines. These models use different factors to predict the likelihood of financial distress in an airline. Some of the most commonly used factors include:

- **Operating cash flow**: Operating cash flow is a measure of the cash that an airline generates from its operations. A negative operating cash flow indicates that an airline is not generating enough cash from its operations to cover its expenses.
- **Debt-to-equity ratio**: The debt-to-equity ratio is a measure of the amount of debt that an airline has relative to its equity. A high debt-to-equity ratio indicates that an airline is highly leveraged and may be at risk of financial distress.
- **Interest coverage ratio:** The interest coverage ratio is a measure of the ability of an airline to cover its interest payments. A low interest coverage ratio indicates that an airline may have difficulty meeting its interest payments, which could lead to financial distress.
- **Return on assets:** Return on assets is a measure of the profitability of an airline. A low return on assets indicates that an airline may not be generating enough revenue to cover its costs.
- **Asset turnover**: Asset turnover is a measure of how efficiently an airline is using its assets. A low asset turnover indicates that an airline may not be using its assets effectively, which could lead to financial distress.

Liquid Asset (Cash Flow) Theory explained financial distress within the framework of a cash flow. This theory is based on the concept that net cash flows relative to current liabilities should be the primary standard to be used to describe a company's financial distress condition. Firms that have positive cash flows can increase their capital and borrow from the capital market, whereas firms which have negative or inadequate cash inflow are unable to borrow from the capital market. Therefore, they face the risk of default.

According to this theory, a firm is anticipated to go bankrupt whenever the current year's profit or net cash flow is negative or less than the level of debt obligations or whenever the sum of its current year profit and the expected value of equity (without current income) is negative (less than zero) (Scott, 1981). This situation is called technical insolvency. Technical insolvency exists when a firm cannot meet its current financial obligations, signifying a lack of liquidity (Altman & Hotchkiss, 2006).

The financial health of airlines in India is a dynamic issue that is constantly changing. The factors that impact the financial health of airlines can vary depending on the specific circumstances of the airline and the broader economic environment. It is important for airlines to be aware of these factors and to take steps to mitigate their impact.

4. Methodology and Data Collection

In order to achieve the company's main objectives to maximize the wealth of its owners, the company's financial performance must be excellent. Research began with a heavy literature review to compile the list of factors impacting the financial performance of companies.

In this study, variables used for the survey have been selected from operational, performance, economic, financial, market, govt./political/regulatory and external environmental conditions which impact the financial condition of the Indian carriers. These variables have been short-listed based on prior studies, industry expert opinions, and their ability to be a strong indicator of financial distress in the airlines.

Table 2: Variables Studied for Identification of Factors impacting Financial Performance of Indian carriers

Operational	**Performance**	**Finance**
On-Time Performance	Passenger Yield	Working Capital/Total Assets
Cancellation Rate	Revenue Passenger Kilometres (RPK)	Current Assets/Current Liabilities
Aircraft Equipment Type	Available Seat Kilometres (ASK)	Total Liabilities/Total Assets
Passenger Load Factor	Revenue per ASK (RASK)	Book Value of Equity/Total Liabilities
Average Seat Capacity	Cost per ASK (CASK)	Retained Earnings/Total Assets
Number of Employees per Aircraft	Revenue Tonne Kilometres (RTK)	Operation Profit (EBIT)/Total Assets
Average Fleet Age	Cost per ASK ex Fuel	Total Sales/Total Assets
Aircraft Utilization		Operating Revenues/Total Assets
Irregularity Ratio		Cash to Cash Cycle
International Operations		Cost/Employee
		Revenue/Employee
Economic	**Market**	**Govt./Political/Regulatory/Safety**
Gross Domestic Product	Number of Competitors	Bilateral Agreements
ATF Price	Market Share	Aviation Policies
Corporate Tax Rate	Industry Growth Rate	FDI %
Aviation Fuel Tax % per Litre	Passenger Traffic Growth Rate	Tourism Policies
Inflation	Mergers & Acquisition	Political Influence
Foreign Exchange Rate	Alternate Source of Transport	Aviation Infrastructure Investments
		Pandemic
		Safety Disruptions

A Questionnaire was piloted among the experts from the Airlines Industry and Academicians in order to test its effectiveness. Additionally, factors specific to Airlines Industry were considered through this pilot study. The outcome of pilot study was considered as final outcome for the questionnaire survey. The questionnaire survey was carried out on various stakeholders to assess their perception on significant factors impacting financial performance of Airlines. The pilot study and questionnaire collection were done physically, but emails and phones were also used as alternate methods for capturing data. Typically, closed

questions were asked to get firm responses and the five-point ordinal scale (Likert 5 Point Scale) was used for the questionnaire survey, where 1 = strongly disagreed, 2 = disagreed, 3 = neutral, 4 = agreed, and 5 = strongly agreed. The reliability of the study was checked with Cronbach's alpha to assess the internal consistency.

5. Survey Results & Data Analysis

Significant Factors impacting financial performance of Indian Carriers was identified by using factor analysis based on the opinion of the various stakeholders. The statistical tool Exploratory factor analysis (EFA) and further a part of it, Principle Component Analysis (PCA) was conducted to reduce the attributes into the significant factors. PCA was conducted to help in a simpler way to investigate a large number of relationships between these variables. Confirmatory factor analysis was carried out to quantitatively evaluate the quality of the factor structure and provide additional evidence of the validity of the new measure.

Based on the opinion of the various stakeholders, Significant Factors impacting financial performance of Indian Carriers were identified by using the statistical tool Exploratory factor analysis (EFA) was conducted to reduce the attributes into the significant factors. This study used the Kaiser-Meyer Olkin (KMO) and Bartlett's test of sphericity to examine the appropriateness of factor analysis. In this case, the KMO and Bartlett's test result met the standards (KMO>0.5, Significance level <0.05) and indicated that the sample adequacy and factor analysis is valid (Field, 2013) as shown in Table 3 below.

Table 3: KMO and Bartlett's Test

		Operational	Performance	Economic	Finance	Market	Govt./ Political/ Regulatory/Safety
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.743	.763	.709	.815	.685	.771
Bartlett's Test of Sphericity	Approx. Chi-Square	252.716	316.951	128.874	1165.421	160.784	261.172
	Df	45	21	10	55	15	28
	Sig.	<.001	<.001	<.001	<.001	<.001	<.001

Kline (1996) Mentioned that factor loading is the correlations of the variables with the factor. The factors and variables with higher factor loading are considered critical. (Guadagnoli & Velicer, 1998) found that if a factor has four or more loadings greater than 0.6 then it is reliable regardless of sample size; factors with 10 or more loadings greater than 0.40 are reliable if the sample size is greater than 150, and factors with a few low loadings should not be interpreted unless the sample size is 300 or more. In the present study, we meet the conditions as we sample size more than 300 and loadings greater than 0.4. To determine the

number of factors, both the associated eigenvalues and the variance percentage were used. The factors with eigenvalues greater than 1 were extracted in both the cases and account for nearly 60% of the total variance.

Post factor rotation, the majority of variables loaded to one factor and several factors need explanation minimizes (Kline, 1996). The available methods for factor rotations are of two types: Orthogonal (Varimax, Quartimax, and Equamax) and Oblique Rotation (Direct Oblimin and Promax).

In Orthogonal Rotation, varimax is the most preferred method as it simplifies the interpretation of factors. In this method, the factors are uncorrelated. On the other hand, in Oblique Rotation methods are complex as it allows correlation between the factors. In this, Direct Oblimin is the most preferred one (Field, 2013). In this study, the oblique rotation results demonstrated a negligible correlation among the extracted factors, thus orthogonal rotation (varimax) was chosen.

The result showed that 6 variables out of 10 operational variables were considered in 2 factors, 5 variables out of 7 performance variables were considered in 1 factor, 5 variables out of 6 economic variables were considered in 1 factor, 9 variables out of 11 financial variables were considered in 2 factors, 4 variables out of 6 market variables were considered in 1 factor and 6 variables out of 8 govt./political/regulatory/safety variables were considered in 2 factors as shown in Table 4.

The thirteen variables which were not included are *Aircraft Equipment Type, Average Seat Capacity, Irregularity Ratio, International Operations* in Operations factor, *Passenger Yield* and *Available Seat Kilometers* (ASK) in Performance factor, *Gross Domestic Product* in Economic factor, *Retained Earnings/Total Assets* and *Cash to Cash Cycle* in Financial factor, *Number of Competitors* and *Industry Growth Rate* in Market factor, *Tourism Policies* and *Safety Disruptions* in Govt./Political/Regulatory/Safety factor.

Reliability is the ability of a measure to produce consistent results in different conditions. It is important to quantify the data reliability to understand the relationship between different data items (Ghosh & Jintanapakanont, 2004). Cronbach alpha (α) is the most common measure of scale reliability. In this study, factor reliability was measured by calculating Cronbach alpha for all the factors (Table 4).

Table 4: Significant factors impacting Financial Performance of Indian Carriers

Factors	Factor Interpretation	Variables	Factor Loading	Cronbach Alpha
Operational	Operational Efficiency	On-Time Performance	.779	.641
		Cancellation Rate	.718	
		Passenger Load Factor	.664	
		Average Fleet Age	.506	
	Resource Utilization	No. of Employees / Aircraft	.830	.542
		Aircraft Utilization	.812	
Performance	Profitability	Revenue per ASK (RASK)	.768	.649
		Cost per ASK ex fuel	.767	

		Cost per ASK (CASK)	.679	
		Revenue Passenger Kilometers (RPK)	.618	
		Revenue Tonne Kilometers (RTK)	.566	
Economic	Income Potential	ATF Price	.843	.550
		Corporate Tax Rate	.768	
		Foreign Exchange Rate	.699	
		Inflation	.697	
		Aviation Fuel Tax % per Litre	.644	
Financial	Revenue Growth	Operation Profit (EBIT)/Total Assets (ROA)	.822	.578
		Operating Revenues/Total Assets	.718	
		Working Capital/Total Assets	.714	
		Revenue/Employee	.627	
		Total Sales/Total Assets (ATR)	.625	
	Liability Payback	Book Value of Equity / Total Liabilities	.856	.538
		Cost/Employee	.824	
		Total Liabilities/Total Assets	.658	
		Current Assets/Current Liabilities (WCR)	.587	
Market	Market Competition	Market Share	.834	.586
		Alternate Source of Transport	.748	
		Passenger Traffic Growth	.536	
		Mergers & Acquisition	.509	
Govt. / Political / Regulatory / Safety	Regulatory & Safety	Pandemic	.776	.504
		Bilateral Agreements	.772	
		FDI%	.752	
	Government & Political	Political Influence	.942	.541
		Aviation Policies	.771	
		Aviation Infrastructure Investments	.644	

The values of Cronbach Alpha have been reported in Table 4 that ranges from 0.538 to 0.649. The available literature is suggesting the different acceptable value of Cronbach Alpha that depends on the nature of the study conducted by the researcher. (Kline, 1999) mentioned that the accepted value of 0.8 is suitable for cognitive tests such as intelligence tests, for ability tests a cut-off point of 0.7 is more appropriate. (Nunnally, 1978) suggested that in the early stages of research values as low as 0.5 suffice. Moreover, the high value of Cronbach alpha indicates a high degree of correlation among the variables and it may because of the inclusion of redundant questions in the questionnaire. (Field, 2013) revealed that it is possible to get a large value of Cronbach alpha by increasing the items on the non-reliable scale. Given this study has limited variables and low interrelatedness among the survey questions, low Cronbach alpha is acceptable for factor analysis (Tavakol & Dennick, 2011).

Content validity is considered as a prerequisite to criteria validity or indicates the degree to which an assessment tool is relevant to the targeted construct (Rusticus, 2014). The three key features of content validity are domain definition, representation and relevance (Sireci, 1998). It can be subjectively evaluated

by the researcher (Yusof SM, 2000). In this study, the survey questionnaire was based on an extensive literature review and subject matter experts' opinions.

On the other hand, construct validity indicates the extent to which questionnaires test the hypothesis. To test the validity of the questionnaire, Pearson Product Moment Correlations were calculated using SPSS. The coefficients of correlation between questions and variables outcome range from 0.31 to 0.56 (all $p < 0.05$) confirm the validity of the questionnaire (Baer et al., 2008)

6. Discussion & Summary of Findings

6.1 Interpretation of Significant Factors Identified

- Factor 1 - Operational Efficiency

The Cronbach Alpha for the factor was 0.641. Four variables represented the significant loading of this factor and include On-Time Performance, Cancellation Rate, Passenger Load Factor and Average Fleet Age. Among all the variables, the On-Time Performance has the highest loading factor (0.78) followed by Cancellation Rate (0.72). The ranking confirms the finding as stakeholders consider On-Time Performance (OTP) and Cancellation Rate as significant factors for operational efficiency. The customers expect airlines to maintain high OTP and ensure a minimum number of flight cancellations. Lower OTP may impact your market share and revenues. While higher cancellations may lead to financial impact due to penalties and refunds being provided to customers and revenue loss. Moreover, airlines operating with a smaller base of schedule flights will have a larger dent in financials due to low OTP % and higher number of cancellations.

- Factor 2 – Resource Utilization

The Cronbach Alpha for the factor was 0.542. Two variables represented the significant loading of this factor and include Number of Employees per Aircraft and Aircraft Utilization. Between the two variables, the Number of Employees per Aircraft has the highest loading factor (0.83) followed by Aircraft Utilization (0.0.81). Higher number of employees per aircraft reduces your profitability and lower utilization of aircrafts lead to loss of potential revenue and market share.

- Factor 3 – Profitability

The Cronbach Alpha for the factor was 0.649. Five variables represented the significant loading of this factor and include Revenue per ASK (RASK), Cost per ASK ex fuel, Cost per ASK (CASK), Revenue Passenger Kilometers (RPK) and Revenue Tonne Kilometers (RTK). Among all the variables, the Revenue per ASK (RASK) has the highest loading factor (0.77) followed by Cost per ASK ex fuel (0.76). Both the top two factors are significant contributors to airline profitability. Notably, Revenue Tonne Kilometers (RTK) ranks lowest among the five variables considering cargo revenue is generated from belly cargo for Indian carriers and heavily dependent on belly capacity available after loading passenger baggage.

- Factor 4 - Income Potential

The Cronbach Alpha for the factor was 0.550. Five variables represented the significant loading of this factor and include ATF Price, Corporate Tax Rate, Foreign Exchange Rate, Inflation and Aviation Fuel Tax % per Litre. Among all the variables, the ATF (Fuel) has the highest loading factor (0.84) followed by

Corporate Tax Rate (0.77). The ranking confirms the finding as stakeholders consider ATF as the significant economic factor. Fuel is one of the highest costs for airlines, accounting for 20-40% of expenditure depending on price and region. Any hike in the fuel prices impacts operating cost of the airlines and at times airlines need to absorb that additional cost to compete with other carriers in the market. Corporate Tax Rate is another significant factor impacting EBIT for airlines and any tax rebate always positively impacts the net profitability.

- Factor 5 – Revenue Growth

The Cronbach Alpha for the factor was 0.578. Five variables represented the significant loading of this factor and include Operation Profit (EBIT)/Total Assets (ROA), Operating Revenues/Total Assets, Working Capital/Total Assets, Revenue/Employee and Total Sales/Total Assets (ATR). Among all the variables, Operation Profit (EBIT)/Total Assets (ROA) has the highest loading factor (0.82) followed by Operating Revenues/Total Assets (0.72). Return on Assets has the highest ranking and directs reflects revenue growth for an airline to run sustainable business in long run. An ROA that rises over time indicates the company is doing a good job of increasing its profits with each investment dollar it spends. A falling ROA indicates the company might have over-invested in assets that have failed to produce revenue growth, a sign the company may be trouble.

- Factor 6 – Liability Payback

The Cronbach Alpha for the factor was 0.538. Four variables represented the significant loading of this factor and include Book Value of Equity/Total Liabilities, Cost/Employee, Total Liabilities/Total Assets and Current Assets/Current Liabilities (WCR). Among all the variables, the Book Value of Equity/Total Liabilities has the highest loading factor (0.86) followed by Cost/Employee (0.82). This clearly indicates that payback capacity for your liabilities has a major impact on financial stability of a carrier.

- Factor 7 - Market Competition

The Cronbach Alpha for the factor was 0.586. Four variables represented the significant loading of this factor and include Market Share, Alternate Source of Transport, Passenger Traffic Growth and Mergers & Acquisition. Among all the variables, the Market Share has the highest loading factor (0.83) followed by Alternate Source of Transport (0.75). Market share impacts your profitability and can wipe off your competition on certain major markets/routes and availability of cheaper alternate source of transport can reduce the load factor significantly leading to consistent operational losses.

- Factor 8 - Regulatory & Safety

The Cronbach Alpha for the factor was 0.504. Three variables represented the significant loading of this factor and include Pandemic, Bilateral Agreements and FDI%. Among all the variables, the Pandemic has the highest loading factor (0.69) followed by Bilateral Agreements (0.77). Notably, Pandemic has the top ranking and Covid-19 pandemic has been the single factor which has driven more than 40 airlines to bankruptcy leading to safety concerns while flying. The pandemic affected the operational profitability and agility of airlines to change amid unpredictable markets and eventually led to grounding of aircrafts. Additionally, having higher bilateral agreements helps airlines to add new international routes and drive profitability.

- Factor 9 - Government & Political

The Cronbach Alpha for the factor was 0.541. Three variables represented the significant loading of this factor and include Political Influence, Aviation Policies and Aviation Infrastructure Investments. Among all the variables, the Political Influence has the highest loading factor (0.94) followed by Aviation Policies (0.77). In India, Political Influence has a significant importance in terms of policies and impacting growth of airlines. With change in political powers, significant policy changes are witnessed and thus justifying the ranking.

7. Conclusion

The financial health of airlines in India is expected to improve in the coming years, due to a number of factors, including:

- Increased passenger traffic: The Indian aviation market is growing rapidly, and this is expected to lead to increased passenger traffic. In 2022, passenger traffic in India grew by 19%. This growth in passenger traffic is expected to continue in the coming years.
- Improved operational efficiency: Airlines are working to improve their operational efficiency, which will help to reduce costs. For example, IndiGo has been able to reduce its fuel burn by 10% in recent years.
- New government policies: The government has announced a number of policies aimed at boosting the aviation sector, such as a reduction in taxes and a waiver of airport charges for new airlines. These policies will help to reduce the cost of air travel and make it more affordable for passengers.

Despite these positive factors, the financial health of airlines in India remains fragile. The industry is still heavily indebted, and it is not clear how long the current improvement in profitability will last. It is also worth noting that the government's relief package is only temporary, and airlines will eventually have to start repaying their debts.

In conclusion, this paper has undertaken a comprehensive analysis of the significant factors that exert a profound influence on the financial health of commercial carriers in India. The findings from this study shed light on the multifaceted nature of challenges faced by these carriers and provide valuable insights for industry stakeholders, policymakers, and researchers.

Throughout the paper, we explored the intricate interplay of various factors, ranging from economic trends, performance KPIs, government and regulatory frameworks, financial and operational efficiency to market and environmental concerns. The empirical evidence presented in this study underscores the critical importance of a holistic approach in assessing and enhancing the financial health of commercial carriers.

Our analysis has highlighted the dynamic nature of the commercial carrier industry in India, which is subject to both internal and external forces that impact its financial stability. It is evident that financial health goes beyond the realm of mere profit and loss; it encompasses the sustainability, growth potential, and resilience of carriers in a dynamic and evolving market. The insights presented in this paper shed light on the areas where carriers need to focus their efforts and resources in order to navigate challenges, capitalize on opportunities, and thrive in a competitive environment.

In the pursuit of a stronger financial foundation, it is imperative that carriers forge partnerships, embrace technological advancements, streamline operations, and maintain a keen awareness of the broader economic and regulatory landscape. By doing so, they can position themselves not only as robust business entities but also as critical pillars of the nation's economic growth and connectivity.

It is our hope that this comprehensive analysis serves as a valuable resource for decision-makers and stakeholders within the commercial carrier industry, enabling them to make informed choices that contribute to the sector's overall stability and growth. In summary, this paper has aimed to provide a comprehensive and insightful analysis of the significant factors impacting the financial health of commercial carriers in India. It is hoped that the knowledge and perspectives presented here will spark further dialogue, research, and action toward fostering a thriving, sustainable, and financially sound commercial carrier industry in the country.

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