

Passenger Load Factor and Financial Health - A Study of Select Airline Companies

Dr.Syed Khaja Safiuddin

Assistant Professor (Selection Grade)

Department of Management Studies

Maulana Azad National Urdu University, Hyderabad

Abstract:

The last decade is vulnerable for the civil aviation business in India which has seen considerable changes in operations due to economic downturns and high fuel prices. These changes also caused air carriers in India to incur significant losses especially in civil aviation sector. The present condition is exposed to high risk and the industry is in distress Condition as revealed by various reports and media sources. This sector is experiencing bad conditions to huge changes in Economic Environment, downturns and Market Variation. Passenger load factor is an important parameter for the assessment of the performance of any transport industry (Airlines Industry). It is considered as an performance indicator directly linked to the financial performance, financial health and profitability of transportation companies. Almost all airlines companies have high fixed costs, and these costs can only be recovered through selling tickets. In this context, they often calculate a load factor at which the airline will break even; this is called the break-even load factor. In light of the above, an attempt is made to calculate the passenger load factor, financial health of the companies using appropriate model for selected civil aviation companies in India. This study is carried out for a period of ten years i.e from 2007-2016.

Keywords: Civil Aviation Business, Passenger Load Factor, Financial Health and Appropriate Model.

Introduction

The airline business in India is characterized by unsteady growth which include the volatility in jet fuel prices and increase in labour cost. Both financial and financial parameters collectively give an appropriate picture of the happenings in the company at basic level and industry at large. As far as Airline industry is considered, passenger load factor is also a crucial factor that provide a bench mark and shows whether the particular airline is in profit or not. Altman Z-score model is used to predict the insolvency of the firms and the impact of passenger load factor on Z-Score is assessed. The calculation and analysis of Altman's Z-score is conducted for selected Indian carriers.

Indian Aviation Sector and Present passenger traffic Scenario

“The civil aviation market in India is all set to become the world's third largest by 2020. Total passenger traffic stood at a 190.1 million in FY15, registering an increase of 12.47 per cent. By 2020, passenger traffic at Indian airports is expected to increase to 421 million from 190.1 million in 2015. Domestic passenger traffic expanded at a compound annual growth rate (CAGR) of 11.8 per cent over FY06–15. The Airports Authority of India (AAI) aims to bring around 250 airports under operation across the country by 2020. Passengers carried by domestic airlines during January-October 2016 were 813.70 lakh as against 660.60 lakh during the corresponding period of previous year thereby registering a growth of 23.18 percent”.¹

Insolvency Prediction of Companies: The insolvency prediction of companies is calculated using Altman’s Z –Score Model.

Altman’s Z-score that puts together five financial ratios (Four for service industry) generated using the following formula for publicly traded service sector firms².

$$\text{Z-score} = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5 \text{ (original Z-Score Model)}$$

$$\text{Z-score} = 3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4 \text{ (New Z-Score Model)}$$

Where

X_1 = Working capital/total assets

X_2 = Retained earnings/total assets

X_3 = EBIT/total assets

X_4 = Equity /total liabilities

X_5 = Sales/ Total Assets

Occupancy Ratio or Passenger load factor: “Passenger load factor is also called occupancy ratio which measures the capacity utilization of transport services used for public like civil aviation, railways carrying passengers, and intercity bus services. It is generally used to assess how efficiently a transport provider fills seats and generates fare revenue. According to the International Air Transport Association, the

¹ www.ibef.org/industry/indian-aviation.aspx

² Altman, E. I., & Hotchkiss, E. (2006). Corporate Financial Distress and Bankruptcy: Predict and Avoid Bankruptcy, Analyze and Invest in Distressed Debt.

³ https://en.wikipedia.org/wiki/Passenger_load_factor

worldwide load factor or occupancy ratio for the passenger aviation industry during 2015 was 79.7% according to sources”.³

Passenger load factor is an important parameter for the assessment of the performance of any transport system. Almost all transport systems have high fixed costs, and these costs can only be recovered through selling tickets. Airlines often calculate a load factor at which the airline will break even; this is called the break-even load factor. At a load factor lower than the break even level, the airline will lose money, and above will record a profit.

Review of Literature

Safiuddin S.K (2018) studied the financial health of select Indian Aviation Companies. Out of the four companies selected, it was found that two companies are the potential candidate of bankruptcy despite of many measures.

Monique Timmermans (2014) studied U.S. Corporate Bankruptcy Predicting models to see how accurate are the bankruptcy predicting models of Altman(1968), Ohlson(1980) and Zmijewski(1984) after recalibration, when they are applied to U.S. listed firms in the period after the BACPA change in bankruptcy law? The predictive power of all three models is low, but for Altman(1964) and Ohlson(1980) bankruptcies are overpredicted, as was expected. For the model of Zmijewski(1984), the amount of non-bankruptcies was overpredicted, which is contrary to what was expected.

Ummed & Omvir (2012) in their study Distress Prediction Model-Model for predicting Bankruptcy in Aviation Industry found that of the three firms having Z-Score less than 2.60, two have been declared bankrupt. The lending institution has recalled term loan from one firm. Only one firm is financially stable.

Campbell (2008) proposed a reduced form of econometric model using both accounting and market data to predict corporate bankruptcies and failures and revealed that their model is more accurate than other alternatives. A more accurate reduced form model of them confirms the negative association between distress risk and equity returns too.

Boritz et al. (2007) in their studied bankruptcy in Canadian firms and found that predictive accuracy of Altman's and Ohlson's original models are higher than

re-estimated models. They also compared the accuracy of models developed for Canadian firms, namely Springate (1978), Altman and Levallee (1980), and Legault and Veronneau (1986). This work concludes that the Canadian models are being simpler and requiring less data. All models have stronger prediction related to performance of the original coefficients than the re-estimated coefficients.

Sun and Feng Hui (2006) worked on bankruptcy prediction and revealed that bankruptcy not only results in huge individual loss to interested parties such as stockholders, creditors, managers, employees, etc but also too much bankruptcy will greatly shock the whole country's economic development.

Altman (1968) was the first one to use multivariate statistical modeling in his "Z-score model" to find combinations of financial ratios that can indicate bankruptcy risk. The ratios included in Altman's model were considering Return on Assets ratio and leverage ratio.

Most of the studies on bankruptcy, insolvency and financial health of companies in the services sector, Airlines industry is prone to insolvency and bankruptcy prediction on a considerably larger scale. To find the real problems associated with the financial health, most of the studies are found not considering the passenger load factor which is assumed to be a key factor for good or bad financial health. This study is an attempt to compare the passenger load factor and the insolvency prediction of companies and try to develop relation between the two.

Recent past also, Indian aviation has seen one of the vulnerable sector where companies are going bankrupt whether Kingfisher airlines or any other airlines. Moreover Indian aviation sector has been in trouble in recent times because of financial distress and it is common for both private as well as government owned Air India.

Objective of the Study

The objectives of the study are

1. To Predict the Insolvency Prediction of Select Aviation Companies in India.
2. To know the passenger load factor of Select Aviation Companies in India.

Research Methodology

The research places an emphasis on analyzing the financial health and to know the occupancy ratio of select Indian companies in the Aviation Industry.

The selection of the companies is based upon market capitalization. The top four private civil airline companies of India have been selected for the study.

Techniques of Data Analysis

The tools which has been used for assessing the passenger load factor is the occupancy ratio which shows the passengers travelled as compared to the plane capacity. Altman's Z-score that puts together five financial ratios (Four for service industry) generated using the following formula for publicly traded service sector firms³.

Scope of the study

Scope of the study is confined to calculating Occupancy ratio of Select Aviation Companies in India and to predict the financial health of these companies using Z-Score model. The study was carried out for a period of 10 years from 2007 to 2016.

Limitations of the study

Top players in the sector have been considered for the study based on market capitalization. The study is limited for a period of ten years and for some of the companies the data was not available for all the ten years.

Occupancy Ratio/ Passenger Load Factor of Select Indian Aviation Companies:

The passenger load factor as calculated (refer table:01) reveals that the occupancy ratio of all the selected companies is between 65% to 85% . In case of Indigo airlines, this factor ranges 69.61% in the year 2009 to 84.12% in the year 2011. Except of the year 2008, this factor is above 70% and in five years during the period of study, it is more than 80%. In case of Jet Airways, this ratio ranges from 67.72% in the year 2009 to 82.41% in the year 2016. For the years 2007, 2008 and 2009, these ratios ratios are 69.53%, 69.21% and 67.72% respectively. For the years 2010 to 2016, these ratios ranges from 77.42% to 82.41%. The ratio is highest in the year 2016. This factor for Go Airlines ranges from 68.78% in the year 2008 to 83.68% in 2016. The occupancy ratio for 07 years out of 10 years of the study is above 70%. In case of Spicejet, the occupancy ratio ranges from 66.89% in the year 2009 to 90.90% in the year 2016. for the year 2009, there was considerable decline in the occupancy ratio irrespective of the Airlines companies. This decline in the occupancy ratio ranges

³ Altman, E. I., & Hotchkiss, E. (2006). Corporate Financial Distress and Bankruptcy: Predict and Avoid Bankruptcy, Analyze and Invest in Distressed Debt.

from 2% to 9%. The highest decline was witnessed by Go Airline which was around 9% followed by Spicejet, Indigo and Jet Airways which was around 6%, 3% and 2% respectively. All the four companies selected for the study have a very good occupancy ratio over the years. During the year 2016, spice jet has the maximum occupancy ratio followed by Jet Airways, Indigo and Go Air. (table:01)

Table: 01

Occupancy Ratio or Passenger Load Ratio of Select Indian Civil Aviation Companies

Year	Indigo	Jet Airways	Go Airlines	Spicejet Ltd
2007	-	69.53	-	-
2008	72.67	69.21	77.18	73.04
2009	69.61	67.72	68.78	66.89
2010	80.01	77.42	78.19	77.95
2011	85.12	78.61	80.19	83.01
2012	82.29	79.32	77.29	74.96
2013	81.11	78.81	75.09	74.14
2014	77.22	78.19	74.29	72.32
2015	79.81	82.29	79.09	81.14
2016	83.0	82.41	83.68	90.90

(Source: calculated from the data collected from <http://dgca.nic.in>)

Prediction of Insolvency or Analysing the Financial Health of Select Indian Aviation Companies

The Z-score of Indigo for the year 2016 reveals that the company is in “safe zone”. The Z-Score varies from 0.32 in the year 2008 to 6.55 in the year 2016. For the years 2008, 2012 and 2015, the financial health of the company was either in gray zone or in distress zone. For the years 2009, 2010, 2011, 2013 and 2016, the z-score of the company reveals that they are in safe zone. The Z-Score of Jet Airway for the year 2016 has improved over the previous year but the score reveals that the company is still in “distress zone”. For the years 2007-2010, The Z-Score declines from 4.80 to 3.75. During the years 2011 to 2016, this score varies from 1.10 to -4.75. The jet score declines for the period of study and for most of the years the company is either in distress zone or in grey zone. The financial health of Go Airlines carried out with the

help of z-score reveals that in most of the years it is in “distress zone”. For most of the years, the score calculated revealed that the company is in distress zone. The analysis of Spice Jet Ltd made through z-score reveals that there had been a good recovery with the z-score reaching to 0.086, but for all the years of study the spice jet was in “distress zone”. For the total period of study ie from 2007 to 2016, the z-score reveals that this company is in distress zone. (Table:02)

Table:02**Financial Health (Z-Score Model) of Select Indian Aviation Companies**

Year	Indigo	Jet Airways	Go Airlines	Spicejet Ltd
2007	-	4.80	-	-0.16
2008	0.32	3.35	-	1.24
2009	6.20	3.48	-	-4.18
2010	7.84	3.75	-	-1.88
2011	7.26	1.10	-5.77	0.92
2012	4.97	-1.18	-13.46	-8.22
2013	5.78	-2.68	4.66	-1.79
2014	3.26	-5.53	1.96	-9.42
2015	5.05	-10.20	-4.11	-11.16
2016	6.55	-4.75	-4.09	0.086

(Source: calculation based upon data from www.acekp.in)

Findings**The following are the major findings from the study**

- The Z-score of Indigo for the year 2016 reveals that the company is in “safe zone” and the occupancy ratio is also very good over the years.
- The Z-Score of Jet Airway for the year 2016 has improved over the previous year but the score reveals that the company is still in “distress zone” though the occupancy ratio varies from 67% to 82%.
- The results from the analysis of Go Airlines carried out with the help of z-score reveals that in most of the years it is in “distress zone” though the occupancy ratio is good for all the years.
- The analysis of Spice Jet Ltd made through z-score reveals that there had been a good recovery with the z-score reaching to 0.086, but for all the years of study the

spice jet was in “distress zone”. Z-Score of the firm though the occupancy ratio is healthy for all the years.

Suggestions and Conclusion

The Airline companies in India are prone to financial distress because of many reasons. Aviation sector has already seen many bankruptcy filings in the world. The present study reveals that out of the selected Indian Airlines, the financial health of Indigo is very good and it is in safe zone. The Z score of other three companies reveal that these companies reveal a poor financial health and lie in the distress zone as measured through Z-score model. These companies need to take necessary corrective measures to prevent them from possible bankruptcy.

The the occupancy ratio all the four companies selected for the study are healthy for all the years but except indigo all the three companies are either in the gray zone or in the distress zone .

It is suggested that Jet Airways, Go Airlines and Spice Jet needs to enhance its earnings through expansion of the business and adopting new policies for development of the business. Several schemes may be introduced to attract customers and improve the earning ability of the firm. The pricing strategy of the airlines companies and the cost management policies should be reconsidered.

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