

DuPont Analysis of IndiGo (Inter Globe Aviation Ltd.) and SpiceJet: A Study of Domestic Airlines in India with the Help of Two-Tailed T-Test

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Abstract

The aviation industry in India is one of the fastest growing industries in our economy. In the present paper, the performance of two domestic airlines, viz. IndiGo and SpiceJet, have been analysed with the help of DuPont analysis. Four ratios related to DuPont analysis have been used for the performance evaluation—profit margin, asset turnover ratio, equity multiplier, and return on equity (ROE will show the overall impact). The study is based on secondary data drawn from the annual reports of respective companies. Data of five years, i.e. 2012-13 to 2016-17, is analysed by calculating four ratios related to DuPont analysis. The statistical tool 'two-tailed t-test' has been used for evaluating the financial performance of these two companies. Data is analysed manually without using any software. The results show that the financial performance of IndiGo is better than SpiceJet.

Keywords: Aviation Industry, DuPont Analysis, Financial Performance, IndiGo, SpiceJet

Introduction

The mobility of men and material by air is called air transport. It is the fastest means of transport and very useful for long distances; it is time saving. It is known for its high speed, strategic importance, ease of transport of expensive and light goods, free from physical barriers, and useful in natural calamities. The Indian air industry is one of the fastest growing industries in India. The aviation industry plays a significant role in the development of an economy. However, it involves high costs and huge investments. India is expected to become the world's largest domestic civil aviation market in the next 10 to

15 years. According to the International Air Transport Association (ITAI), India will displace the UK to reach third place in 2025, and by 2036, India will have nearly 478 million air passenger traffic, which will be more than that of Japan and Germany, combined.

About IndiGo

IndiGo is a low-cost domestic airline headquartered in Gurugram, Haryana, India. It was set up by Rahul Bhatia of Inter Globe Enterprises and Rakesh Gangwal, a United States-based NRI. Inter Globe holds 51.12% stake in IndiGo, and Caelum Investments, Gangwal's Virginia-based company, holds 48%. It is the largest airline in India by passengers carried and fleet size. It has 41 domestic and seven international destinations, which includes Kathmandu, Muscat, Doha, Singapore, Bangkok, Dubai, and Sharjah. To date, no deadly incidents have been recorded related to IndiGo aircraft.

About SpiceJet

SpiceJet is a low-cost domestic airline headquartered in Gurugram, Haryana, India. It was earlier known as Royal Airways. In May 2005, SpiceJet was being promoted by Ajay Singh and the Kansagra family. In March 2018, SpiceJet was awarded India's Best Domestic Airline award at the Wings India Awards for Excellence in the Aviation Sector organised by the Government of India, Ministry of Civil Aviation, and FICCI. As yet, no deadly incidents have been recorded related to SpiceJet aircraft. This airline commenced its international operations in October 2010 and now provides services to Afghanistan, Maldives, Nepal, Oman, Saudi Arabia, Sri Lanka, and the UAE.

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About DuPont Analysis

DuPont analysis is a performance measurement method started by DuPont Corporation in the 1920s. DuPont analysis breaks return on equity (ROE) into components to determine which component is most responsible for changes in ROE. There are three components of ROE, viz.

profit margin, asset turnover ratio, and equity multiplier. Thus, we can represent DuPont in mathematical form, i.e. Return on Equity = Profit Margin x Asset Turnover Ratio x Equity Multiplier. Therefore, four ratios have been selected for this research paper, and the explanation of these ratios is as follows.

Ratios	Meaning	Formula	Interpretation
Profit Margin	Profit margin or net margin is expressed as a percentage. It is the margin that remains after deducting all operating expenses, taxes, interest, and preferred stock dividends.	$\frac{\text{Net Income}}{\text{Net Sales or Revenue}}$ (as per annual reports of airline industries, the term revenue is used instead of sales)	This ratio shows how much the company earns in relation to its sales. Generally, higher the ratio, the better the earnings.
Asset Turnover Ratio	This ratio helps in determining how effectively a company uses its assets to generate revenue.	$\frac{\text{Net Sales or Revenue}}{\text{Average Total Assets}}$ (average total assets means total assets at the beginning and end of the year divided by two; total assets means current + non-current as shown in the balance sheet)	Higher the ratio, better the company's performance, which shows that the company is generating more revenue per rupee of its total assets.
Equity Multiplier	This ratio measures financial leverage. It compares average total assets to average total equity, and indicates whether the company finances its assets from debt or equity.	$\frac{\text{Average Total Assets}}{\text{Average Total Equity}}$ (shareholders equity can be expressed as the total of a company's share capital and retained earnings)	A high equity multiplier indicates that the company is using more debt than equity to finance its assets; higher the ratio, higher the financial burden on the company.
Return on Equity	ROE is the result of the above mentioned ratios. When we multiply the ratios with each other, the result we get is ROE.	Return on Equity = Profit Margin x Asset Turnover Ratio x Equity Multiplier	It measures the profitability of the concern. It shows how much profit a company generates with the shareholders' money. Higher the ratio, the better the profitability.

Objectives of the Study

The main objectives of the study are as follows.

- To analyse and compare the financial position and performance of IndiGo and SpiceJet.
- To describe the DuPont analysis of these companies with the help of ratios.
- To interpret the statistical results drawn from the research, and evaluate the usefulness of DuPont analysis in doing so.
- To suggest measures on the basis of the results to further improve the financial performance of the companies under study.

Research Methodology

In order to conduct the research, data has been taken from the annual reports of IndiGo and SpiceJet (from the

websites of the respective airlines). A time period of five financial years have been covered, i.e. 2012-13 to 2016-17. Four ratios have been taken into consideration, viz. profit margin, asset turnover ratio, equity multiplier, and return on equity (ROE will show the overall impact and it is the crux of the previous ratios). Statistical tool t-test (two-tailed-test with $\alpha = 0.05$) has been used in order to evaluate results. Data is analysed manually without using any software.

Hypothesis

For hypothesis testing, T-test is applied. Various ratios are tested under the following hypothesis.

Profit Margin

Null Hypothesis (Ho): There is no significant difference between the profit margin ratios of IndiGo and SpiceJet.

Alternative Hypothesis (Ha): There is significant difference between the profit margin ratios of IndiGo and SpiceJet.

Asset Turnover Ratio

Null Hypothesis (Ho): There is no significant difference between the asset turnover ratios of IndiGo and SpiceJet.

Alternative Hypothesis (Ha): There is significant difference between the asset turnover ratios of IndiGo and SpiceJet.

Equity Multiplier

Null Hypothesis (Ho): There is no significant difference between the equity multiplier ratios of IndiGo and SpiceJet.

Alternative Hypothesis (Ha): There is significant difference between the equity multiplier ratios of IndiGo and SpiceJet.

Return on Equity

Null Hypothesis (Ho): There is no significant difference between the return on equity ratios of IndiGo and SpiceJet.

Alternative Hypothesis (Ha): There is significant difference between the return on equity ratios of IndiGo and SpiceJet.

Analysis and Interpretation

In this section, we will analyse the different ratios of DuPont analysis and interpret the results.

Profit Margin Ratio: Earning quality mainly measures the profitability and productivity of the company, and explains the growth and sustainability of future earning capacity. Profit margin ratio shows how much a company earns in relation to its sales. Generally, higher the ratio, the better the earnings.

Table 1: Showing Profit Margin Ratio of IndiGo and SpiceJet

Companies \ Years	2012-13	2013-14	2014-15	2015-16	2016-17
IndiGo Airlines (in per cent)	8.32	2.77	9.11	11.99	8.55
SpiceJet Airlines (in per cent)	-3.32	-15.68	-12.77	8.61	6.83

Source: Annual Reports of IndiGo and SpiceJet of respective years from their websites

Table 2: Showing Two-Tailed T-Test of Profit Margin Ratio of IndiGo and SpiceJet

Companies	Ratio	Mean	Standard Deviation	Standard Error	T-Test Value	Table Value	P-Value	Accept and Reject Criteria
IndiGo Airlines	Profit Margin	8.148	3.347	1.673	-2.213 Or T 2.213	2.306	0.0578	2.213 < 2.306 Hypothesis Accepted 0.0578 ≥ 0.025 Result is not significant
SpiceJet Airlines		-3.266	11.039	5.519				

Findings: As we know, the higher the ratio, the better the earnings. In this case, the position of IndiGo is far better than SpiceJet during all the years. In the first three years, SpiceJet has incurred a loss and in the last two years, although it has earned a profit, the ratio is less compared to IndiGo. IndiGo’s profitability is good, except in the year 2013-14, i.e. just 2.77%, but it is positive. As far as the hypothesis is concerned, the result

reveals that $2.213 < 2.306$ (calculated value is less than table value) and $0.0578 \geq 0.025$ [p-value is greater than value of α (in the case of the two-tailed t-test, we will take $\alpha/2$ for calculation purpose, i.e. $0.05/2 = 0.025$)]. Therefore, the result is not significant and the hypothesis is accepted. (We are using two-tailed T-test, therefore | T | modulus defines a real number regardless of its sign).

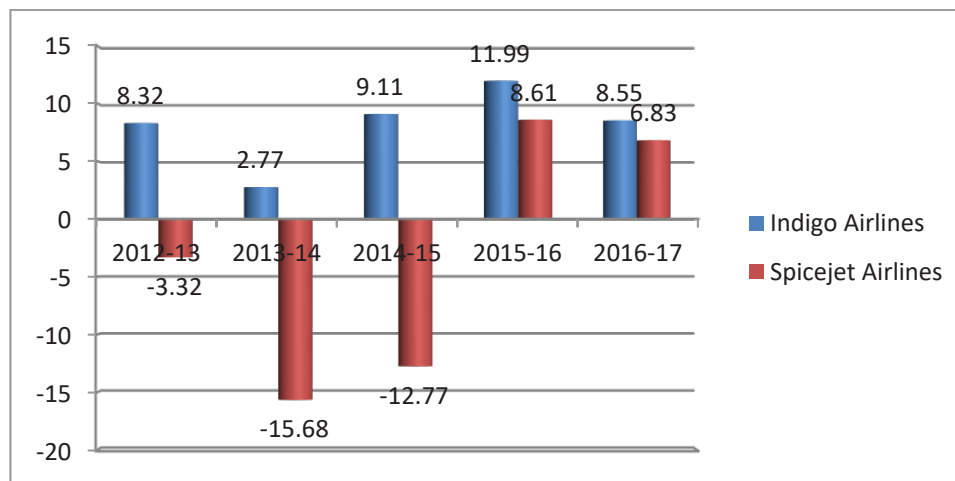


Fig. 1: Showing Trend in Profit Margin Ratio of IndiGo and SpiceJet

Asset Turnover Ratio: Investment in assets is the main and starting point of every company. Airlines have to invest huge amounts in purchasing fixed assets, and current assets are a part of the working capital,

without which the performance of operations will become impossible. This ratio helps in determining how effectively a company uses its assets to generate revenue.

Table 3: Showing Asset Turnover Ratio of IndiGo and SpiceJet

Companies \ Years	2012-13	2013-14	2014-15	2015-16	2016-17
IndiGo Airlines (in times)	1.93	1.51	1.44	1.40	1.37
SpiceJet Airlines (in times)	2.29	2.13	1.94	1.91	2.15

Source: Annual Reports of IndiGo and SpiceJet of respective years from their websites

Table 4: Showing Two-Tailed T-Test of Asset Turnover Ratio of IndiGo and SpiceJet

Companies	Ratio	Mean	Standard Deviation	Standard Error	T-Test Value	Table Value	P-Value	Accept and Reject Criteria
IndiGo Airlines	Asset Turn-over Ratio	1.53	0.230	0.115	4.4435	2.306	0.0022	4.4435 > 2.306 Hypothesis Rejected 0.0022 ≤ 0.025 Result is significant
SpiceJet Airlines		2.084	0.1581	0.0790				

Findings: As we know, the higher the ratio, the more effective the company. In this case, position of SpiceJet is better than IndiGo during all the years. This means that SpiceJet has generated more revenue per rupee of its total assets compared to IndiGo. As far as the hypothesis is concerned, the result reveals

that $4.4435 > 2.306$ (calculated value is greater than table value) and $0.0022 \leq 0.025$ [p-value is less than value of α (in the case of the two-tailed t-test, we will take $\alpha/2$ for calculation purpose, i.e. $0.05/2 = 0.025$)]. Therefore, the result is significant and the hypothesis is rejected.

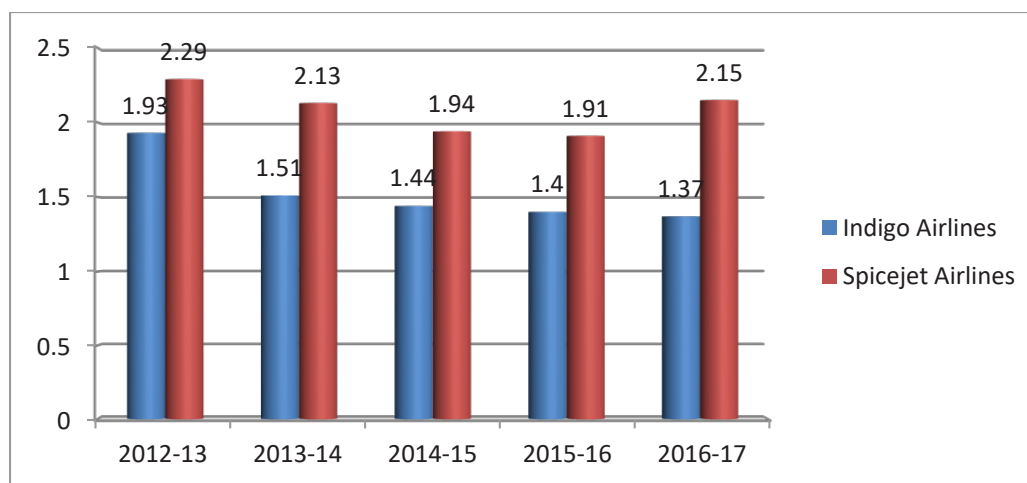


Fig. 2: Showing Trend in Asset Turnover Ratio of IndiGo and SpiceJet

Equity Multiplier Ratio: This ratio measures financial leverage. It compares average total assets to average total equity and indicates whether the company finances its assets from debt

or equity. A high equity multiplier indicates that the company is using more debt than equity to finance its assets. Higher the ratio, higher the financial burden on the company.

Table 5: Showing Equity Multiplier Ratio of IndiGo and SpiceJet

Companies \ Years	2012-13	2013-14	2014-15	2015-16	2016-17
IndiGo Airlines	10.73	16.08	23.99	10.55	5.03
SpiceJet Airlines	-13.56	-4.94	-2.46	-2.37	-3.54

Source: Annual Reports of IndiGo and SpiceJet of respective years from their websites

Table 6: Showing Two-Tailed T-Test of Equity Multiplier Ratio of IndiGo and SpiceJet

Companies	Ratio	Mean	Standard Deviation	Standard Error	T-Test Value	Table Value	P-Value	Accept and Reject Criteria
IndiGo Airlines	Equity Multiplier	13.276	7.151	3.576	-4.876	2.306	0.0012	4.876 > 2.306 Hypothesis Rejected 0.0012 ≤ 0.025 Result is significant
SpiceJet Airlines		-5.374	4.692	2.346	Or T 4.876			

Findings: As we know, higher the ratio, higher the financial burden on the company. This ratio is negative in the case of SpiceJet, because of its negative equity (due to heavy losses) during all the years, whereas it is positive in the case of IndiGo. However, the position is not satisfactory in the case of both the companies, thus indicating that both the companies are a financial burden. As far as the hypothesis is concerned, the result reveals

that $4.876 > 2.306$ (calculated value is greater than table value) and $0.0012 \leq 0.025$ [p-value is less than value of α (in the case of a two-tailed t-test, we will take $\alpha/2$ for calculation purpose, i.e. $0.05/2 = 0.025$)]. So, the result is significant and the hypothesis is rejected. (We are using two-tailed T test. Therefore, |T| modulus defines a real number regardless of its sign.)

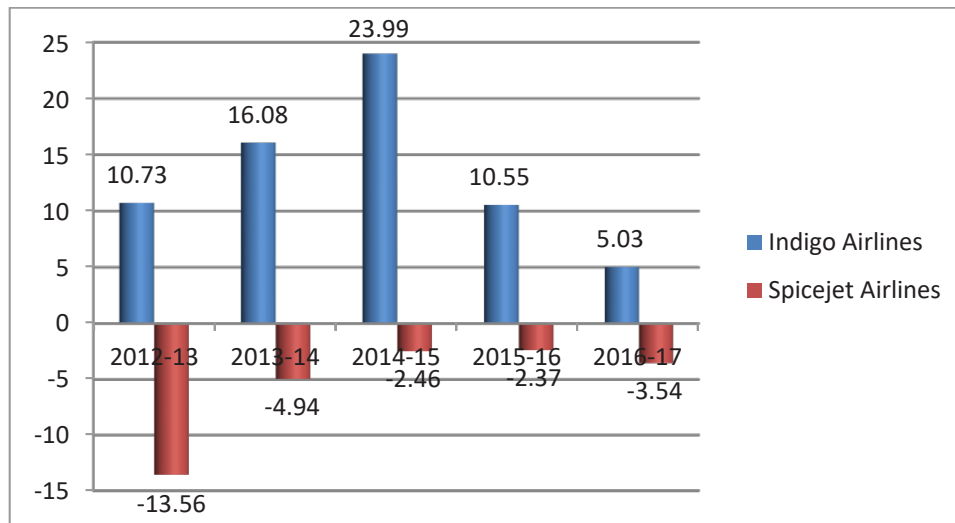


Fig. 3: Showing Trend in Equity Multiplier Ratio of IndiGo and SpiceJet

Return on Equity: Return on Equity = Profit Margin x Asset Turnover Ratio x Equity Multiplier. It measures the profitability of the concern. It

shows how much profit a company generates with the shareholders' money. Higher the ratio, better the profitability.

Table 7: Showing Return on Equity Ratio of IndiGo and SpiceJet

Companies \ Years	2012-13	2013-14	2014-15	2015-16	2016-17
IndiGo Airlines	172.30	67.26	314.71	177.09	58.92
SpiceJet Airlines	103.09	164.99	60.94	-38.97	-51.98

Source: Annual Reports of IndiGo and SpiceJet of respective years from their websites

Table 8: Showing Two-Tailed T-Test of Return on Equity Ratio of IndiGo and SpiceJet

Companies	Ratio	Mean	Standard Deviation	Standard Error	T-Test Value	Table Value	P-Value	Accept and Reject Criteria
IndiGo Airlines	Return on Equity	158.06	103.896	51.948	-1.773	2.306	0.1142	1.773 < 2.306 Hypothesis Accepted 0.1142 ≥ 0.025 Result is not significant
SpiceJet Airlines		47.614	92.801	46.400	Or T 1.773			

Findings: As we know, higher the ratio, better the profitability for the concern. In this case, the position of IndiGo is better than that of SpiceJet. IndiGo has incurred a profit in all the years, as shown in profit margin ratio, with positive equity in all the years. However, in the case of SpiceJet, the position is not good. SpiceJet has incurred losses in the first three years and a profit in the last two years, with negative equity during all the years. It is only because of mathematical calculations that we have found a positive return on equity in the first three years and a

negative return in the last two years, as shown in the annexure, in the case of SpiceJet. As far as the hypothesis is concerned, the result reveals that $1.773 < 2.306$ (calculated value is less than table value) and $0.1142 \geq 0.025$ [p-value is greater than value of α (in the case of a two-tailed t-test, we will take $\alpha/2$ for calculation purpose, i.e. $0.05/2 = 0.025$)]. Therefore, the result is significant and the hypothesis is rejected. (We are using a two-tailed T-test. So, |T| modulus defines a real number regardless of its sign.)

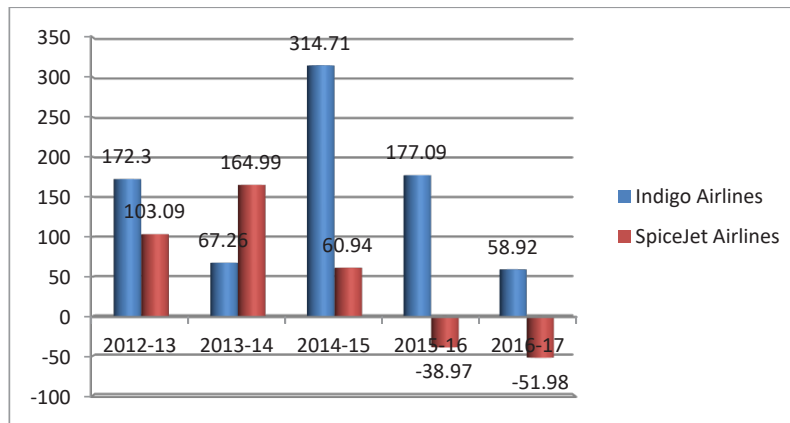


Fig. 4: Showing Trend in Return on Equity Ratio of IndiGo and SpiceJet

Summary of Findings

The ratio analysis has shown that the performance of IndiGo is much better compared to that of SpiceJet, except in the case of asset turnover ratio. SpiceJet is utilising its assets much better than IndiGo. However, in the case of other ratios, the position of SpiceJet is not satisfactory. It has incurred losses in the first three years of the time period under consideration, and has a negative equity during all the years. It needs great improvement. And as far as hypothesis is concerned, the following is a summary of the findings.

Ratios	Significance Level	Results
Profit Margin	There is no significant difference between the profit margin ratios of IndiGo and SpiceJet.	Null hypothesis has been accepted and alternative hypothesis has been rejected.
Asset Turn-over Ratio	There is significant difference between the asset turnover ratios of IndiGo and SpiceJet.	Null hypothesis has been rejected and alternative hypothesis has been accepted.
Equity Multiplier	There is significant difference between the equity multiplier ratios of IndiGo and SpiceJet.	Null hypothesis has been rejected and alternative hypothesis has been accepted.
Return on Equity	There is no significant difference between the return on equity ratios of IndiGo and SpiceJet.	Null hypothesis has been accepted and alternative hypothesis has been rejected.

Suggestions

The airlines industry is one of the fastest growing industries in India. It involves infrastructural development.

There are many airline companies in India, but for the purpose of this study, two companies have been taken into consideration, viz. IndiGo and SpiceJet. As far as financial performance is concerned, DuPont analysis is used for financial analysis. The results reveal that the performance of IndiGo is better than SpiceJet. The latter needs improvement in profitability. Return on equity is the main indicator of profitability, and SpiceJet has incurred losses in the first three years, and has a negative equity during all the years, which is bad. The company should try to earn profits; only then can it convert its negative equity into a positive one, making SpiceJet a growing organisation. As far as IndiGo is concerned, it needs improvement in asset turnover ratio and equity multiplier as a higher multiplier ratio indicates higher financial burden on the concern.

Concluding Remarks

To uplift the economy of the country, the infrastructural sector is required to be developed. With this in mind, the aviation sector must be given priority to attain sustainability. Therefore, the smooth and efficient operation of the aviation sector helps reduce the risk of failure of an economy. The performance of the aviation sector has always been a source of interest for researchers to judge the economic condition of the country. Towards this purpose, to know the financial condition of any sector or industry, the DuPont analysis is commonly used all over the world.

Limitations of the Study

The study is based on secondary data collected from a secondary data source, viz. the Internet and websites of

the companies under study. Therefore, the quality of the study depends on the accuracy, reliability, and quality of secondary data source. In addition, a time period of only five years has been researched.

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Annexure

Table 1: Profit and Loss Account of Inter Globe Aviation Ltd. or IndiGo Airlines for Relevant Years Ending in March (Rupees in Millions)

Particulars	2012	2013	2014	2015	2016	2017
Revenue						
Revenue from operations	55646.60	92,030.80	111,165.84	139,253.36	161,399.09	185,805.00
Other income	1,534.09	2552.34	3,304.39	3,945.83	4,613.93	7,890.70
	57,180.69	94,583.14	114,470.23	143,199.19	166,013.02	193,695.70
Expenses						
Aircraft fuel expenses	28,735.91	43,126.26	55,133.50	57,484.86	47,793.24	63,415.13
Aircrafts and engines rentals	8,007.15	13,561.48	16,703.14	19,522.38	26,121.52	31,253.73
Purchase of stock-in-trade	346.57	559.94	593.27	817.10	1,147.82	1,238.32
Change in inventories of stock	(6.83)	(18.65)	7.06	(31.72)	(11.32)	(2.94)
Employee benefits	5,218.07	6,972.33	9,289.40	11,886.91	17,899.23	20,481.90
Finance costs	514.27	578.01	1,225.77	1,155.32	1,348.53	3,307.80
Depreciation and amortisation	665.23	856.20	2,260.08	3,022.14	5,030.79	4,572.53
Other expenses	13,061.28	19,015.34	24,480.46	30,876.97	38,393.71	47,985.83
	56,541.65	84,650.91	109,692.68	124,733.96	137,723.52	172,252.30
Profit before tax (charge)/benefit	639.04	9,932.23	4,777.55	18,465.23	28,289.50	21,443.40
Tax(charge)/benefit						
Current tax						
Current period						
Minimum alternate tax (MAT)	---	---	---	---	(7,303.93)	(4,911.51)
Current period						
Less: MAT credit entitlement	(55.89)	(1,936.06)	(938.63)	(3,889.77)	---	---
Less: MAT recoverable written off	55.89	1,079.55	938.63	2,014.85	---	---
Deferred tax credit/(charge)	---	---	(1,602.03)	---	---	---
Profit for the year	639.72	(1,202.25)	(5.61)	(3,548.59)	(1,088.37)	59.99
Other comprehensive income for the year (Net of Tax)	1278.76	7,873.47	3,169.91	13,041.72	19,897.20	16,591.88
	---	---	---	---	---	(21.72)
Total comprehensive income for the years	1278.76	7,873.47	3,169.91	13,041.72	19,897.20	16,570.16

Source: Annual reports of Inter Globe Aviation Ltd.

Table 2: Balance Sheet of Inter Globe Aviation Ltd. or IndiGo Airlines of Relevant Years Ending in March (Rupees in Millions)

<i>Particulars</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>
EQUITY AND LIABILITIES						
Shareholder's funds						
Share capital	343.72	343.72	343.72	343.72	3,603.57	3,614.68
Reserves and surpluses	3,483.09	4,980.15	3,732.58	3,863.23	14,739.20	34,177.49
	3,826.81	5,323.87	4,076.30	4,206.95	18,342.77	37,792.17
Non-current liabilities						
Long-term borrowings	9,055.48	16,173.32	30,807.40	35,884.02	29,498.61	23,957.08
Deferred tax liability (net)	---	537.15	542.76	4,091.35	5,179.72	1,618.06
Other long-term liabilities	2,793.79	7,234.82	12,957.85	20,169.51	24,722.47	22,760.34
Long-term provisions	158.31	231.64	368.32	522.91	810.64	1,223.94
Deferred incentives	8,748.39	11,677.54	13,654.32	13,317.44	11,778.16	16,899.90
	20,755.97	35,854.47	58,330.65	73,985.23	71,989.60	66,459.32
Current liabilities						
Short-term borrowings	305.58	814.34	---	---	---	---
Trade payables	1,793.39	2,797.41	3,935.38	4,754.75	7,412.28	7,745.94
Other current liabilities	8,149.01	11,383.29	16,149.40	19,007.99	21,509.21	34,495.28
Short-term provisions	153.23	307.85	4,645.06	1,528.51	6,883.18	667.06
Deferred incentives	3,055.37	3,626.58	3,878.42	4,199.02	4,054.07	4,937.83
	13,456.58	18,929.47	28,608.26	29,490.27	39,858.74	47,846.11
TOTAL	38,039.36	60,107.81	91,015.21	107,682.45	130,191.11	152,097.60
ASSETS						
Non-current assets						
Fixed assets						
Tangible fixed assets	8,813.12	17,547.89	39,407.20	48,664.02	46,755.15	37,474.72
Intangible fixed assets	46.99	96.70	152.46	96.37	282.05	482.52
Capital work in progress	---	68.47	---	4.53	237.34	233.03
	8,860.11	17,713.06	39,559.66	48,764.92	47,274.54	38,190.27
Deferred tax assets (net)	665.10	---	---	---	---	---
Non-current investments	---	0.35	0.47	0.46	0.25	0.28
Long-term loans & advances	4,541.84	6,829.86	7,992.91	1,1181.34	11,930.62	15,796.65
Other non-current assets	885.30	4,857.72	14,315.23	16,055.60	14,977.84	3,646.34
Current assets	6,092.24	11,687.93	22,308.61	27,237.40	26,908.71	19,443.27
Current investments	5,234.18	11,383.42	12,714.84	5,167.52	9,741.20	37,134.10
Inventories	373.88	522.75	672.86	1,305.54	1,267.20	1,631.50
Trade receivables	389.20	685.22	891.22	1,045.50	1,571.14	1,587.02
Cash & bank balances	13,088.26	13,405.88	11,015.33	1,9993.80	37,186.70	46,325.35
Short-term loans & advances	3,179.45	3,586.59	2,231.34	1,555.61	2,248.75	4,140.86
Other current assets	822.04	1,122.96	1,621.35	2,612.16	3,992.87	3,645.23
	23,087.01	30,706.82	29,146.94	31,680.13	56,007.86	94,464.06
TOTAL	38,039.36	60,107.81	91,015.21	107,682.45	130,191.11	152,097.60

Source: Annual reports of Inter Globe Aviation Ltd.

Table 3: Calculation of Ratios of IndiGo Airlines

Ratios Years	Profit Margin Ratio = Net Income Net Sales or Revenue	Asset Turnover Ratio = Net Sales or Revenue Average Total Assets	Equity Multiplier Ratio = Average Total Assets Average Equity	Return on Equity Ratio= Profit Margin Ratio x Asset Turnover Ratio x Equity Multiplier Ratio
2012-13	$\frac{7873.47}{94583.14} \times 100$ = 8.32%	$\frac{94583.14}{38039.36+60107.81}$ 2 = 1.93	$\frac{38039.36+60107.81}{2}$ $\frac{3826.81+5323.87}{2}$ = 10.73	8.32 x 1.93 x 10.73 = 172.30
2013-14	$\frac{3169.91}{114470.23} \times 100$ = 2.77%	$\frac{114470.23}{60107.81+91015.21}$ 2 = 1.51	$\frac{60107.81+91015.21}{2}$ $\frac{5323.87+4076.30}{2}$ = 16.08	2.77 x 1.51 x 16.08 = 67.26
2014-15	$\frac{13041.72}{143199.19} \times 100$ 9.11%	$\frac{143199.19}{91015.21+107682.45}$ 2 = 1.44	$\frac{91015.21+107682.45}{2}$ $\frac{4076.30+4206.95}{2}$ = 23.99	9.11 x 1.44 x 23.99 = 314.71
2015-16	$\frac{19897.20}{166013.02} \times 100$ = 11.99%	$\frac{166013.02}{107682.45+130191.11}$ 2 = 1.40	$\frac{107682.45+130191.11}{2}$ $\frac{4206.95+18342.77}{2}$ = 10.55	11.99 x 1.40 x 10.55 = 177.09
2016-17	$\frac{16570.16}{193695.70} \times 100$ = 8.55%	$\frac{193695.70}{130191.11+152097.60}$ 2 = 1.37	$\frac{130191.11+152097.60}{2}$ $\frac{18342.77+37792.17}{2}$ = 5.03	8.55 x 1.37 x 5.03 = 58.92

Table 4: Profit and Loss Account of SpiceJet Ltd. for Relevant Years Ending in March (Rupees in Millions)

<i>Particulars</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>
Income						
Revenue from operations	39,432.62	56,006.78	63,042.33	52,015.25	50,880.72	61,912.66
Other revenue	547.10	1,618.03	943.60	1,803.05	1,309.35	801.34
	39,979.72	57,624.81	63,985.93	53,818.30	52,190.07	62,714.00
Expenses						
Operating expenses	37,079.00	48,104.77	60,081.98	48,057.59	35,941.02	44,325.14
Employee benefit expenses	4,028.72	5,267.99	5,756.95	5,374.66	4,924.51	6,735.39
Selling expenses	2,704.20	2,791.45	3,521.47	2,793.61	1,637.05	2,092.90
Other expenses	1,604.35	1,805.33	2,193.82	2,371.65	3,003.19	3,326.42
	45,416.27	57,969.54	71,554.22	58,597.51	45,505.77	56,479.85
Earnings before interest, tax, depreciation and amortisation	(5,436.55)	(344.73)	(7,568.29)	(4,779.21)	6,684.30	6,234.15
Depreciation and amortisation	(309.98)	(835.45)	(1,482.60)	(1,266.25)	(1,798.07)	(1,986.05)
Interest income on bank deposit	211.42	426.60	384.60	196.76	211.21	324.04
Finance costs	(522.57)	(1,157.18)	(1,366.15)	(1,635.39)	(1,236.50)	(650.40)
Profit / (Loss) for the years before extraordinary items	(6,057.68)	(1,910.76)	(10,032.44)	(7,484.09)	3,860.94	3,921.74
Extraordinary items	---	---	---	613.55	636.94	385.54
Profit / (Loss) for the years	(6,057.68)	(1,910.76)	(10,032.44)	(6,870.54)	4,497.88	4,307.28
Other comprehensive loss	---	---	---	---	(5.47)	(21.22)
Total comprehensive income for the year	(6,057.68)	(1,910.76)	(10,032.44)	(6,870.54)	4,492.41	4,286.06

Source: Annual reports of SpiceJet Ltd.

Table 5: Balance sheet of SpiceJet Ltd. of Relevant Years Ending in March (Rupees in Millions)

<i>Particulars</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>
EQUITIES AND LIABILITIES						
Shareholder's funds						
Share capital	4,414.50	4,843.50	5,352.81	5,994.50	5,994.50	5,994.50
Reserves and surpluses	(5,886.82)	(7,223.63)	(15,880.61)	(22,144.67)	(16,383.13)	(12,085.43)
Money received against share warrants	---	135.68	---	---	---	---
Advance money received against securities issued	---	---	583.04	3,504.97	---	---
Non-current liabilities	(1,472.32)	(2,244.45)	(9,944.76)	(12,645.20)	(10,388.63)	(6,090.93)
Long-term borrowings						
Trade payables	6,504.35	14,299.62	12,362.83	11,198.65	9,209.22	7,759.84
Other long term liabilities	718.73	1,003.37	1,103.55	1,681.50	537.94	209.51
Long-term provisions	135.18	225.28	291.18	254.78	220.04	461.22
	84.68	116.76	160.22	152.95	2,634.02	2,897.25
Current Liabilities	7,442.94	15,645.03	13,917.78	13,287.88	12,601.22	11,327.82
Short-term borrowings						
Trade payables	2,050.00	2,481.52	2,800.00	2,985.92	1,050.00	2,522.45
Other current liabilities	4,701.27	6,887.01	10,515.09	10,105.22	7,209.87	5,845.15
Short-term provisions	6,915.83	7,886.79	12,068.99	8,979.23	14,310.26	14,886.67
	65.67	54.20	113.05	3,352.85	3,684.34	1,417.92
TOTAL	13,732.77	17,309.52	25,497.13	25,423.22	26,254.47	24,672.19
ASSETS	19,703.39	30,710.10	29,470.15	26,065.90	28,467.06	29,909.08
Non-current assets						
Fixed assets						
Tangible assets						
Intangible assets	8,496.65	17,925.45	18,728.45	17,114.38	16,265.49	16,188.79
Capital work in progress	5.47	9.77	38.19	23.87	10.10	9.02
Investments in subsidiaries	0.64	12.05	7.73	---	---	---
Long-term loans and advances	---	---	---	---	---	0.20
Non-current tax assets	4,701.32	2,279.04	3,335.56	2,314.47	3,342.00	3,108.07
Other non-current assets	---	---	---	---	292.77	211.54
	2,156.28	2,627.05	2,664.50	344.36	1,753.88	2,127.27
Current assets	15,360.36	22,853.36	24,774.43	19,797.08	21,664.24	21,644.89
Inventories						
Trade receivables	316.53	456.23	451.52	451.17	665.46	869.94
Cash and bank balances	204.09	1,050.32	1,557.35	1,216.76	433.74	617.69
Short-term loans and advances	2,359.07	2,170.82	50.56	235.84	1,059.02	2,011.65
Other current assets	1,334.57	1,905.04	1,057.28	4,138.06	1,848.33	3,195.45
	128.77	2,274.33	1,579.01	226.99	2,796.27	1,569.46
TOTAL	4,343.03	7,856.74	4,695.72	6,268.82	6,802.82	8,264.19
	19,703.39	30,710.10	29,470.15	26,065.90	28,467.06	29,909.08

Source: Annual reports of SpiceJet Ltd.

Table 6: Calculation of Ratios of SpiceJet Airlines

Ratios Years	Profit Margin Ratio = $\frac{\text{Net Income}}{\text{Net Sales or Revenue}}$	Asset Turnover Ratio = $\frac{\text{Net Sales or Revenue}}{\text{Average Total Assets}}$	Equity Multiplier Ratio = $\frac{\text{Average Total Assets}}{\text{Average Equity}}$	Return on Equity Ratio = Profit Margin Ratio x Asset Turnover Ratio x Equity Multiplier Ratio
2012-13	$\frac{(1910.76)}{57624.81} \times 100$ = -3.32%	$\frac{57624.81}{19703.39+30710.10}$ 2 = 2.29	$\frac{19703.39+30710.10}{2}$ $\frac{(1472.32)+(2244.45)}{2}$ = -13.56	-3.32 x 2.29 x -13.56 = 103.09
2013-14	$\frac{(10032.44)}{63985.93} \times 100$ = -15.68%	$\frac{63985.93}{30710.10+29470.15}$ 2 = 2.13	$\frac{30710.10+29470.15}{2}$ $\frac{(2244.45)+(9944.76)}{2}$ = -4.94	-15.68 x 2.13 x -4.94 = 164.99
2014-15	$\frac{(6870.54)}{53818.30} \times 100$ = -12.77%	$\frac{53818.30}{29470.15+26065.90}$ 2 = 1.94	$\frac{29470.15+26065.90}{2}$ $\frac{(9944.76)+(12645.20)}{2}$ = -2.46	-12.77 x 1.94 x -2.46 = 60.94
2015-16	$\frac{4492.41}{52190.07} \times 100$ = 8.61%	$\frac{52190.07}{26065.90+28467.06}$ 2 = 1.91	$\frac{26065.90+28467.06}{2}$ $\frac{(12645.20)+(10388.63)}{2}$ = -2.37	8.61 x 1.91 x -2.37 = -38.97
2016-17	$\frac{4286.06}{62714.00} \times 100$ = 6.83%	$\frac{62714.00}{28467.06+29909.08}$ 2 = 2.15	$\frac{28467.05+29909.08}{2}$ $\frac{(10388.63)+(6090.93)}{2}$ = -3.54	6.83 x 2.15 x -3.54 = -51.98

Note 1: Balance sheet Performa of IndiGo in 2017 is vast. Hence, some items are to be clubbed together. For example, in the asset side, intangible assets under development are clubbed with intangible assets, loans and other financial assets are clubbed with long-term loans and advances, and income tax assets are clubbed with other assets. Under current assets, loans and other financial assets are included in short-term loans and advances. And in the liability side, under non-current liabilities, other financial liabilities are included in other long-term liabilities, and under current liabilities, other financial liabilities and current tax liabilities are included in other current liabilities. Similar to IndiGo, some items in SpiceJet have also been clubbed together in the year 2017.

Note 2: IndiGo had 0.00% convertible preference shares of Rs.1,000 fully paid up from FY 2012, which are now converted into equity shares. The company is not paying any dividend to the shareholders. The value of these shares, therefore, are included in the shareholder's funds in these years because of their convertibility nature, and as shown in the schedules of the company's accounts. SpiceJet does not have preference shares.

Note 3: Return on Equity Ratio = Profit Margin Ratio x Asset Turnover Ratio x Equity Multiplier Ratio has to be taken into account. However, ROE can be calculated with the help of another formula, i.e. Net Income/Average Equity x 100. The results will be slightly different.