Transportation Research Part A 117 (2018) 87–102

Contents lists available at ScienceDirect

Transportation Research Part A

journal homepage: www.elsevier.com/locate/tra

An analysis of key factors of financial distress in airline companies in India using fuzzy AHP framework

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ARTICLE INFO

Keywords:
Ratio analysis
Financial distress
Airlines
Fuzzy AHP
India

ABSTRACT

The aviation industry in India is on a growth path with annual passenger traffic growing at over fifteen percent. The government has backed this growth through the extensive development of airport infrastructure across the country. However, airline companies in India, periodically face financial distress as the internal and external environmental factors change dynamically. Company management, acting as the agent for all the stakeholders, needs to ensure that the distress condition does not develop into a bankruptcy situation. It needs to identify all those factors, which have a major impact on the financial condition of the company and monitor them continuously using various tools and techniques. These identified key factors could be from both the internal conditions of the company and from the external environment that the industry operates. By identifying these influencing factors early, management can take preventive measures before the distress condition becomes critical. Informed decisions can be taken when the value of these key parameters change over time. To identify and rank these key factors in terms of relative importance, this paper adopts a multi-criteria decision making (MCDM) approach based on the technique of fuzzy Analytical Hierarchy Processing (AHP). Robustness of the method is further tested through sensitivity analysis. The study finds that financial factors are the most critical and categorized as a major influence on the commercial stability of the airlines. Among these, operating revenue per air kilometer is the key variable for this sector. Operational factors, which are an indicator of the capacity and cost structure of the company, are ranked next, with the load factor taking the highest rank in this category. From the external environment aviation, fuel price per liter is ranked highest among all the factors and has a major impact on the profitability of the airline in India. Results also show that annual inflation and GDP growth rate in the country has a major influence on the sustainability of the airlines in India.

1. Introduction

India's civil aviation industry has been growing steadily and the average domestic traffic growth rate has been on the rise since the liberalization of the sector in 2004. The growth of passengers has doubled in the past six years and expected to touch 100 million in 2017–18 compared to 51 million in 2011 (CAPA-Centre for Aviation in India Report, 2016). Studies by global agencies (CAPA) have predicted that the Indian aviation market will be ranked third in the world by 2020 and the largest in the world by 2030.

In India, this industry operates in a very competitive scenario where rates are often reduced to attract customers and to fill seats. In order to hedge against reduced revenues, companies explore various methods to optimize their operations and maintain profit

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https://doi.org/10.1016/j.tra.2018.08.016
Received 5 May 2018; Accepted 13 August 2018

margins. In this competitive landscape, many of the companies periodically face financial distress, which often ends in bankruptcies.

Several cases of airline companies in India which faced financial distress have been reported. Air Asia, a relatively new airline in India, faced a cash crunch in 2016 and was forced to put its expansion plans on hold. (Livemint 4th Jan 2016). Spicejet, a low-cost airline, reported huge accumulated losses in the financial year 2014 and was forced to cancel over 2000 flights by the end of the same year (Economic Time Jan 4, 2014). The company had to be bailed out with additional funding from its promoters. Similar financial distress situations have led to several bankruptcies over the past ten years. Air Carnival, which focused on routes mainly in Southern part of India, stopped operating in April 2017. Air Costa, another regional airline, closed operations in March 2017, because of financial difficulties. Air Pegasus went bankrupt in 2017 after operating for two years and Kingfisher Airlines, a major airline, was forced to stop operations in October 2012 when it was unable to pay its loans and liabilities.

These examples show the severity of the financial condition prevailing in this sector in India, with a common feature being huge losses and bankruptcies. Shareholders, investors, and management often become aware of the distressed situation when it is too late to revive the company. Investors are often left with limited options and have to intervene with a financial bailout to prevent bankruptcy. Management of these companies becomes aware of the seriousness of the financial issues at a later stage when little can be done to correct it. They are often unaware of the critical factors to focus on and ignore the warning signs.

If management focuses on the key factors, which influence the financial condition in the airlines, they could monitor them periodically and put an alert mechanism in place. These key factors can be used in various tools such as ratio analysis or distress prediction models for tracking and better decision making.

Financial ratio analysis is a tool to reveal the impact of various aspects of the company‘s financial decisions. This analysis is based on accounting transactions recorded in the books of the company and is entirely internally focused. The analysis consists of comparing the existing ratio with a benchmark ratio and take decisions on the variance.

Financial distress prediction models available globally and based only on financial ratios are frequently used to monitor the financial condition of the company. Studies in India have used these generic distress prediction models and applied them to companies from the textile, cement, pharmaceutical and other industries (Gururaj and Sadanand, 2014; Vimala and Saranya, 2014; Bapat and Nagale, 2014).

However, such generic models, based on financial data alone, are unable to predict accurately as they do not consider industry and country-specific conditions, which are often unique to that environment.

Global studies have now found that models based on industry and country-specific factors and using a combination of ratios from the external and internal environment provide higher accuracy in the prediction of financial distress. Such industry-specific models have been designed for the aviation sector using specific factors (Chow et al., 1991; Pilarski and Dinh, 1999; Gudmundsson, 2002; Silva et al., 2005).

The major decision for management is, therefore, to correctly identify the key country and industry-specific factors, which have a large influence on the financial condition.

This paper focuses on the identification, selection, and ranking of these key variables, which are major influencers of the financial condition of airlines in India.

Prior studies on the ranking or selection of key factors have either used the personal judgment of the authors or selected the factors from previous literature.

This paper adopts the MCDM (multi-criteria decision making) technique to rank the factors in terms of their impact on the financials of the airlines. The study focuses on thirty-eight variables from the internal and external environment and through the Analytical Hierarchy Process (AHP), identifies the key factors, which are major influencers of the financial condition.

Research motives

- To identify the major factors from the internal and external environment which influence the financial condition of an airline in India.
- To identify rank and prioritize these variables using a technique or methodology.
- To provide managerial and practical insights on these factors.

To identify major factors in this sector a detailed evaluation was made of all airlines, which operated in the past and are currently operational in India. Based on responses received from industry experts a list of all the influencing factors was prepared, a modeling approach built on fuzzy Analytical Hierarchy Process (AHP) process was adopted to rank and prioritize the factors. AHP is a multi-criteria decision making (MCDM) method, which provides a technique to determine the relative position, or ranking of the major factor and subfactor, through pairwise comparison considering both qualitative and quantitative attributes. Standalone AHP is unable to provide an understanding of linguistic variables rated on a Likert scale. Fuzzy AHP allows uncertainty and fuzziness in decision-making and is suitable for many real-world applications.

This paper is organized as follows: Section 2 reviews the literature on the identification and ranking of factors influencing the financial condition in airlines companies. Section 3 details the research methodology and the AHP approach. Discussion of the results is highlighted in Section 4. The results of the ranking of the factors are further analyzed using sensitivity analysis in Section 5. The conclusions and future research suggestions are summarized in Sections 6 and 7.

2. Literature review

Financial distress is a condition, which occurs frequently in many companies. Management needs to be alert when such a